Standard
ATEX, mechanical Multiturn, optical | **Sendix 7063 (Shaft)** | **SSI / BiSS-C**

The Sendix 7063 absolute multiturn encoders offer Ex protection in a compact 70 mm seawater resistant housing, with an SSI or BiSS-C interface and optical sensor technology.

These shock and vibration-resistant encoders operate flexibly with a resolution of up to 29 bits; they are also available with axial and radial cable outlets.

Ex approval | Mechanical drive | Safety-Lock™ | High rotational speed | High protection level | High shaft load capacity | Shock / vibration resistant | Magnetic field proof | Reverse polarity protection | Optical sensor | Seawater-resistant

Compact and safe

- Can be used even when space is tight
- Minimal installation depth, diameter 70 mm
- Compact cable outlet axial or radial
- Can be operated in marine environments – housing and flange manufactured from seawater-resistant aluminium
- Remains sealed even in harsh everyday use and ensures highest safety against field breakdowns (IP67 protection)

Explosion protection

- "Flameproof-enclosure" version
- ATEX with EC type examination certificate
- IECEx with Certificate of Conformity (CoC)

Order code Shaft version

8.7063	.	1	X	2	X	.	X	X	2	1	.	XXXX
Type		a	b	c	d		e	f	g	h		i 1)

a *Flange*
1 = clamping-synchronous flange, IP67, ø 70 mm [2.76"]

b *Shaft (ø x L)*
2 = 10 x 20 mm [0.39 x 0.79"], with flat
1 = 12 x 25 mm [0.47 x 0.98"], with keyway for 4 x 4 mm [0.16 x 0.16"] key

c *Interface / Power supply*
2 = SSI or BiSS-C / 10 … 30 V DC

d *Type of connection*
1 = axial cable, 2 m [6.56'] PUR
2 = radial cable, 2 m [6.56'] PUR
A = axial cable, length > 2 m [6.56']
B = radial cable, length > 2 m [6.56']
preferred length see **i**, e. g.: 0100 = 10 m [32.81']

e *Code*
B = SSI, Binary
C = BiSS-C, Binary
G = SSI, Gray

f *Resolution* [2]
A = 10 bit ST + 12 bit MT
1 = 11 bit ST + 12 bit MT
2 = 12 bit ST + 12 bit MT
3 = 13 bit ST + 12 bit MT
4 = 14 bit ST + 12 bit MT
7 = 17 bit ST + 12 bit MT

g *Inputs / Outputs* [2]
2 = SET, DIR input
additional status output

h *Options*
1 = no option

i *Cable length in dm* [1]
0050 = 5 m [16.40']
0100 = 10 m [32.81']
0150 = 15 m [49.21']

optional on request
- special cable length

Mounting accessory for shaft encoders		Order No.
Coupling	Bellows coupling ø 19 mm [0.75"] for shaft 10 mm [0.39"]	**8.0000.1101.1010**

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

1) Not applicable with connection types 1 and 2
1) Resolution, preset value and counting direction factory-programmable

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Technical data

Explosion protection ATEX

EC type-examination certificate	PTB09 ATEX 1106 X
Category (gas)	Ex II 2 G Ex d IIC T4 - T6 Gb
Category (dust)	Ex II 2D Ex tb IIIC T135°C - T85°C Db IP6x
Directive 94/9/EC	EN 60079-0: 2009; EN 60079-1: 2007; EN 60079-31: 2009

Explosion protection IECEx

Certificate of Conformity (CoC)	IECEx PTB 13.0026 X
Category (gas)	Ex d IIC T4 - T6 Gb
Category (dust)	Ex tb IIIC T135°C - T85°C Db IP6x
IECEx	IEC 60079-0:2007; IEC 60079-1:2007; IEC 60079-31:2008

Mechanical characteristics

Max. speed		continuous 6 000 min^{-1}
Starting torque – at 20°C [68°F]		< 0.05 Nm
Moment of inertia		4.0 x 10^{-6} kgm^2
Load capacity of shaft	radial	80 N
	axial	40 N
Weight		approx. 1.3 kg [45.86 oz]
Protection acc. to EN 60529		IP67
Working temperature range		-40°C ... +60°C [-40 ... +140°F]
Materials	shaft	stainless steel
	flange / housing	seawater-resistant Al, type AlSiMgMn (EN AW-6082) stainless steel on request
	cable	PUR
Shock resistance acc. EN 60068-2-27		2500 m/s^2, 6 ms
Vibration resistance acc. EN 60068-2-6		100 m/s^2, 55 ... 2000 Hz

Electrical characteristics

Power supply	10 ... 30 V DC
Current consumption (no load)	max. 45 mA
Reverse polarity protection for power supply (+V)	yes
Short-circuit proof outputs	yes[1)]
CE compliant acc. to	EMC guideline 2004/108/EC ATEX guideline 94/9/EC
RoHS compliant acc. to	guideline 2002/95/EC

DIR input

A HIGH signal switches the direction of rotation from the default CW to CCW. The reverse function can also be factory-programmed.

If DIR is reversed when the device is already switched on, this will be interpreted as an error. The status output switches to LOW.

Power-ON delay

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

SSI interface

Output driver		RS485 transceiver type
Permissible load/channel		max. 20 mA
Signal level	HIGH	typ 3.8 V
	LOW at I_{Load} = 20 mA	typ 1.3 V
Singleturn resolution		10…14 bit and 17 bit [2)]
Number of revolutions		4096 (12 bit)
Code		Binary or Gray
SSI clock rate	ST resolution ≤ 14 bit	50 kHz ... 2 MHz
	ST resolution ≥ 15 bit	50 kHz ... 125 kHz
Monoflop time		< 15 µs [2)]

Note: if clock starts cycling within monoflop time a second data transfer starts with the same data. If clock starts cycling after monoflop time, the data transfer starts with updated values. The update rate depends on clock speed, data length and monoflop time.

Data refresh rate	ST resolution ≤ 14 bit	< 1 µ
	ST resolution ≥ 15 bit	< 4 µs
Status and parity bit		on request

BiSS-C interface

Singleturn resolution	10 ... 14 bit and 17 bit [2)]
Number of revolutions	4096 (12 bit)
Code	Binary
Clock rate	up to 10 MHz
Max. update rate	< 10 µs, depends on the clock rate and the data length
Data refresh rate	≤ 1 µs

Note:
– Bidirectional, factory programmable parameters are: resolution, code, direction, alarms and warnings
– CRC data verification

SET input

Input		HIGH active
Input type		Comparator
Signal level (+V = Power supply)	HIGH	min. 60 % of +V
		max. +V
	LOW	max. 25 % of +V
Input current		< 0.5 mA
Min. pulse duration (SET)		10 ms
Timeout after SET signal		14 ms
Response time (DIR input)		1 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 delay time of approximately 1 ms. Once the SET function has been triggered, the encoder requires an internal processing time of approximately 15 ms before the new position data can be read.

Status output

Output driver		Open Collector, internal pull-up resistor 22 kOhm
Permissible load		max. 20 mA
Signal level	HIGH	+V
	LOW	< 1 V
Active at		LOW

The status output serves to display various alarm or error messages. The status output is HIGH (Open Collector with internal pull-up 22k) in normal operation.

1) Short-circuit with 0 V or output, only one channel at a time, power supply correctly applied
2) Other options on request

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Terminal assignment

Interface	Type of connection	Features	Cable (isolate unused wires individually before initial start-up)										
			Signal:	0 V	+V	C+	C-	D+	D-	SET	DIR	Stat	⏚	⏚
2	1, 2, A, B	SET, DIR	Cable Marking:	1	2	3	4	5	6	7	8	9	YE/GN	shield

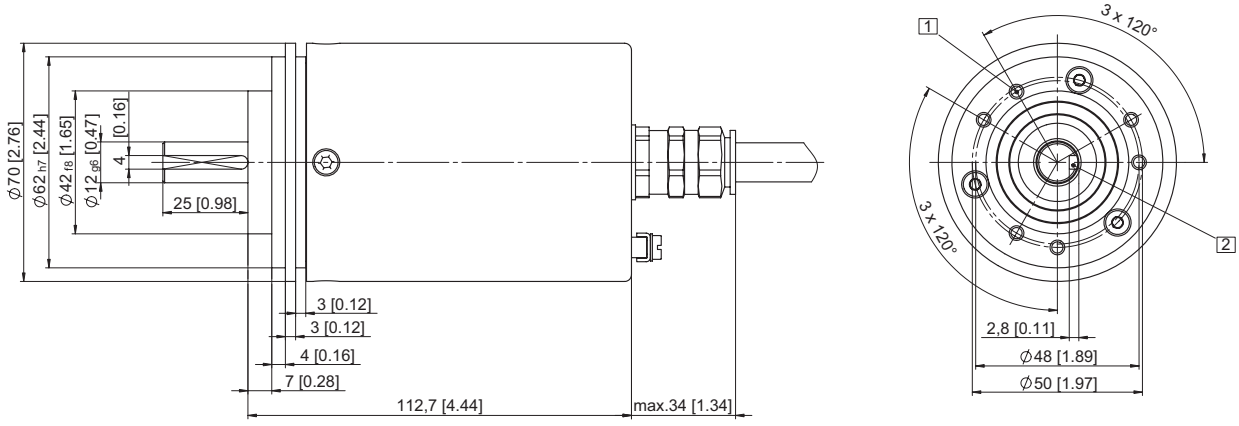
+V: Encoder power supply +V DC
0 V: Encoder power supply ground GND (0 V)
C+, C-: Clock signal
D+, D-: Data signal
SET: Set input. The current position becomes defined as position zero.
DIR: Direction input: If this input is active, output values are counted backwards (decrease) when the shaft is turning clockwise.
Stat: Status output
⏚: Protective earth

Dimensions

Dimensions in mm [inch]

Clamping-synchronous flange, ø 70 [2.76]
Shaft type 1 with axial cable outlet

1 6 x M4, 10 [0.39] deep
2 Keyway for DIN 6885-A-4x4x25 key



Clamping-synchronous flange, ø 70 [2.76]
Shaft type 2 with radial cable outlet

1 6 x M4, 10 [0.39] deep