

Absolute encoders – singleturn

Standard optical	Sendix F5858 / F5878 (shaft / hollow shaft)	EtherNet/IP
-------------------------	--	--------------------



The Sendix F58 singleturn is a particularly high resolution optical encoder without gears and with 100 percent magnetic insensitivity.

16 bits total resolution, shaft up to 10 mm, blind hollow shaft up to 15 mm and certified EtherNet/IP functionality.



EtherNet/IP™



Safety-Lock™



High rotational speed



Temperature range
-40°C... +80°C



High protection level
IP65



High shaft load capacity



Shock / vibration resistant



Magnetic field proof



Reverse polarity protection



Optical sensor

Up-to-the-minute EtherNet/IP functionality

- Fast, easy commissioning and configuration possible thanks to cyclic services.
- Low RPI time, of 1 ms minimum – makes the encoder suitable for time-critical applications up to an update frequency of 1000 Hz.
- Faster encoder start after applying the power – increases plant performance.

Reliable and insensitive

- Sturdy bearing construction in Safety-Lock™ Design for resistance against vibration and installation errors.
- Thanks to the implementation of DLR (Device Level Ring) a single cable break does not lead to plant stoppage.
- Wide temperature range, -40°C ... +80°C.

Order code	8.F5858	.XXAN.	A222
Shaft version	Type	a b c d	e

a Flange

- 1 = clamping flange, IP65 ø 58 mm [2.28"]
- 2 = synchro flange, IP65 ø 58 mm [2.28"]
- 5 = square flange, IP65 □ 63.5 mm [2.5"]

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"

c Interface / Power supply

- A = EtherNet IP / 10 ... 30 V DC

e Fieldbus profile

- A2 = EtherNet/IP

d Type of connection

- N = 3 x axial M12 connector, 4-pin

Optional on request

- Ex 2/22

Order code	8.F5878	.XXAN.	A222
Hollow version	Type	a b c d	e

a Flange

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

b Blind hollow shaft

(insertion depth max. 30 mm [1.18"])

- A = ø 10 mm [0.39"]
- B = ø 12 mm [0.47"]
- C = ø 14 mm [0.55"]
- D = ø 15 mm [0.59"]
- E = ø 3/8"
- F = ø 1/2"

c Interface / Power supply

- A = EtherNet IP / 10 ... 30 V DC

e Fieldbus profile

- A2 = EtherNet/IP

d Type of connection

- N = 3 x axial M12 connector, 4-pin

Optional on request

- Ex 2/22

Absolute encoders – singleturn

Standard optical	Sendix F5858 / F5878 (shaft / hollow shaft)	EtherNet/IP
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)	Dimensions in mm [inch]	
	with fixing thread 	8.0010.4700.0000
Connection technology		Order no.
Cordset, pre-assembled	M12 male connector with external thread for port 1 and port 2, 4-pin 2 m [6.56'] PUR cable	05.00.6031.4411.002M
	M12 female connector with coupling nut for power supply, 4-pin 2 m [6.56'] PUR cable	05.00.6061.6211.002M
Connector, self-assembly (straight)	M12 male connector with external thread for port 1 and port 2, 4-pin	05.WACSY4S
	M12 female connector with coupling nut for power supply, 4-pin	05.B8141-0

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		
Max. speed shaft version	IP65 up to 70°C	8000 min ⁻¹ , 6000 min ⁻¹ (continuous)
	IP65 up to T _{max}	6000 min ⁻¹ , 4000 min ⁻¹ (continuous)
Max. speed hollow shaft version	IP65 up to 70°C	6000 min ⁻¹ , 4000 min ⁻¹ (continuous)
	IP65 up to T _{max}	4000 min ⁻¹ , 3000 min ⁻¹ (continuous)
Starting torque at 20°C [68°F]		< 0.01 Nm
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
Protection acc. to EN 60529		IP65
Working temperature range		-40°C ... +80°C [-40°F ... +176°F]
Material	shaft/hollow shaft	stainless steel
	flange housing	aluminum
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
Power consumption (no load)		max. 250 mA
Reverse polarity protection of the power supply (+V)		yes
UL approval		file no. E224618
CE compliant acc. to		EMC guideline 2014/30/EU RoHS guideline 2011/65/EU
Interface characteristics EtherNet/IP		
Resolution		1 ... 65.536 (16 bit), scalable default: 65.536 (16 bit)
Protocol		EtherNet/IP

Absolute encoders – singleturn

Standard optical	Sendix F5858 / F5878 (shaft / hollow shaft)	EtherNet/IP
-------------------------	--	--------------------

General information about EtherNet/IP

EtherNet/IP conformance tested acc. to version CT-12 of 11. Dez. 2014
 EtherNet/IP specification Vol 2, Ed 1.17
 CIP specification Vol 1, Ed 3.16

The following functionalities are integrated

Adjustable parameters

- Preset
- Count direction
- Resolution
- Unity of speed
- IP address
- Position
- Diagnosis
- Position limit
- Warning messages




Objects (CIP Objects)

- Identity Object
- Message Router
- Assembly Object
- Connection Manager
- Position Sensor Object
- Qos Object
- Port Object
- TCP / IP Interface Object
- EtherNet Link Object

EtherNet/IP features

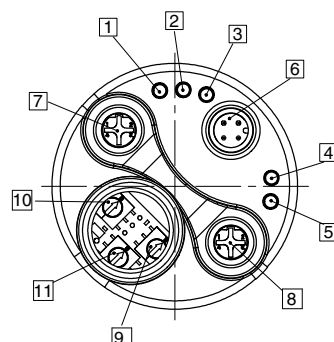
- DLR (Device Level Ring) possible
- Qos (Quality of Service) possible
- ACD (Address Conflict Detection)
- Multicast and unicast capability

Terminal assignment bus

Interface	Type of connection	Function	M12 connector, 4-pin					
A	N (3 x M12 connector)	Bus Port 1	Signal:	Transmit data+	Receive data+	Transmit data -	Receive data -	 D coded
			Abbreviation:	TxD+	RxD+	TxD-	RxD-	
			Pin:	1	2	3	4	
		Power supply	Signal:	Voltage +	–	Voltage –	–	
			Abbreviation:	+ V	–	0 V	–	
			Pin:	1	2	3	4	
		Bus Port 2	Signal:	Transmit data+	Receive data+	Transmit data -	Receive data -	 D coded
			Abbreviation:	TxD+	RxD+	TxD-	RxD-	
			Pin:	1	2	3	4	

Rear side connections and display elements

- 1 LED: Link 2
- 2 LED: Mod.
- 3 LED: Net.
- 4 LED: Encoder
- 5 LED: Link 1
- 6 Power
- 7 Port 2
- 8 Port 1
- 9 Switch: x1
- 10 Switch: x100
- 11 Switch: x10



Absolute encoders – singleturn

Standard optical

Sendix F5858 / F5878 (shaft / hollow shaft)

EtherNet/IP

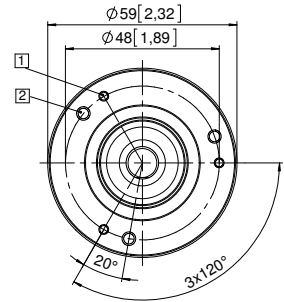
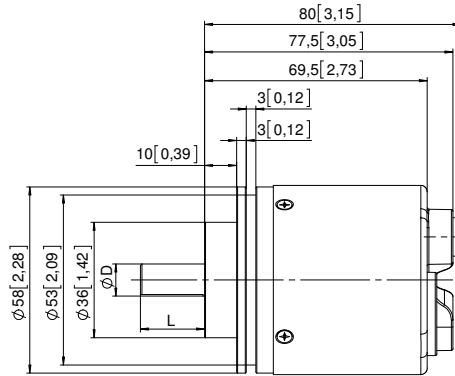
Dimensions shaft version

Dimensions in mm [inch]

Clamping flange, ø 58 [2.28]

Flange type 1

- 1 3 x M3, 6 [0.24] deep
- 2 3 x M4, 8 [0.31] deep

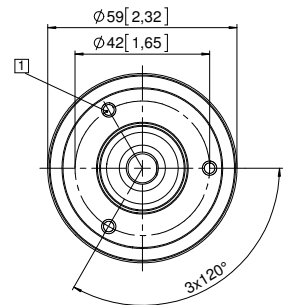
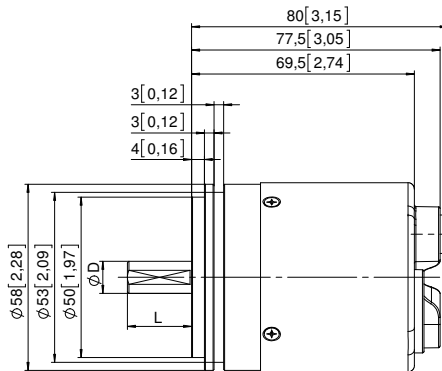


D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
1/4"	h8	7/8"
3/8"	h8	7/8"

Synchro flange, ø 58 [2.28]

Flange type 2

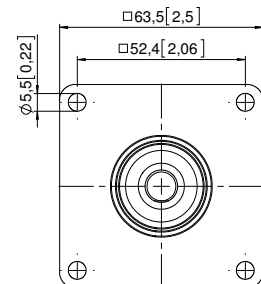
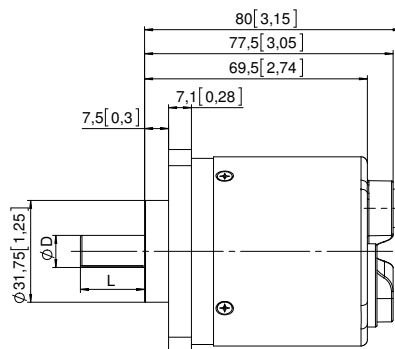
- 1 3 x M3, 6 [0.24] deep



D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
1/4"	h8	7/8"
3/8"	h8	7/8"

Square flange, □ 63.5 [2.5]

Flange type 5



D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
1/4"	h8	7/8"
3/8"	h8	7/8"

Absolute encoders – singleturn

Standard optical	Sendix F5858 / F5878 (shaft / hollow shaft)	EtherNet/IP
-------------------------	--	--------------------

Dimensions hollow shaft version

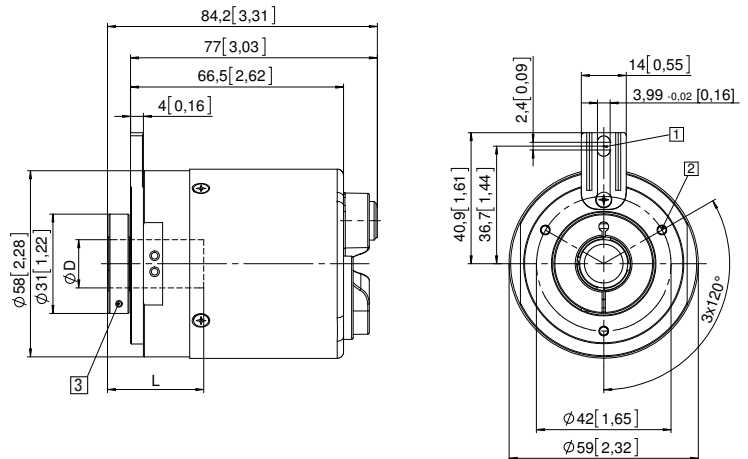
Dimensions in mm [inch]

Flange with spring element, long Flange type 1

- 1 Slot spring element, recommendation: cylindrical pin DIN 7, $\varnothing 4$ [0.16]
- 2 3 x M3, 5.5 [0.22] deep
- 3 Recommended torque for the clamping ring 0.6 Nm

D	Fit	L
10 [0.39]	H7	30 [1.18]
12 [0.47]	H7	30 [1.18]
14 [0.55]	H7	30 [1.18]
15 [0.59]	H7	30 [1.18]
3/8"	H7	30 [1.18]
1/2"	H7	30 [1.18]

L = insertion depth max. blind hollow shaft

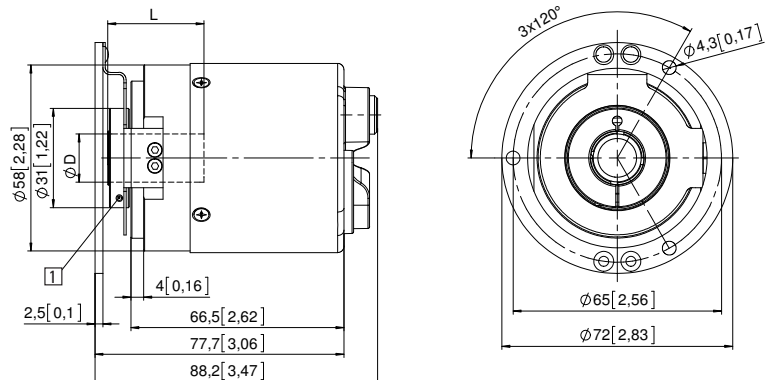


Flange with stator coupling, $\varnothing 65$ [2.56] Flange type 3

- 1 Recommended torque for the clamping ring 0.6 Nm

D	Fit	L
10 [0.39]	H7	30 [1.18]
12 [0.47]	H7	30 [1.18]
14 [0.55]	H7	30 [1.18]
15 [0.59]	H7	30 [1.18]
3/8"	H7	30 [1.18]
1/2"	H7	30 [1.18]

L = insertion depth max. blind hollow shaft



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

- 1 Recommended torque for the clamping ring 0.6 Nm

D	Fit	L
10 [0.39]	H7	30 [1.18]
12 [0.47]	H7	30 [1.18]
14 [0.55]	H7	30 [1.18]
15 [0.59]	H7	30 [1.18]
3/8"	H7	30 [1.18]
1/2"	H7	30 [1.18]

L = insertion depth max. blind hollow shaft

