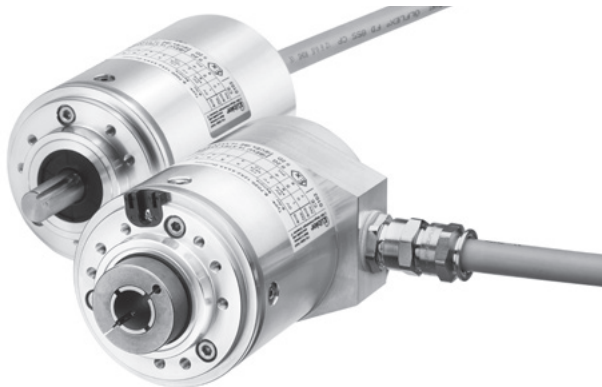


Absolute encoders – multiturn

Standard, ATEX/IECEX – zone 1/21 mechanical multiturn, optical	Sendix 7068 / 7088 (shaft / hollow shaft)	PROFIBUS DP
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The Sendix 7068 / 7088 absolute multiturn encoders offer Ex protection in a compact 70 mm seawater durable aluminum housing, with a Profibus interface and optical sensor technology.

These shock and vibration-resistant encoders operate flexibly with a resolution of up to 28 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 durable

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 durable aluminum.
- 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).

 Absolute encoders
multiturn

Order code	8.7068	. 1 X 3 X . 31 11 . XXXX				
Shaft version	Type	a b c d e f ¹⁾				
a Flange	1 = clamping / synchronous flange, IP67, ø 70 mm [2.76"]	d Type of connection				
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	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']				
c Interface / power supply	3 = PROFIBUS DP V0 / 10 ... 30 V DC	e Fieldbus profile				
		31 = PROFIBUS DP V0 encoder profile class 2				
		f Cable length in dm ¹⁾				
		0050 = 5 m [16.40'] 0100 = 10 m [32.81'] 0150 = 15 m [49.21']				
		<i>Optional on request</i>				
		- special cable length - IP65 version for T6 - seawater resistant (stainless steel V4A)				
		<i>Stainless steel V4A as standard types (deliverable as from 1 unit)</i>				
		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center; padding: 2px;">V4A</td> <td style="padding: 2px;">8.7068.1231.3111.V4A</td> </tr> <tr> <td style="text-align: center; padding: 2px;">1.4404</td> <td style="padding: 2px;">8.7068.123A.3111.XXXX-V4A</td> </tr> </table>	V4A	8.7068.1231.3111.V4A	1.4404	8.7068.123A.3111.XXXX-V4A
V4A	8.7068.1231.3111.V4A					
1.4404	8.7068.123A.3111.XXXX-V4A					

1) Not applicable with connection types 1 and 2.

Absolute encoders – multiturn

**Standard, ATEX/IECEX – zone 1/21
mechanical multiturn, optical**

Sendix 7068 / 7088 (shaft / hollow shaft)

PROFIBUS DP

**Order code
Hollow shaft**

8.7088 . **XX3X** . **3111** . **XXXX**
Type **a** **b** **c** **d** **e** **f** ¹⁾

a Flange
1 = with spring element, short
5 = with stator coupling, IP67, ø 65 mm [2.56"]

b Blind hollow shaft
(insertion depth max. 41.5 mm [1.63"])
1 = ø 12 mm [0.47"]
2 = ø 14 mm [0.55"]

c Interface / Power supply
3 = PROFIBUS DP V0 / 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']

e Fieldbus profile
31 = PROFIBUS DP V0 encoder profile class 2

f 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
- IP65 version for T6
- seawater resistant (stainless steel V4A)

*Stainless steel V4A as standard types
(deliverable as from 1 unit)*

V4A
1.4404
8.7088.1231.3111.V4A
8.7088.123A.3111.XXXX-V4A

Mounting accessory for shaft encoders

Order no.

Coupling

bellows coupling ø 19 mm [0.75"] for shaft 10 mm [0.39"]

8.0000.1102.1010

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.

Technical data

Explosion protection Sendix 7068

ATEX

EC type-examination certificate PTB09 ATEX 1106 X

Category (gas) II 2 G Ex d IIC T4 - T6 Gb

Category (dust) II 2 D Ex tb IIIC T135°C - T85°C Db

Relevant standards EN 60079-0:2012;
ATEX guideline 94/9/EC EN 60079-1:2014;
EN 60079-31:2009

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

Relevant standards IEC 60079-0:2011;
IEC 60079-1:2014;
IEC 60079-31:2008

Explosion protection Sendix 7088

ATEX

EU type-examination certificate IBEU 15 ATEX 1091 X

Category (gas) II 2 G Ex db IIC T4/120°C (T4)/T6 Gb

Category (dust) II 2 D Ex tb IIIC T135°C - T85°C Db

Relevant standards EN 60079-0:2012 + A11:2013;
ATEX guideline 2014/34/EU EN 60079-1:2014;
EN 60079-31:2014

IECEX

Certificate of Conformity (CoC) IECEX IBE 15.0020 X

Category (gas) Ex db IIC T4/120°C (T4)/T6 Gb

Category (dust) Ex tb IIIC T135°C - T85°C Db

Relevant standards IEC 60079-0:2011;
IEC 60079-1:2014;
IEC 60079-31:2013

Mechanical characteristics

Maximum speed shaft 6000 min⁻¹ (continuous)
hollow shaft 3000 min⁻¹ (continuous)

Starting torque – at 20°C [68°F] < 0.05 Nm

Mass moment of inertia 4.0 x 10⁻⁶ kgm²

Load capacity of shaft radial 80 N
axial 40 N

Weight approx. 1.5 kg [52.91 oz]

Protection acc. to EN 60529 IP67

Ambient temperature -40°C ... +60°C [-40 ... +140°F]
Please note the specifications for temperature class in EC type-examination certificate!

Material shaft stainless steel
flange / housing seawater durable Al,
type AlSiMgMn (EN AW-6082)
cable PUR

Shock resistance to EN/IEC 60068-2-27 2500 m/s², 6 ms

Vibration resistance to EN/IEC 60068-2-6 100 m/s², 55 ... 2000 Hz

Electrical characteristics

Power supply 10 ... 30 V DC

Current consumption (no load) max. 120 mA

Reverse polarity protection for power supply yes

CE compliant acc. to EMC guideline 2014/30/EU
RoHS guideline 2011/65/EU

EMC

Relevant standards EN 55011 class B:2009 / A1:2010
EN 61000-6-2:2005 / AC:2005
EN 61000-6-3:2007 / A1:2011
EN 61326-1:2013

Absolute encoders – multiturn

Standard, ATEX/IECEX – zone 1/21 mechanical multiturn, optical	Sendix 7068 / 7088 (shaft / hollow shaft)	PROFIBUS DP
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Interface characteristics PROFIBUS DP	
Resolution singleturn	1 ... 65536 (16 bit), scalable default: 8192 (13 bit)
Number of revolutions (multiturn)	1 ... 4096 (12 bit), scalable
Total resolution	1 ... 268.435.456 (28 bit), scalable default: 33.554.432 (25 bit)
Code	binary
Interface	specification according to PROFIBUS DP 2.0 / standard (DIN 19245 part 3) / RS485 driver galvanically isolated
Protocol	Profibus encoder profile V1.1 class 1 and class 2 with manufacturer-specific add-ons
Baud rate	maximum 12 Mbit/s
Device address	software controlled setting of the device address via the SSA-service with a CLASS 2-master, default address: 125
Termination	active termination can only be switched on externally

Profibus encoder profile V1.1

The PROFIBUS DP device profile describes the functionality of the communication and the manufacturer-specific component within the PROFIBUS fieldbus system. The encoder profile applies to encoders and defines the individual objects independently of the manufacturer. In addition, the profile makes provision for additional extended functions specific to the manufacturer. The use of PROFIBUS compatible devices ensures that the systems of today are ready to meet the demands of the future.

The following parameters can be programmed

- Direction of rotation.
- Scaling – number of steps per revolution.
- Preset value.
- Diagnostics mode.

The following functionality is integrated

- Galvanic isolation of the bus stage with DC/DC converter.
- Line driver acc. to RS485 max. 12 MB.
- Full class 1 and class 2 functionality.
- Speed value.

Terminal assignment

Interface	Type of connection	Cable (isolate unused wires individually before initial start-up)								
		Signal:	0 V	+V	PB_A IN	PB_B IN	BUS_GND	BUS_VDC	PB_A OUT	PB_B OUT
3	1, 2, A, B	Cable marking:	1	2	4	5	6	7	8	9

 Absolute encoders
multiturn

Absolute encoders – multiturn

**Standard, ATEX/IECEX – zone 1/21
mechanical multiturn, optical**

Sendix 7068 / 7088 (shaft / hollow shaft)

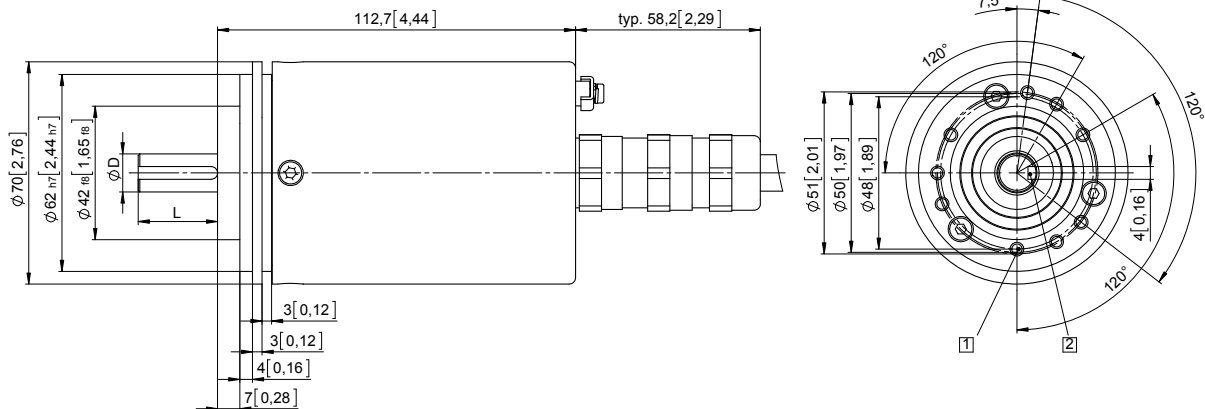
PROFIBUS DP

Dimensions shaft version

Dimensions in mm [inch]

Clamping / synchronous flange, \varnothing 70 [2.76]
Shaft type 1 with axial cable outlet

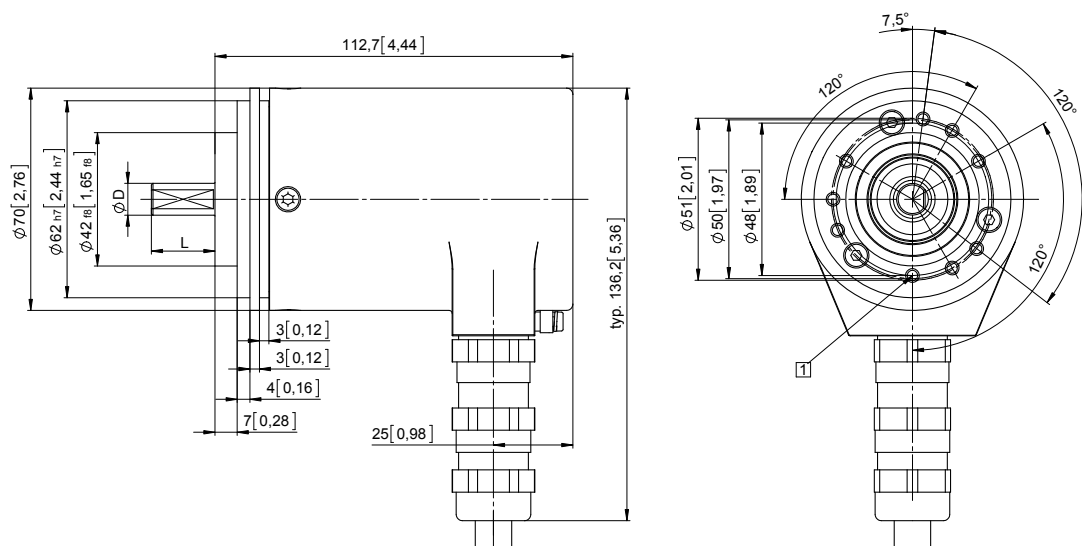
- 1 9 x M4, 10 [0.39] deep
- 2 Keyway for DIN 6885-A-4x4x25 key



D	Fit	L
12 [0.47]	g6	25 [0.98]

Clamping / synchronous flange, \varnothing 70 [2.76]
Shaft type 2 with radial cable outlet

- 1 9 x M4, 10 [0.39] deep



D	Fit	L
10 [0.39]	f7	20 [0.79]

