High temperature Type ESI 58T



- High temperature version, up to 110 °C (higher temperatures on request). Application e.g. drive technology.
- Many variations, also customized versions
- Temperature and ageing compensation
- Short-circuit proof outputs
- Reverse connection protection (at U_B= 10 ... 30 V DC)
- Resolution up to 5000 ppr
- High shaft load
- available as explosion proof zone 2 and 22

Mechanical characteristics:

Speed:	max. 12000 min^{-1}
Rotor moment of inertia:	approx. 1.8 x 10^{-6} 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 ... +105 °C[1)]
Operating temperature:	-20 °C ... +110 °C[1)]
Shaft:	stainless steel
Shock resistance acc. to DIN-IEC 68-2-27	1000 m/s^2, 6 ms
Vibration resistance acc. to IEC 68-2-6:	100 m/s^2, 10 ... 2000 Hz

* View also diagrams on page 25

1) Non-condensing

Pulse rates available at short notice:

10, 20, 25, 30, 50, 60, 100, 120, 125, 127, 150, 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

Electrical characteristics:

Output circuit:	RS 422 (TTL-compatible)	Push-pull
Supply voltage:	5 V (±5%) or 10 ... 30 V DC	10 ... 30 V DC
Power consumption (no load) without inverted signal:	–	typ. 55 mA / max. 125 mA
Power consumption (no load) with inverted signals:	typ. 40 mA / max. 100 mA	typ. 80 mA/ max.150
Permissible load/channel:	max. ±20 mA	max. ±30 mA
Pulse frequency:	max. 300 kHz	max. 300 kHz
Signal level high:	min. 2.5 V	min. U_B-2.5 V
Signal level low:	max. 0.5 V	max. 2.0 V
Rise time t_r	max. 200 ns	max. 1 µs
Fall time t_f	max. 200 ns	max. 1 µs
Short circuit proof outputs:[1)]	yes[2)]	yes
Reverse connection protection at UB:	5 V: no 10 ... 30 V: yes	yes
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 UB=5 V, short-circuit to channel, 0 V, or +UB is permitted)
(If UB=5-30 V, short-circuit to channel or 0 V is permitted)

High temperature Type ESI 58T

Terminal assignment

Signal:	0V	0V Sensor[2]	$+U_B$	$+U_B$ Sensor[2]	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	Shield
12 pin plug Pin:	10	11	12	2	5	6	8	1	3	4	PH[1]
7 pin plug Pin:	F	–	D	E	A	–	B	–	C	–	G
10 pin plug, Pin:	F	–	D	E	A	G	B	H	C	I	J
Cable colour:	WH 0.5 mm²	WH	BN 0.5 mm²	BN	GN	YE	GY	PK	BU	RD	

1) PH = Shield is attached to connector housing

2) 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

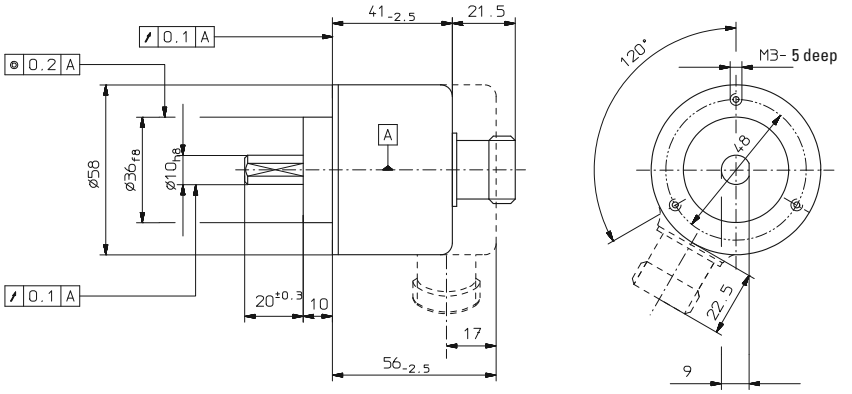
- If sensor cables are not in use, they have to be insulated or 0 V_{Sensor} has to be connected to 0 V and $U_{BSensor}$ has to be connected to U_B

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

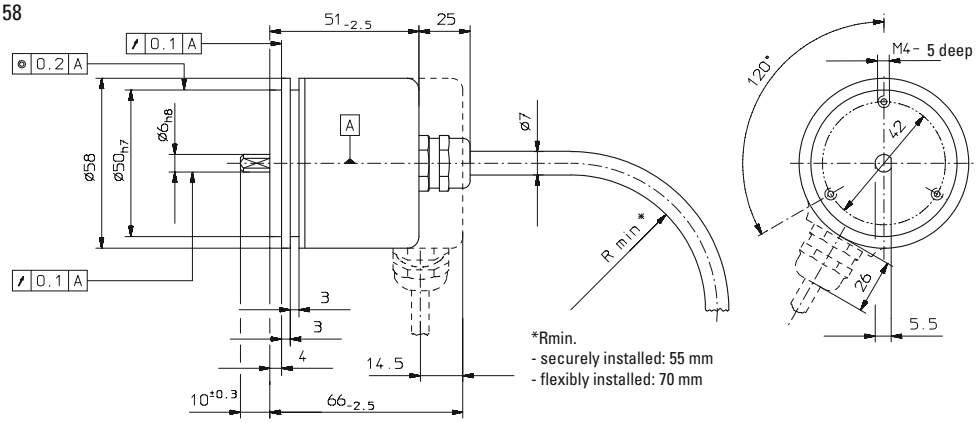
Insulate unused outputs before initial startup.

Dimensions

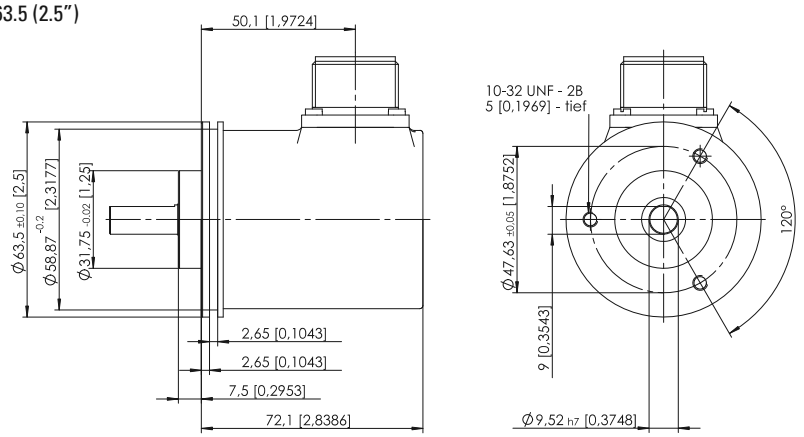
Clamping bracket ø 58



Synchronous bracket ø 58



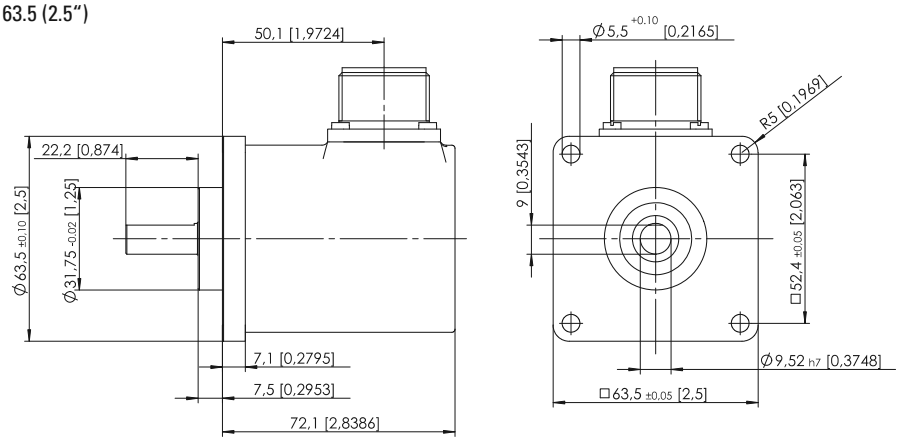
Synchronous bracket ø 63.5 (2.5")



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)

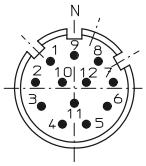
High temperature Type ESI 58T

Rectangular bracket □ 63.5 (2.5")

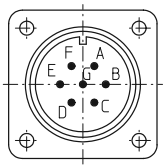


Top view of mating side, male contact base:

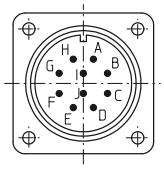
12 pin plug



7 pin plug



10 pin plug



Order code: ESI 58T.XXXX.XXXX

Range	
Bracket	**1 = Clamping bracket ø 58** **2 = Synchronous bracket ø 58** M = Rectangular bracket □63.5 (2.5") P = Synchronous bracket ø 63.5 (2.5")
Shaft	**1 = ø 6 mm x 10 mm** **2 = ø 10 mm x 20 mm** P* = ø 9.52 mm x 22.2 mm (3/8" x 7/8") *only with bracket M or P
Type of connection and supply voltage	**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
Pulse rate	(e.g. 250 pulses=> 0250)
Type of connection	1 = Cable axial (1 m TPE-Cable) **2 = Cable radial (1 m TPE-Cable)** 3 = axial 12 pin plug without mating connector **5 = radial 12 pin plug without mating connector** W[1] = 7-pin plug, "MIL"-specified without mating connector, radial Y = 10 pin plug, "MIL"-specified without mating connector, radial [1]only with output 7

Preferred types are indicated in ***bold***

Rotary Measuring Technology
Incremental hollow shaft encoder

MICRONOR
automation components

High temperature Type ENI 58T



- High temperature model up to 110 °C. Application at high temperatures, e.g. in drive technology
- Only 42 mm clearance needed
- Very easy mounting. The encoder is mounted directly on the drive shaft without couplings. This saves up to 30 % cost and 60 % clearance compared to shaft versions
- Many variations
- Temperature and ageing compensation
- Short-circuit proof outputs
- Reverse connection protection for voltage supply
- Resolution up to 5000 ppr
- IP 66
- Ex available as explosion proof zone 2 and 22

Mechanical characteristics:

Speed without sealing:	max. 12000 min^{-1}
Speed with sealing[1]:	max. 6000 min^{-1}
Rotor moment of inertia:	approx. 6 x 10^{-6} kgm^2
Starting torque without sealing:	< 0.01 Nm
Starting torque with sealing:	< 0.05 Nm
Weight:	approx. 0.4 kg
Protection acc. to EN 60 529 without sealing:	IP 40
Protection acc. to EN 60 529 with sealing:	IP 66
Working temperature without sealing:	-20 °C ... +105 °C[2)3)]
Working temperature with sealing:	-20 °C ... +90 °C[2)3)]
Operating temperature without sealing:	-20 °C ... +110 °C[2)3)]
Operating temperature with sealing:	-20 °C ... +95 °C[2)3)]
Shaft:	stainless steel, H7
Shock resistance acc. to DIN-IEC 68-2-27	2000 m/s^2, 6 ms
Vibration resistance acc. to DIN-IEC 68-2-6:	100 m/s^2, 10...2000Hz

1) For continuous operation max. 3000 min^{-1} ventilated
2) Non-condensing
3) Depending on speed

Pulse rates available at short notice:

10, 20, 25, 30, 50, 60, 100, 120, 125, 127, 150, 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

Electrical characteristics:

Output circuit:	RS 422 (TTL-compatible)	Push-pull
Supply voltage:	5 V (±5 %) or 10 ... 30 V DC	10 ... 30 V DC
Power consumption (no load)	–	typ. 55 mA /
without inverted signal:		max. 125 mA
Power consumption (no load)	typ. 70 mA /	typ. 80 mA/
with inverted signals:	max. 100 mA	max.150 mA
Permissible load/channel:	max. ±20 mA	max. ±30 mA
Pulse frequency:	max. 300 kHz	max. 300 kHz
Signal level high:	min. 2.5 V	min. U_B–2.5 V
Signal level low:	max. 0.5 V	max. 2.0V
Rise time t_r	max. 200 ns	max. 1 µs
Fall time t_f	max. 200 ns	max. 1 µs
Short circuit proof outputs:[1)]	yes[2)]	yes
Reverse connection protection at UB:	5 V: no;	yes
	10 ... 30 V: yes	
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 UB=5 V, short-circuit to channel, 0 V, or +UB is permitted)
(If UB=5-30 V, short-circuit to channel or 0 V is permitted)

High temperature Type ENI 58T

Terminal assignment

Signal:	0 V	0 V	$+U_B$	$+U_B$	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	Shield
		Sensor[2]		Sensor[2]							
12 pin plug; Pin:	10	11	12	2	5	6	8	1	3	4	PH[1]
Cable colour:	WH 0.5 mm²	WH	BN 0.5 mm²	BN	GN	YE	GY	PK	BU	RD	

1) PH = Shield is attached to connector housing

2) Sensor cables are connected to the supply voltage internally and if long feeder cables are involved can be used for adjusting or controlling the voltage at the encoder

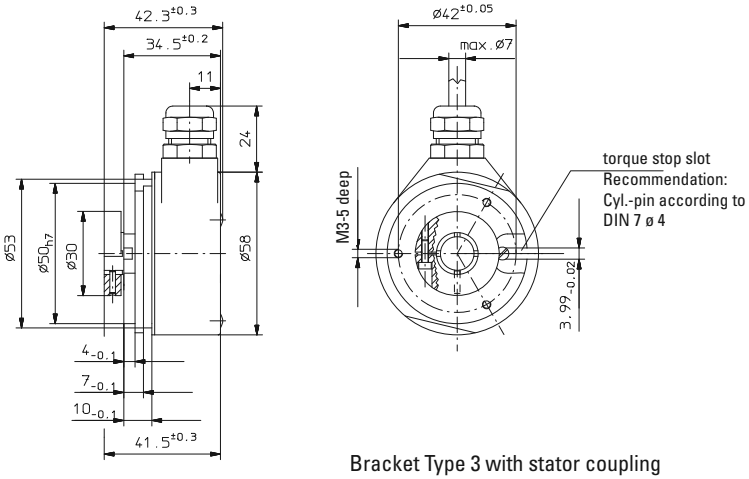
- If sensor cables are not in use, they have to be insulated or 0 V_{Sensor} has to be connected to 0 V and $U_{BSensor}$ has to be connected to U_B

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

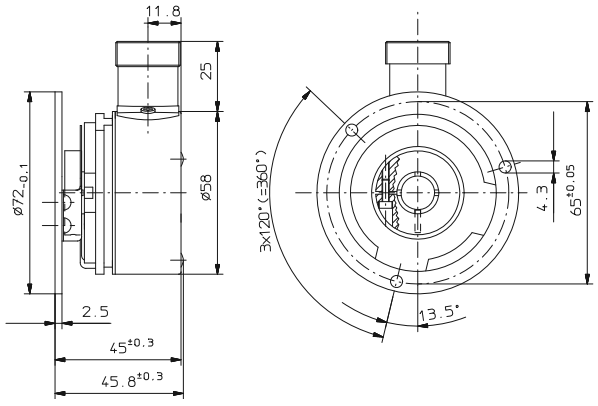
Insulate unused outputs before initial startup.

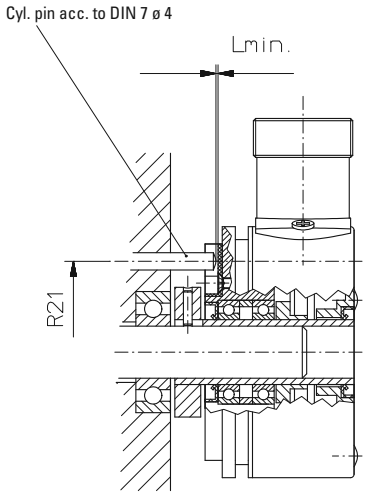
Dimensions

Bracket Type 1



Bracket Type 3 with stator coupling





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

Mounting advice:

1) The brackets 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 or a stator coupling.

3) When mounting the encoder ensure that the dimension Lmin. is larger than the axial maximum play of the drive. Otherwise there is a danger that the device could mechanically seize up.

High temperature Type ENI 58T

ENI 58T.XXXX.XXXX

Range

Bracket

- 1 = Bracket for through shaft
- 2 = Bracket for blind hole shaft*
- **3 = Bracket for through shaft and stator coupling**
- 4 = Bracket for blind hole shaft* and stator coupling

*length of drive shaft ≤ 30 mm

Shaft

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

Pulse rate

(e.g. 250 pulses=> 0250)

Type of connection

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

Output circuit and voltage supply

- **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