Rotary Measuring Technology
Incremental hollow shaft encoder

MICRONOR
automation components

Universal Type ENI 58

- 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
- RS 422 or push-pull output
- Resolution up to 5000 ppr
- Protection up to IP 66
- Ⓔx 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 sealing:	IP 66
Working temperature without sealing:	-20° C up to +85 °C[2)3)]
Working temperature with sealing:	-20° C up to +80 °C[2)3)]
Operating temperature without sealing:	-20° C up to +90 °C[2)4)]
Operating temperature with sealing:	-20° C up to +85 °C[2)4)]
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...2000 Hz

1) For continuous operation max. 3000 min^{-1} ventilated
2) Non-condensing
3) 70 °C with Cable
4) 80 °C with Cable

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)	RS 422 (TTL-compatible)	Push-pull	Push-pull	Push-Pull (7272)[3)]
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. 70 mA / max. 90 mA	typ. 70 mA / max. 90 mA	typ. 80 mA/ max.150 mA	typ. 80 mA/ max.150 mA	50 100
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:[1)]:	yes[2)]	yes2)	yes	yes	yes
Reverse connection protection at U_B:	5 V: no, 1 0 ... 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 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)
3) Max. recommended cable length 30 m

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Terminal assignment

Sig.:	0 V	0 V	$+U_B$	$+U_B$	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
		Sens[2)]		Sens[2)]							
12 pin plug, Pin:	10	11	12	2	5	6	8	1	3	4	PH[1)]
Col.:	WH	GY PK	BN	BU RD	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

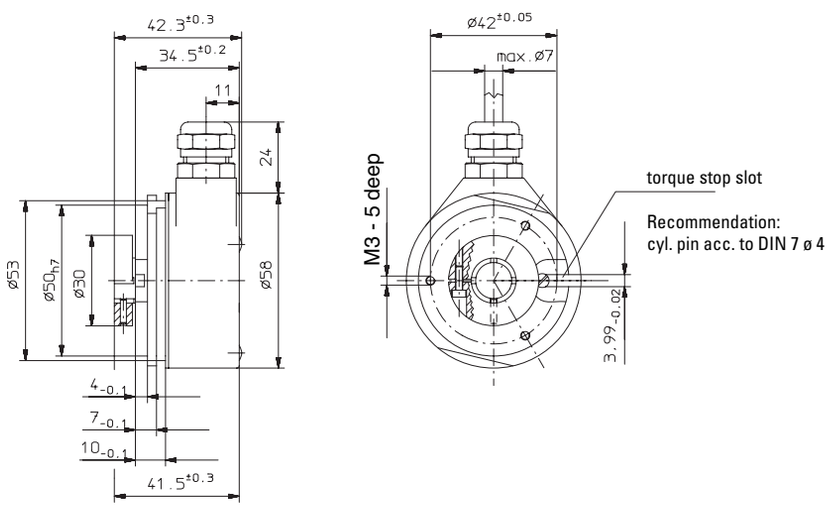
- If sensor cables are not in use, they have to be insulated or 0 V_{Sensor} has to be connected to 0 V and $U_{BSensor}$ has to be connected to U_B

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

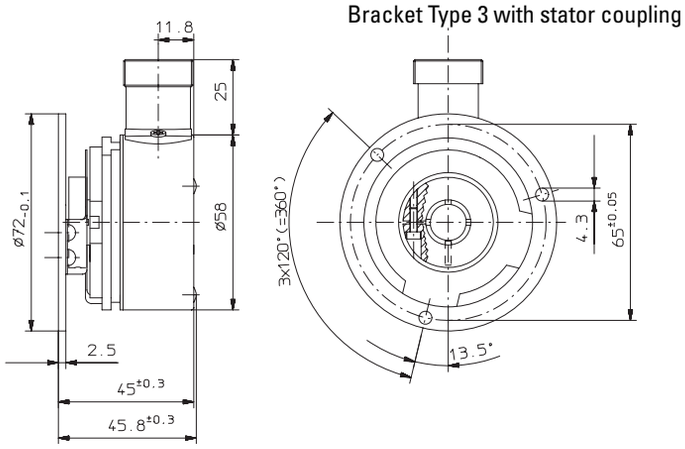
Insulate unused outputs before initial startup.

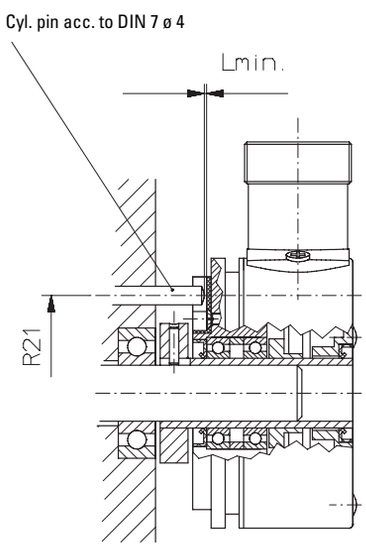
Dimensions

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 that fits into the torque stop slot or a stator coupling.

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

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Order code: ENI 58.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

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**

further on request

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

Pulse rate
(e.g. 250 pulses=> 0250)

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

Type of connection and supply voltage
- **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