

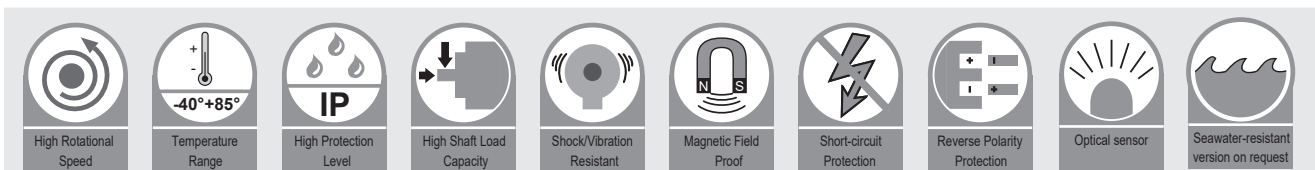
Absolute Encoders — Singleturn

Standard Optical SSI

52-58SX / 58HX



- 58 mm standard housing and flanges
- Singleturn resolution up to 16 bits
- With Preset and DIR function
- SSI interface, plus Incremental signal optional
- Wide temperature range -40°C ... +85°C
- Cathodic corrosion protection (>720 hrs salt sprayresistance)
- IP 67 optional



Highlight:

- Standard industrial housing and flanges
- Wide working temperature range
- SSI+Incremental optional

- Connection via cable, M12 or M23 connector
- With preset function, ease of maintenance and debugging
- Optical sensor technology, singleturn revolution up to 16 bits

Mechanical characteristics

Max. Speed	12000 rpm		
Starting torque	≤ 3 Ncm (at 20°C)		
Moment of inertia	≤ 30 gcm ²		
Shaft load capacity	Axial 40 N; Radial 110 N		
Weight	approx. 0.300 kg		
Protection acc. to EN 60 529	IP 65; optional IP 67		
Working temperature range	-40°C ... 85°C		
Materials	Shaft: Stainless steel (V2A) Flange: Aluminum or stainless steel Housing: Steel or stainless steel		
Shock resistance acc. to EN 60068-2-27	≤ 100 g (6 ms)		
Vibration resistance acc. to EN 60068-2-6	≤ 10 g (10 Hz ... 1000Hz)		
Mechanical lifetime (10 ⁸ revolutions with Fa/Fr)	40/60	40/80	40/110
	150	100	55

Interface characteristics SSI

Power supply	5 ... 30 VDC (with HTL output, at least 10V)
Current consumption	50 mA
Interface	SSI
Output driver	RS 422
Clock frequency	100 kHz ... 2 MHz
Monoflop time	> 25 μs
Start-up time	< 250 ms
Code	Gray / Binary
Singleturn resolution	Max. 16 bits
Function	Presettable ⁽¹⁾ ; Changable count direction ⁽²⁾
Short circuit protection	yes
Reverse polarity protection	yes
UL approval	E468583
CE compliant acc. to	EN 61000-6-4:2007-09; EN61000-6-2:2005

Optional incremental outputs (A/B/Z)

Output	RS-422	HTL
Resolution	1024, 2048, 4096, 8192, 16384 ppr	
Output channel	A, /A; B, /B; Z, /Z	
Type of output	90° ± 4.5° Square pulse	
Output frequency	Max. 200 kHz	
Signal level	high: Min. 2.5 V	Min. +U - 2 V
	Low: Max. 0.5 V	Max. 0.5 V
Short circuit protection	yes	yes

(1) The encoder can be set to zero at any position by means of a HIGH signal on the SET input. Once the SET function has been triggered, the encoder requires an internal processing time of typ. 300ms; during this time the power supply must not be switched off.

(2) The counter direction can be changed by means of a HIGH signal on the DIR input. If a LOW signal on the DIR input, output values are counted increase when the shaft is turning clockwise. And if a HIGH signal on the DIR input, output values are counted increase when the shaft is turning counter-clockwise.

EX characteristics

Standards	EN 60079-0:2012+A11:2013 EN 60079-7:2015 EN 60079-31:2014
Type	Ex II 3G Ex ec IIC T6...T4 Gc Ex II 3D Ex tc IIIC T85°C, T100°C, T135°C Dc

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52-58SX / 58HX

LED Status indication

2 LED status indicators can be built-in optionally.

GREEN: Power LED;

Lights up when encoder is powered up;

Turns off while SET buttons are pressed and turns on once the buttons are released.

RED: Lights Up as Alarm Indicator:

Measurement system degradation critical (encoder still working as intended) Memory failure in EEPROM Incorrect configuration data of the Opto-ASIC.



Set buttons

The SET buttons which has the same function as SET input is optional.

Operation mode:

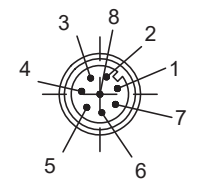
When the current value need to be set to 0, please press the SET button A and B at the same time, keep 1 second at least.

Abs. Encoder - ST

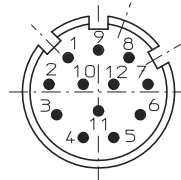
Terminal assignment

Signal	Ub	GND	+C	-C	+D	-D	SET	DIR	A	/A	B	/B	Z	/Z	Shield
Cable (Colour)	BN	WH	GN	YE	GY	PK	BU	RD	BK	VT	GY/PK	RD/BU	WH/GN	BN/GN	Shield
M12 connector, 8-pin	2	1	3	4	5	6	7	8	-	-	-	-	-	-	
M23 connector, 12-pin	2	1	3	4	5	6	7	8	9	10	11	12	-	-	
M23 connector, 16-pin	11	12	2	1	3	4	9	8	5	6	7	10	13	14	

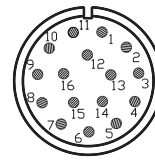
Top view of connector



M12 connector, 8-pin



M23 connector, 12-pin



M23 connector, 16-pin

Order Code

Shaft version

52-58SX-X X X X-G XX 00 X-XX

Type **h a b c d e f g i**

a Flange

- 1 = Clamping flange, IP65
- 2 = Clamping flange, IP67
- 3 = Synchro flange, IP65
- 4 = Synchro flange, IP67

b Shaft

- 2 = Ø 6 x 10 mm
- 5 = Ø10 x 20 mm

c Interface / Power supply *

- 2 = SSI / 5 ... 30 VDC
- 3 = SSI / 5 ... 30 VDC / RS422 1024 ppr
- 4 = SSI / 5 ... 30 VDC / HTL 1024 ppr
- 5 = SSI / 5 ... 30 VDC / RS422 2048 ppr
- 6 = SSI / 5 ... 30 VDC / HTL 2048 ppr
- 7 = SSI / 5 ... 30 VDC RS422 1024 ppr (with channel Z)
- 8 = SSI / 5 ... 30 VDC HTL 1024 ppr (with channel Z)
- 9 = SSI / 5 ... 30 VDC RS422 2048 ppr (with channel Z)
- A = SSI / 5 ... 30 VDC HTL 2048 ppr (with channel Z)

d Type of connection

- 1 = Axial cable, 1m
- 2 = Radial cable, 1m
- 6 = M23 connector, 12-pin,axial
- 7 = M23 connector, 12-pin,radial
- 3 = M12 connector, 8-pin,axial
- 5 = M12 connector, 8-pin,radial
- 8 = M23 connector, 16-pin,axial³⁾
- 9 = M23 connector, 16-pin,radial³⁾

e Code

- G = Gray
- B = Binary

f Singleturn resolution

- 12 = 12 bit
- 13 = 13 bit
- 16 = 16 bit

g Function

- 1 = No additional function
- 2 = With reset button LED indicator

i Type

- N = Industrial type
- S = Stainless steel type⁴⁾

Certification Type

- Blank = CE/UL
- EX = 2/22 Zone

* Other incremental pulses on request.

3) Only for interface/power supply type 8, type 9 or type A

4) Only for cable or M23 connector

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Standard Optical SSI

52-58SX / 58HX

Order Code
Hollow Shaft

52-58HX-X X X X-G XX 00 X-XX
Type **h a b c d e f g i**

a Flange

- 8 = With D-wing spring coupling, IP65
- 9 = With D-wing spring coupling, IP67

b shaft

- 4 = Ø 8 mm
- 5 = Ø 10 mm
- 6 = Ø 12 mm
- 7 = Ø 14 mm (blind hollow shaft)
- 8 = Ø 15 mm (blind hollow shaft)
- 3 = Ø 6 mm (blind hollow shaft)
- 9 = Ø 8 mm (blind hollow shaft)
- A = Ø 10 mm (blind hollow shaft)
- B = Ø 12 mm (blind hollow shaft)

c Interface / Power supply *

- 2 = SSI / 5 ... 30 VDC
- 3 = SSI / 5 ... 30 VDC / RS422 1024 ppr
- 4 = SSI / 5 ... 30 VDC / HTL 1024 ppr
- 5 = SSI / 5 ... 30 VDC / RS422 2048 ppr
- 6 = SSI / 5 ... 30 VDC / HTL 2048 ppr
- 7 = SSI / 5 ... 30 VDC
RS422 1024 ppr (with channel Z)
- 8 = SSI / 5 ... 30 VDC
HTL 1024 ppr (with channel Z)
- 9 = SSI / 5 ... 30 VDC
RS422 2048 ppr (with channel Z)
- A = SSI / 5 ... 30 VDC
HTL 2048 ppr (with channel Z)

d Type of connection

- 1 = Axial cable, 1m⁴⁾
- 2 = Radial cable, 1m
- 6 = M23 connector, 12-pin,axial⁴⁾
- 7 = M23 connector, 12-pin,radial
- 3 = M12 connector, 8-pin,axial⁴⁾
- 5 = M12 connector, 8-pin,radial
- 8 = M23 connector, 16-pin,axial³⁾⁴⁾
- 9 = M23 connector, 16-pin,radial³⁾

e Code

- G = Gray
- B = Binary

f Singleturn resolution

- 12 = 12 bit
- 13 = 13 bit
- 16 = 16 bit

g Function

- 1 = No additional function
- 2 = With reset button
LED indicator

h Materials

- N = Industrial type
- S = Stainless steel type⁵⁾

i Certification Type

- Blank = CE/UL
- EX = 2/22 Zone

* Other incremental pulses on request.

3) Only for interface/power supply type 8, type 9 or type A

5) Only for cable or M23 connector

4) Only for blind hollow shaft encoder

Accessories

Connection technology:

Connector, self-assembly

M12, 8-pin self-assembly
M23, 12-pin self-assembly

E1-1208-0101
E1-3212-0100

Mounting accessory for shaft version:

Coupling

Bellows coupling (aluminium alloy)
Ø 25mm for shaft 6 mm
Bellows coupling (spring steel)
Ø 25mm for shaft 10 mm

T1-6000-3025-0606
T1-2000-5025-1010

Mounting accessory for hollow shaft version:

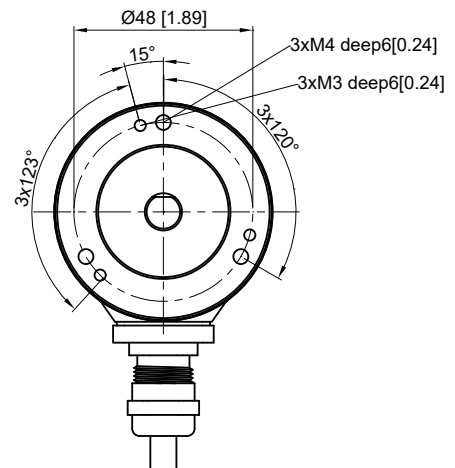
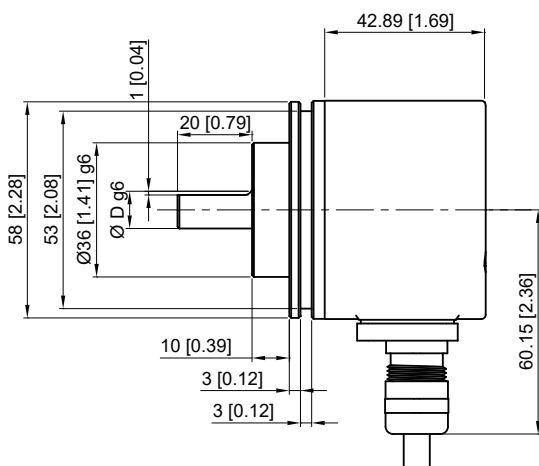
Stator coupling

Further accessories and exact order code
please refer to the accessories section.

Dimensions

Shaft encoder:

type of flange 1 or 2, type of shaft 5, type of connection 7

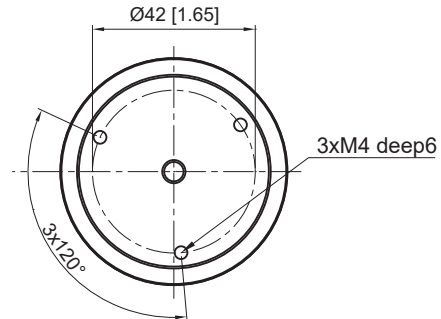
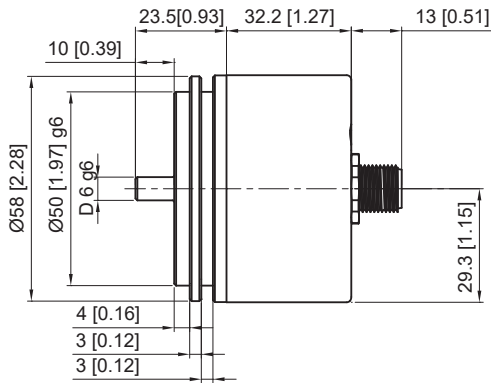


Absolute Encoders — Singleturn

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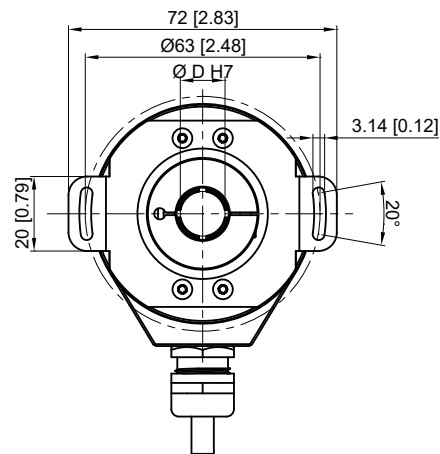
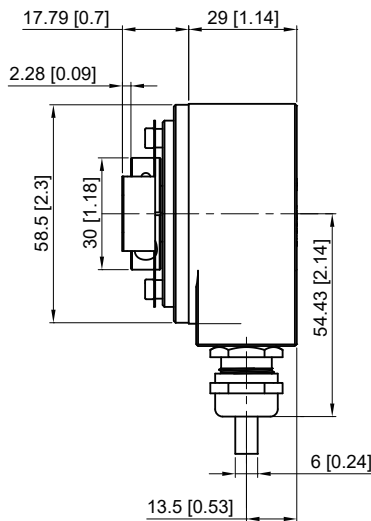
52-58SX / 58HX

type of flange 3 or 4 , type of shaft 2, type of connection 3

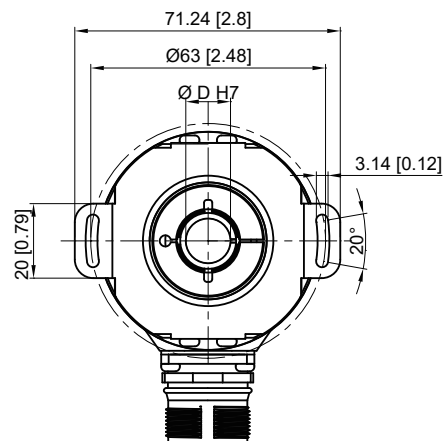
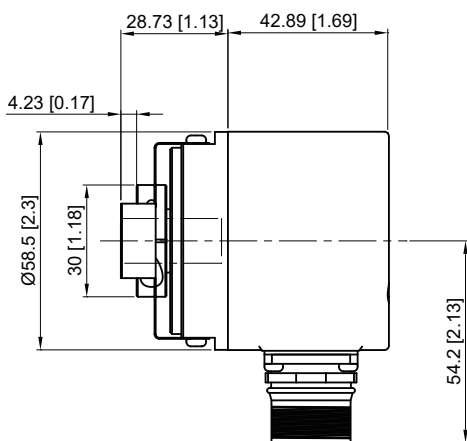


Hollow encoder:

type of flange 8 or 9 , hollow shaft, type of connection 2



type of flange 8 or 9 , Blind hollow shaft, type of connection 7 or 9



Blind hollow shaft depth 30 mm