

### Universal, Type 580X (Shaft) / 582X (Hollow shaft)



- Sturdy model to industry standard, ø58 mm housing
- Many variations, also customized versions
- Short-circuit proof outputs
- Reverse connection protection (at  $U_B = 10 \dots 30 \text{ V DC}$ )
- Highly flexible PUR-cable
- Resolution up to 36000 ppr
- High shaft load

#### Shaft/hollow shaft

- 5800/5820: Standard
- 5803/5823: High temperature up to 110 °C
- 5804/5824: Voltage sine wave outputs
- 5805: High resolution up to 36000 ppr
- 5826: Stainless steel housing

#### Mechanical characteristics:

Speed with seal:	Shaft version max. 12000 min <sup>-1</sup> Hollow shaft version <sup>5)</sup> max. 000 min <sup>-1</sup>
Speed without seal:	Hollow shaft version max. 12000 min <sup>-1</sup>
Rotor moment of inertia:	Shaft version approx. $1.8 \times 10^{-6} \text{ kgm}^2$ Hollow shaft version approx. $6 \times 10^{-6} \text{ kgm}^2$
Starting torque:	Shaft version < 0.01 Nm Hollow shaft version < 0.05 Nm
Radial load capacity of shaft*:	80 N
Axial load capacity of shaft*:	40 N
Weight:	approx. 0.4 kg
Protection acc. to EN 60 529:	IP 65, IP 66 for type 5826
EX approval for hazardous areas:	optional zone 2 and 22
Working temperature:	-20 °C ... +85 °C <sup>1)2)3)</sup> 5803/5823: -20 ... + 105 °C
Shaft:	stainless steel
Shock resistance acc. to DIN-IEC 68-2-27	1000 m/s <sup>2</sup> , 6 ms
Vibration resistance acc. to IEC 68-2-6:	100 m/s <sup>2</sup> , 10...2000 Hz

1) Constant flexing: -20 ... +70 °C

3) Hollow shaft version with seal: -20 ... +80 °C

2) Non-condensing

5) For continuous operation 3000 min<sup>-1</sup>, ventilated

#### Electrical characteristics RS422/Push-pull:

Output circuit:	RS 422 (TTL-compatible)	RS 422 (TTL-compatible)	Push-pull	Push-pull
Supply voltage:	5 V (±5%) or 10 ... 30 V DC	5 ... 30 V DC	10 ... 30 V DC	5 ... 30 V DC
Power consumption (no load) without inverted signal:	–	–	typ. 55 mA / max. 125 mA	typ. 55 mA / max. 125 mA
Power consumption (no load) with inverted signals:	typ. 40 mA / max. 90 mA	typ. 40 mA / max. 90 mA	typ. 80 mA/ max. 150 mA	typ. 80 mA/ max. 150 mA
Permissible load/channel:	max. ±20 mA	max. ±20 mA	max. ±30 mA	max. ±30 mA
Pulse frequency:	max. 300 kHz	max. 300 kHz	max. 300 kHz	max. 300 kHz
Signal level high:	min. 2.5 V	min. 2.5 V	min. $U_B - 2.5 \text{ V}$	min. $U_B - 1.5 \text{ V}$
Signal level low:	max. 0.5 V	max. 0.5 V	max. 2.0 V	max. 2.0 V
Rise time $t_r$	max. 200 ns	max. 200 ns	max. 1 µs	max. 1 µs
Fall time $t_f$	max. 200 ns	max. 200 ns	max. 1 µs	max. 1 µs
Short circuit proof outputs: <sup>1)</sup>	yes <sup>2)</sup>	yes <sup>2)</sup>	yes	yes
Reverse connection protection at $U_B$ :	5 V: no, 1 0 ... 30 V: yes	yes	yes	no
UL certified	File 224618			
Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3				
RoHS compliant acc. to EU guideline 2002/95/EG				

1) If supply voltage correctly applied

2) Only one channel allowed to be shorted-out:

(If  $U_B = 5 \text{ V}$ , short-circuit to channel, 0 V, or + $U_B$  is permitted)  
(If  $U_B = 5-30 \text{ V}$ , short-circuit to channel or 0 V is permitted)

**Universal, Type 580X (Shaft) / 582X (Hollow shaft)**
**Electrical characteristics sine wave output:**

Output circuit:	Sine wave U = 1 V <sub>pp</sub>	Sine wave U = 1 V <sub>pp</sub>
Supply voltage:	5 V (±5%)	10 ... 30 V DC
Current consumption (no load) with inverted signals:	typ. 65 mA / max. 110 mA	typ. 65 mA / max. 110 mA
-3 dB frequency:	≥ 180 kHz	≥ 180 kHz
Signal level channels A/B:	1 V <sub>pp</sub> (±20%)	1 V <sub>pp</sub> (±20%)
Signal level channel 0:	0.1 ... 1.2 V	0.1 ... 1.2 V
Short circuit proof outputs: <sup>1)</sup>	yes yes	
Reverse connection protection at UB:	no	yes
UL certified	File 224618	
Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3		
RoHS compliant acc. to EU guideline 2002/95/EG		

<sup>1)</sup> If supply voltage correctly applied

**Terminal assignment**

Signal:	0V	0V Sensor <sup>2)</sup>	+U <sub>B</sub>	+U <sub>B</sub> Sensor <sup>2)</sup>	A	$\bar{A}$	B	$\bar{B}$	0	$\bar{0}$	Shield
12-pin. Connector, Pin:	10	11	12	2	5	6	8	1	3	4	PH <sup>1)</sup>
7-pin. Connector, Pin:	F	--	D	E	A	--	B	--	C	--	G
10-pin. Connector, Pin:	F	-	D	E	A	G	B	H	C	I	J
Cable colour:	WH 0.5 mm <sup>2</sup>	WH	BN 0.5 mm <sup>2</sup>	BN	GN	YE	GY	PK	BU	RD	

<sup>1)</sup> PH = Shield is attached to connector housing

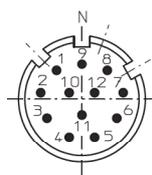
<sup>2)</sup> The sensor cables are connected to the supply voltage internally if long feeder cables are involved they can be used to adjust or control the voltage at the encoder

 - If sensor cables are not in use, they have to be isolated or 0V<sub>Sensor</sub> has to be connected to 0V and U<sub>B</sub>Sensor has to be connected to U<sub>B</sub>

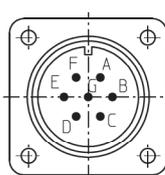
- Using RS 422 outputs and long cable distances, a wave impedance has to be applied at each cable end. Isolate unused outputs before initial startup.

**Top view of mating side, male contact base:**

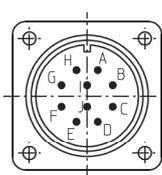
12 pin plug

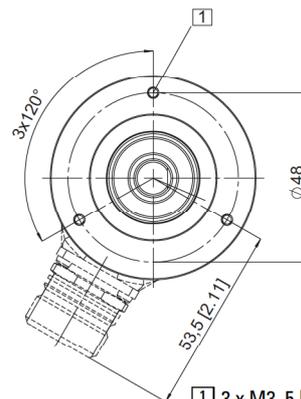
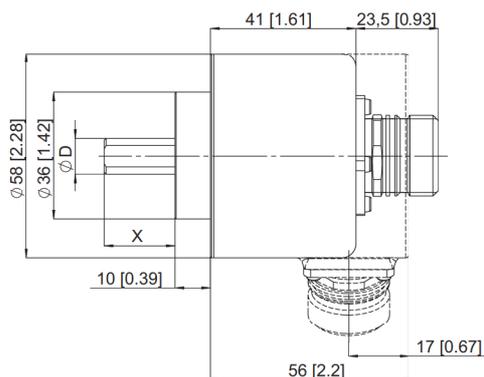


7 pin plug



10 pin plug


**Dimensions shaft version:**

 Clamping flange  $\varnothing$  58  
 Flange Type 1

**Mounting advice:**

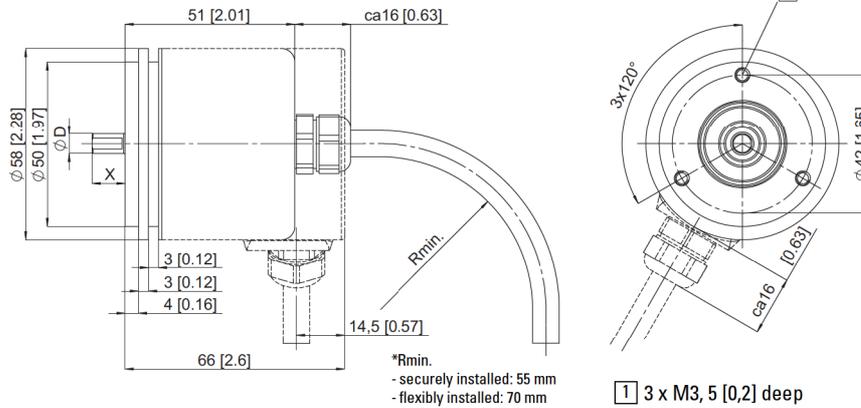
The flanges and shafts of the encoder and drive should not both be rigidly coupled together at the same time! We recommend the use of suitable couplings (see Accessories section).

### Universal, Type 580X (Shaft) / 582X (Hollow shaft)

#### Dimensions shaft version:

Synchronous flange  $\varnothing$  58

Flange Type 2



\*Rmin.  
- securely installed: 55 mm  
- flexibly installed: 70 mm

1 3 x M3, 5 [0,2] deep

#### Order code shaft version:

8.580X.XXXX.XXXX

#### Type

- 00 = Standard
- 03 = High temperature
- 04 = Sine wave
- 05 = High resolution

#### Flange

- 1 = Clamping flange  $\varnothing$  58
- 2 = Synchronous flange  $\varnothing$  58

#### Shaft ( $\varnothing$ x L)

- 1 =  $\varnothing$  6 mm x 10 mm
- 2 =  $\varnothing$  10 mm x 20 mm

#### Pulse rate

- 25, 50, 60, 100, 125, 200, 250, 256, 300, 360, 500, 512, 600, 720, 800, 1000, 1024, 1200, 1250, 1500, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000
- Type 5805:** 6000, 7200, 8000, 8192, 9000, 10000, 18000, 36000 (e.g. 250 pulses => 0250)
- Other pulse rates available on request

#### Type of connection

- 1 = Cable axial (1 m PUR-Cable)
- 2 = **Cable radial (1 m PUR-Cable)**
- 3 = axial 12 pin plug without mating connector
- 5 = **radial 12 pin plug without mating connector**
- W<sup>1)</sup> = 7 pin plug, "MIL"-specified<sup>2)</sup> without mating connector, radial
- Y = 10 pin plug, "MIL"-specified<sup>2)</sup> without mating connector, radial
- <sup>1)</sup>only with output 7
- <sup>2)</sup>only for type 5800

Preferred types are indicated in **bold**

#### Type of connection and supply voltage

##### Type 5800

- 4 = **RS 422 (with inverted signal)**  
**5 V supply voltage**
- 5 = RS 422 (with inverted signal)  
10 ... 30 V supply voltage
- 6 = Push-pull (with inverted signal)  
10 ... 30 V supply voltage
- 7 = Push-pull (without inverted signal)  
10 ... 30 V supply voltage
- 8 = Push-pull (without inverted signal)  
5 ... 30 V supply voltage
- 9 = **Push-pull (with inverted signal)**  
**5 ... 30 V supply voltage**
- Y = RS 422 (with inverted signal)  
5 ... 30 V Supply voltage
- T = Push-Pull (with inverted signal)  
5 ... 30 V supply voltage

##### Type 5803 and 5805

- 4 = **RS 422 (with inverted signal)**  
**5 V supply voltage**
- 5 = RS 422 (with inverted signal)  
10 ... 30 V supply voltage
- 6 = **Push-pull (with inverted signal)**  
**10 ... 30 V supply voltage**
- 7 = Push-pull (without inverted signal)  
10 ... 30 V Supply voltage

##### Type 5804

- 1 = **Sine, 1 Vpp (with inverted signal)**  
**5 V supply voltage**
- 2 = Sine, 1 Vpp (with inverted signal)  
10 ... 30 V Supply voltage

#### Accessories:

Corresponding mating connector to connection type 3 or 5:  
Order-No. 8.0000.5012.0000

Corresponding mating connector to connection type W:  
Order-No. 8.0000.5052.0000

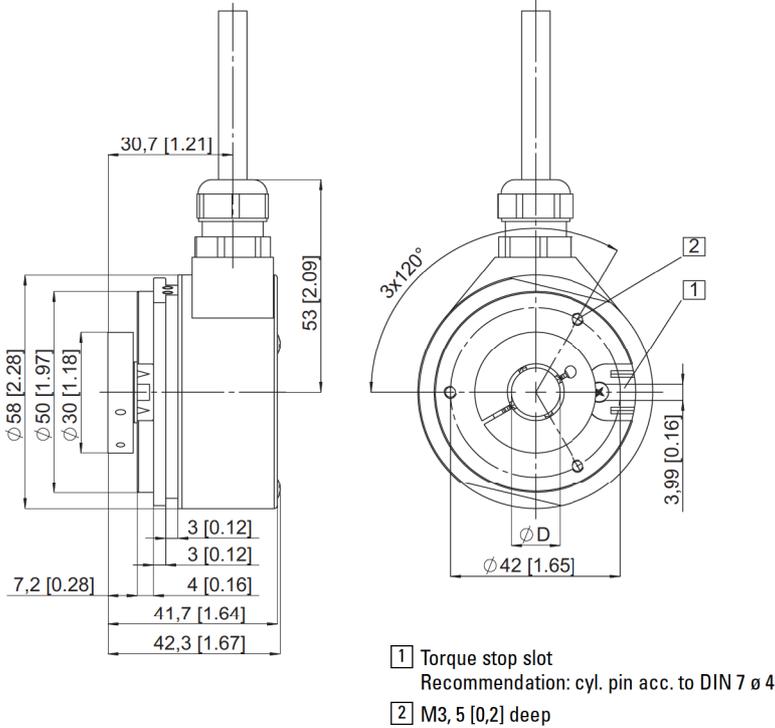
Corresponding mating connector to connection type Y:  
Order-No. 8.0000.5062.0000

Cables and connectors, also pre-assembled, can be found in the chapter Counting Technology

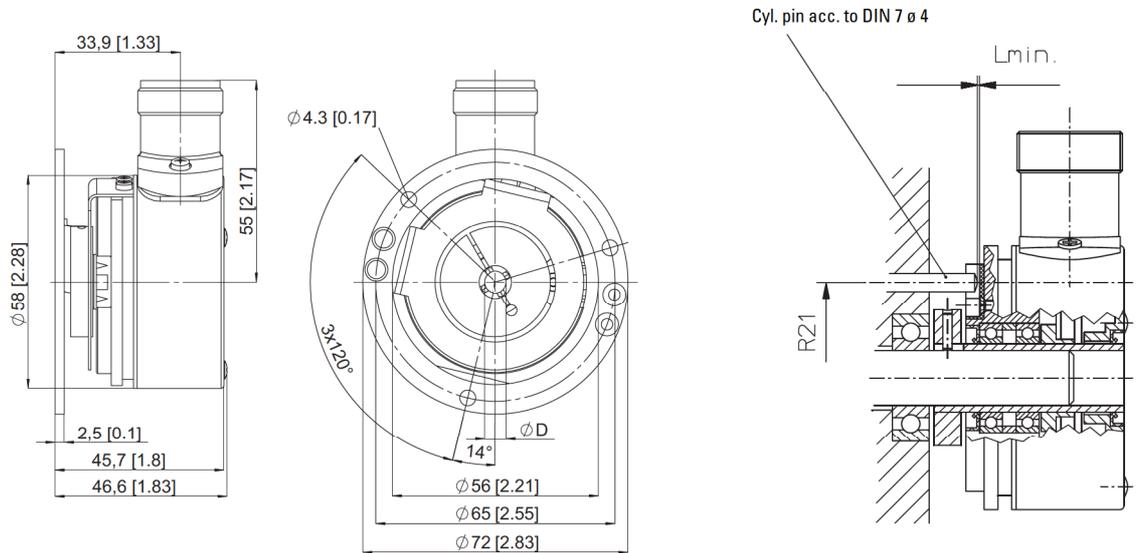
Mounting attachments and couplings can be found in the Chapter Accessories

### Universal, Type 580X (Shaft) / 582X (Hollow shaft)

Dimensions hollow shaft:  
Flange Type 1 and 2



Flange Type 3 and 4 with stator coupling



Note: minimum insertion depth  $1.5 \times D_{\text{hollow shaft}}$

#### Mounting advice:

- 1) The flanges and shafts of the encoder and drive should not both be rigidly coupled together at the same time.
- 2) When mounting a hollow shaft encoder, we recommend using a torque stop pin that fits into the torque stop slot or a stator coupling.
- 3) When mounting the encoder ensure the dimension  $L_{\text{min}}$  is greater than the axial maximum play of the drive. Otherwise there is a danger that the device could mechanically seize up.

### Universal, Type 580X (Shaft) / 582X (Hollow shaft)

Order code hollow shaft version:

8.582X.XXXX.XXXX

#### Type

- 20 = Standard
- 23 = High temperature
- 24 = Sine wave
- 25 = High resolution
- 26 = Stainless steel

#### Flange

- 1 = Flange for through shaft
- 2\* = Flange for blind hollow shaft\*
- 3 = Flange for through shaft and stator coupling**
- 4\* = Flange for blind hollow shaft and stator coupling  
length of drive shaft ≤ 30 mm

\*not for type 5826

#### Hollow shaft\*\*

- 1 = ø 6 mm without seal
- 2 = ø 6 mm with seal**
- 3 = ø 8 mm without seal
- 4 = ø 8 mm with seal
- 5 = ø 10 mm without seal
- 6 = ø 10 mm with seal**
- 7 = ø 12 mm without seal
- 8 = ø 12 mm with seal**

For type 5826 only versions  
6 and 8 are possible

*Preferred types are indicated in bold*

#### Pulse rate

25, 50, 60, 100, 125, 200, 250, 256, 300, 360, 500, 512, 600, 720, 800, 1000, 1024, 1200, 1250, 1500, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000

**Type 5825:** 6000, 7200, 8000, 8192, 9000, 10000, 18000, 36000  
(e.g. 250 pulses => 0250)

Other pulse rates available on request

#### Type of connection

- 1 = Cable radial (1 m PVC-cable)
- 2 = radial 12pin plug without mating connector**

<sup>1)</sup>Type 5823 and 5824 TPE cable

#### Type of connection and supply voltage

##### Type 5820 and 5826

- 1 = RS 422 (with inverted signal) 5 V supply voltage**
- 2 = Push-pull (without inverted signal) 10 ... 30V supply voltage
- 3 = Push-pull (with inverted signal) 10 ... 30V supply voltage**
- 4 = RS 422 (with inverted signal) 10 ... 30 V supply voltage
- 5 = Push-pull (without inverted signal) 5 ... 30 V supply voltage
- 6 = Push-pull (with inverted signal) 5 ... 30 V supply voltage
- 7 = RS 422 (with inverted signal) 5 ... 30 V supply voltage**
- C\* = Push-pull (7272 with inverted signal) 5 ... 30 V supply voltage

\* For Type 5826 not available

##### Type 5823 and 5825

- 1 = RS 422 (with inverted signal) 5 V supply voltage**
- 2 = Push-pull (without inverted signal) 10 ... 30V supply voltage
- 3 = Push-pull (with inverted signal) 10 ... 30V supply voltage**
- 4 = RS 422 (with inverted signal) 10 ... 30 V supply voltage

##### Type 5824

- 1 = Sine, 1 Vpp (with inverted signal) 5 V supply voltage
- 2 = Sine, 1 Vpp (with inverted signal) 10 ... 30 V supply voltage

## Accessories

Corresponding mating connector to Type of connection 2, 12 pin: Order No. 8.0000.5012.0000 pin assignment cw

- Cables and connectors, also pre-assembled, can be found in the chapter Counting Technology
- Mounting attachments and couplings can be found in the Chapter Accessories

### Mounting kit for hollow shaft encoder ø 58 mm:

Various mounting variations can be supplied

Delivery includes:

- 1 x parallel pin with thread  
Order No. 8.0010.4700.0000
- 1 x mounting flanges  
Order No. T.035.009
- Screw M3x5  
Order No N.630.305
- 1 x long torque support slot  
Order No. T.051.672

Complete set:  
Order No. 8.0010.4600.0000

### Stator coupling two wings

– For highly dynamic applications

Includes:

- 1x coupling two wings
- 2x 2 screws

### Complete set:

Order No. 8.0010.4D00.0000

### Tether arm short

Order No. 8.0010.4R00.0000