

### Universal Type ESI 58



- Sturdy model to industry standard, Ø58 mm housing
- Many variations, also customized versions
- IP 65
- Temperature and ageing compensation
- Short-circuit proof outputs
- Reverse connection protection (at  $U_B = 10 \dots 30 \text{ V DC}$ )
- Highly flexible PUR-cable
- Resolution up to 5000 ppr
- High shaft load
- available as explosion proof zone 2 and 22

#### Mechanical characteristics:

Speed:	max. 12000 min <sup>-1</sup>
Rotor moment of inertia:	approx. $1.8 \times 10^{-6} \text{ kgm}^2$
Starting torque:	< 0.01 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
Working temperature:	-20 °C ... +85 °C <sup>1)2)</sup>
Operating temperature:	-20 °C ... +90 °C <sup>1)2)</sup>
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

#### Pulse rates available at short notice:

1, 5, 10, 15, 20, 25, 30, 50, 60, 100, 120, 125, 127, 150, 176, 180, 200, 216, 240, 250, 254, 256, 300, 314, 360, 375, 400, 500, 512, 600, 625, 720, 745, 750, 762, 800, 900, 927, 1000, 1024, 1250, 1270, 1400, 1500, 1800, 2000, 2048, 2250, 2400, 2500, 3000, 3600, 4000, 4096, 5000

Other pulse rates on request

\* View also diagrams on page 25

1) Constant trailing: -20 ... +70 °C

2) Non-condensing

#### Electrical characteristics

Output circuit:	RS 422 (TTL-compatible)	RS 422 (TTL-compatible)	Push-pull	Push-pull	Push-Pull (7272) <sup>3)</sup>
Supply voltage:	5 V (±5%) or 10 ... 30 V DC	5 ... 30 V DC	10 ... 30 V DC	5 ... 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	50 mA / 100 mA
Permissible load/channel:	max. ±20 mA	max. ±20 mA	max. ±30 mA	max. ±30 mA	max. ±20 mA
Pulse frequency:	max. 300 kHz	max. 300 kHz	max. 300 kHz	max. 300 kHz	max. 300 kHz
Signal level high:	min. 2.5 V	min. 2.5 V	min. UB-2.5 V	min. UB-1.5 V	min. UB - 2.5 V
Signal level low:	max. 0.5 V	max. 0.5 V	max. 2.0 V	max. 2.0 V	max. 0.5 V
Rise time $t_r$ :	max. 200 ns	max. 200 ns	max. 1 µs	max. 1 µs	max. 1 µs
Fall time $t_f$ :	max. 200 ns	max. 200 ns	max. 1 µs	max. 1 µs	max. 1 µs
Short circuit proof outputs <sup>1)</sup> :	yes <sup>2)</sup>	yes <sup>2)</sup>	yes	yes	yes
Reverse connection protection at $U_B$ :	5 V: no, 10 ... 30 V: yes	yes	yes	no	no

Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3

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)

3) Max. recommended cable length 30 m

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#### Terminal assignment

Signal:	0 V	0 V 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	

1) PH = Shield is attached to connector housing

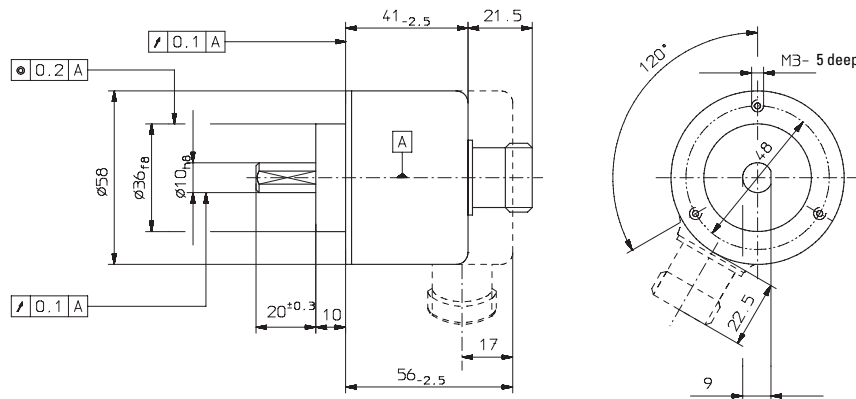
2) The sensor cables are connected to the supply voltage internally if long feeder cables are involved they can be used to adjust or control the voltage at the encoder

- If sensor cables are not in use, they have to be insulated or 0 V<sub>Sensor</sub> has to be connected to 0 V 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.  
**Insulate unused outputs before initial startup.**

#### Dimensions

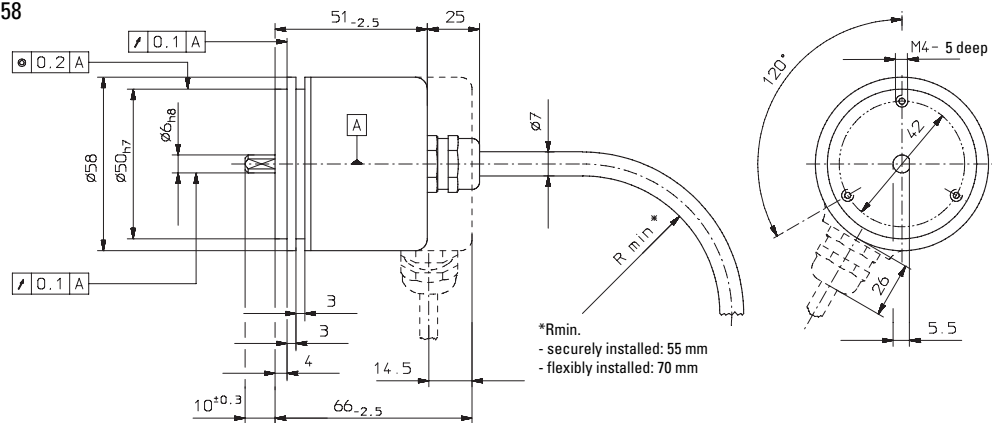
##### Clamping bracket $\varnothing 58$



##### Mounting advice:

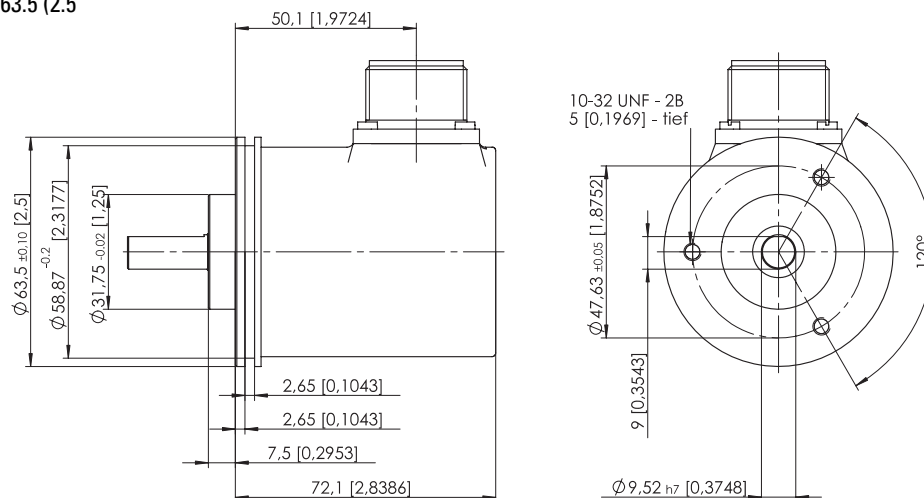
The brackets and shafts of the encoder and drive should not both be rigidly coupled together at the same time! We recommend the use of suitable couplings (see Accessories section).

##### Synchronous bracket $\varnothing 58$



##### Synchronous bracket $\varnothing 63.5$ (2.5")

")

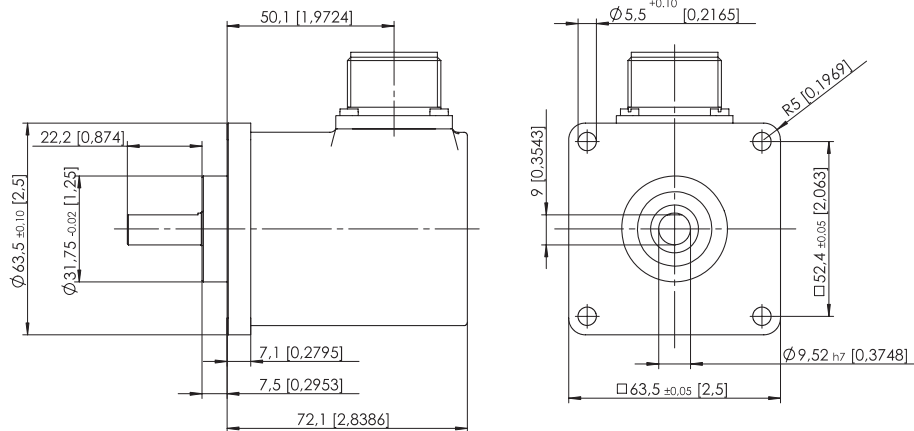


# Rotary Measuring Technology

## Incremental shaft encoder

### Universal Type ESI 58

Rectangular bracket  
□ 63.5 (2.5")

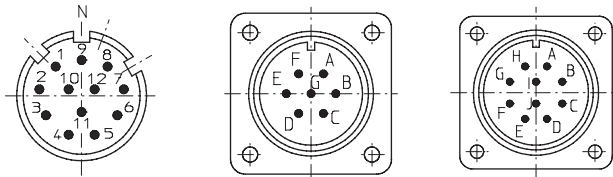


Top view of mating side, male contact base:

12 pin plug

7 pin plug

10 pin plug



Order code:

ESI 58.XXXX.XXXX

