

Absolute encoders – multiturn

Standard electronic multiturn, optical

Sendix F5868 / F5888 (shaft / hollow shaft)

Modbus



The Sendix F58 multiturn with patented Intelligent Scan Technology™ is a particularly high resolution optical multiturn encoder without gears and with 100 percent magnetic insensitivity.

32 bits total resolution, through hollow shaft up to 15 mm and Modbus RTU interface.



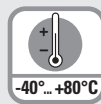
16 bit MT
Multiturn resolution



Safety-Lock™



High rotational speed



-40...+80°C
Temperature range



High protection level



High shaft load capacity



Shock / vibration resistant



Magnetic field proof



Reverse polarity protection



Intelligent Scan Technology™



Surface protection salt spray tested optional

Reliable and insensitive

- Sturdy bearing construction in Safety-Lock™ design for resistance against vibration and installation errors.
- Ideal for use outdoors thanks to IP67 protection and wide temperature range from -40°C up to +80°C.
- Patented Intelligent Scan Technology™ with all singleturn and multiturn functions on one single OptoASIC - offering the highest reliability, a high resolution up to 32 bits and 100 % magnetic field insensitivity.

Current Modbus performance

- Modbus register for configuration of the node address and baud rate.
- Scaling function.
- 32 bits total resolution (16 bit MT + 16 bit ST).
- Preset function.
- Diagnostic functions.
- Limit switch function.

Order code Shaft version

8.F5868 . XX6E . 61 1 2
Type

a Flange

- 1 = clamping flange, IP65 ø 58 mm [2.28"]
- 3 = clamping flange, IP67 ø 58 mm [2.28"]
- 2 = synchro flange, IP65 ø 58 mm [2.28"]
- 4 = synchro flange, IP67 ø 58 mm [2.28"]

b Shaft (ø x L), with flat

- 1 = 6 x 10 mm [0.24 x 0.39"]
- 2 = 10 x 20 mm [0.39 x 0.79"]
- 3 = 1/4" x 7/8"
- 4 = 3/8" x 7/8"

d Type of connection

E = 1 x radial M12 connector, 5-pin

e Fieldbus profile

61 = Modbus RTU Application Protocol V1.1b3

c Interface / power supply

6 = Modbus RTU, 10 ... 30 V DC

Optional on request

- Ex 2/22
- surface protection salt spray tested

Order code Hollow shaft

8.F5888 . XX6E . 61 1 2
Type

a Flange

- 1 = with spring element, long, IP65
- 2 = with spring element, long, IP67
- 3 = with stator coupling, IP65 ø 65 mm [2.56"]
- 4 = with stator coupling, IP67 ø 65 mm [2.56"]
- 5 = with stator coupling, IP65 ø 63 mm [2.48"]
- 6 = with stator coupling, IP67 ø 63 mm [2.48"]

b Through hollow shaft

- 3 = ø 10 mm [0.39"]
- 4 = ø 12 mm [0.47"]
- 5 = ø 14 mm [0.55"]
- 6 = ø 15 mm [0.59"]

d Type of connection

E = 1 x radial M12 connector, 5-pin

e Fieldbus profile

61 = Modbus RTU Application Protocol V1.1b3

c Interface / power supply

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Optional on request

- Ex 2/22
- surface protection salt spray tested

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Mounting accessory for shaft encoders			Order no.
Coupling	bellows coupling \varnothing 19 mm [0.75"] for shaft 6 mm [0.24"]		8.0000.1102.0606
	bellows coupling \varnothing 19 mm [0.75"] for shaft 10 mm [0.39"]		8.0000.1102.1010
Mounting accessory for hollow shaft encoders			Order no.
Cylindrical pin, long for flange with spring element (flange type 1 + 2)	Dimensions in mm [inch]		
	with fixing thread		8.0010.4700.0000
Connection technology			Order no.
Cordset, pre-assembled	M12 female connector with coupling nut for bus in, 5-pin 2 m [6.56'] PVC cable		05.00.6091.A211.002M
Connector, self-assembly (straight)	M12 female connector with coupling nut for bus in, 5-pin		8.0000.5116.0000

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	
Mechanical characteristics	
Maximum speed shaft version	
IP65 up to 70°C	12000 min ⁻¹ , 10000 min ⁻¹ (continuous)
IP65 up to T _{max}	8000 min ⁻¹ , 5000 min ⁻¹ (continuous)
IP67 up to 70°C	11000 min ⁻¹ , 9000 min ⁻¹ (continuous)
IP67 up to T _{max}	8000 min ⁻¹ , 5000 min ⁻¹ (continuous)
Maximum speed hollow shaft version	
IP65 up to 70°C	9000 min ⁻¹ , 6000 min ⁻¹ (continuous)
IP65 up to T _{max}	6000 min ⁻¹ , 3000 min ⁻¹ (continuous)
IP67 up to 70°C	8000 min ⁻¹ , 4000 min ⁻¹ (continuous)
IP67 up to T _{max}	4000 min ⁻¹ , 2000 min ⁻¹ (continuous)
Starting torque at 20°C [68°F]	IP65 < 0.01 Nm IP67 < 0.05 Nm
Mass moment of inertia	shaft version 3.0 x 10 ⁻⁶ kgm ² hollow shaft version 6.0 x 10 ⁻⁶ kgm ²
Load capacity of shaft	radial 80 N axial 40 N
Weight	approx. 0.45 kg [15.87 oz]
Protection acc. to EN 60529	
housing side	IP67
shaft side	IP65, opt. IP67
Working temperature range	-40°C ... +80°C [-40°F ... +176°F]
Material	shaft/hollow shaft stainless steel flange aluminum housing zinc die-cast
Shock resistance acc. to EN 60068-2-27	2500 m/s ² , 6 ms
Vibration resistance acc. to EN 60068-2-6	100 m/s ² , 55 ... 2000 Hz
Electrical characteristics	
Power supply	10 ... 30 V DC
Power consumption (no load)	max. 100 mA
Reverse polarity protection of the power supply	yes
UL approval	file no. E224618
CE compliant acc. to	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU
Diagnostic LED (two-color, red/green)	
LED ON or blinking	red error display green status display combination red / green error code
Interface characteristics Modbus	
Resolution singleturn	1 ... 65536 (16 bit), scalable default: 65536 (16 bit)
Number of revolutions (multiturn)	max. 65536 (16 bit) scalable only via the total resolution
Total resolution	1 ... 4.294.967.296 (32 bit), scalable
Interface	Modbus V1.02
Protocol	Modbus RTU V1.1b3
Baud rate	9600 ... 115200 kbit/s software configurable
Node address	1 ... 63 software configurable
Termination	software configurable

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Read holding register

Register	Data name
40257	Baud rate Number Data Parity Stopbits
40261	Comm Update
40262	Node Address
40263	Node Update
40264	Presetvalue
40266	Preset Update
40267	Count Direct
40268	Count Update
40269	Termination
40270	Term Update

Write holding register

Register	Data name
40275	Lower Limit
40276	Upper Limit
40277	Compare Activ
40278	MUR (MSB)
40279	MUR (LSB)
40280	TMR (MSB)
40281	TMR (LSB)
40282	Scaling Function
40283	Delay Prescaler

Modbus Communication Profile V 1.02

- Node address, baud rate and bus termination programmable.

Modbus Application Protocol V1.1b3

The following parameters can be programmed:

- 2 working areas with 2 upper and lower limits and the corresponding output states.
- Extended failure management for position sensing.
- User interface with visual display of bus and failure status.
- "Watchdog controlled" device.
- Extended diagnostic modes.

Terminal assignment

Interface	Type of connection	1 x M12 connector, 5-pin						
6	E Bus in	Signal:	0 V power supply	+V power supply	D0	D1	TG	
		Pin:	3	2	5	4	1	

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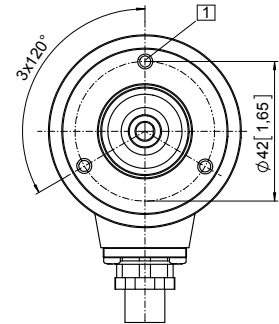
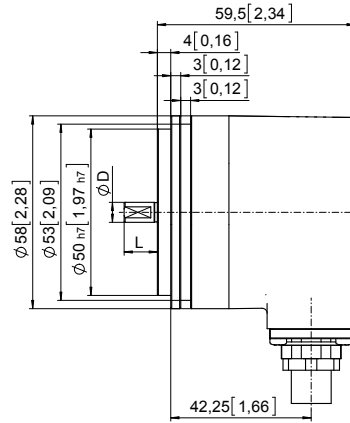
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Dimensions shaft version

Dimensions in mm [inch]

Synchro flange, \varnothing 58 [2.28] Flange type 2 and 4

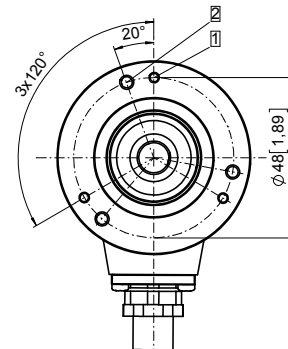
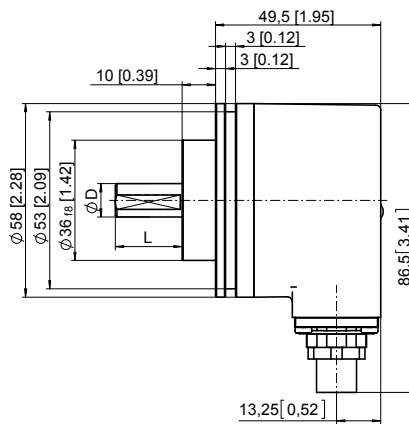
- ① 3 x M4, 6 [0.24] deep



D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
1/4"	h7	7/8"
3/8"	h7	7/8"

Clamping flange, \varnothing 58 [2.28] Flange type 1 and 3

- ① 3 x M3, 6 [0.24] deep
- ② 3 x M4, 8 [0.32] deep



D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
1/4"	h7	7/8"
3/8"	h7	7/8"

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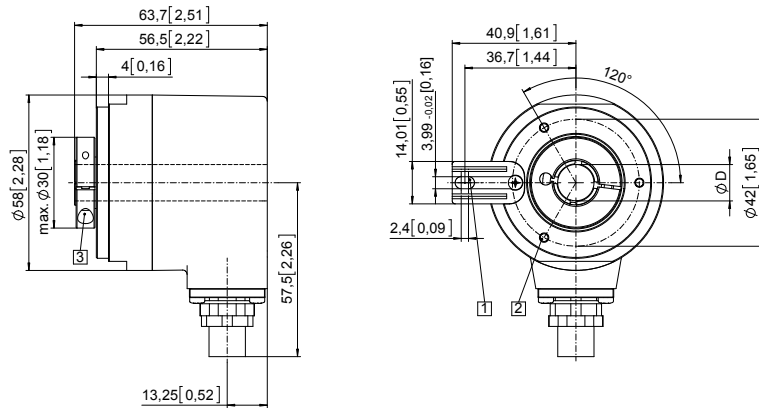
Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with spring element, long Flange type 1 and 2

- 1 Slot spring element, recommendation: cylindrical pin DIN 7, \varnothing 4 [0.16]
- 2 3 x M3, 6 [0.24] deep
- 3 Recommended torque for the clamping ring 0.6 Nm

D	Fit
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7



Flange with stator coupling, \varnothing 63 [2.48] Flange type 5 and 6

- 1 Recommended torque for the clamping ring 0.6 Nm

D	Fit
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7

