Rotary Measuring Technology
Incremental shaft encoder

MICRONOR
automation components

Shaft version economy Type ESI 37

- Economical version
- Compact size only ø 37 x 33 mm
- Temperature- and ageing compensation
- Short circuit proof outputs
- Resolution up to 1024 ppr
- Protection up to IP 67
- Ex available as explosion proof zone 2 and 22
- Bracket and cover made from a new High-Tech-Material (composite material)
- High component integration leads to low profile design, high performance and economical pricing
- "Tube Tech®" cable outlet guarantees 10x higher strain relief than traditional cabling methods and ensures IP 67 protection
- 1 ½" (37 mm) diameter housing suitable for replacing resolvers

Mechanical characteristics:

Speed:	max. 6000 min^{-1}
Rotors moment of inertia:	approx. 0.4 x 10^{-6} kgm^2
Starting torque:	< 0.007 Nm
Radial load capacity of the shaft:	20 N
Axial load capacity of the shaft:	10 N
Weight:	approx. 0.1 kg
Protection acc. to EN 60 529:	bearing, shaft: IP 65 cable outlet: IP 67
Working temperature:	–20° C up to +70 °C[1)3)]
Operating temperature:	–20° C up to +80 °C[2)3)]
Materials:	shaft: stainless steel; housing, bracket: composite PPA, 40% KF (carbon fibre) cable: PVC
Shock resistance acc. to DIN-IEC 68-2-27:	1000 m/s^2, 6 ms
Vibration resistance acc. to DIN-IEC 68-2-6:	100 m/s^2, 10 ... 2000 Hz

[1)] At push pull output and Supply voltage >15 V DC: max. 55 °C
[2)] At push pull output and Supply voltage >15 V DC: max. 60 °C
[3)] Non-condensing

Pulse rates available at short notice:

10, 50, 60, 100, 180, 200, 250, 300, 360, 400, 500, 512, 600, 1000, 1024

Other pulse rates available on request

Electrical characteristics:

Output circuit:	RS 422 (TTL-compatible)	Push-pull (7272)[3)]	Push-pull (7272)[3)]
Supply voltage:	5 V (±5%)	5 ... 30 V DC	10 ... 30 V DC
Power consumption (no load)	typ. 40 mA /	typ. 50 mA/	typ. 50 mA/
with inverted signal:	max. 90 mA	max.100 mA	max.100 mA
Permissible load/channel:	max. ±20 mA	max. ±20 mA	max. ±20 mA
Pulse frequency:	max. 250 kHz	max. 250 kHz	max. 250 kHz
Signal level high:	min. 2.5 V	min. U_B–2.0 V	min. U_B–2.0 V
Signal level low:	max. 0.5 V	max. 0.5 V	max. 0.5 V
Rise time t_r	max. 200 ns	max. 1 µs	max. 1 µs
Fall time t_f	max. 200 ns	max. 1 µs	max. 1 µs
Short circuit proof outputs[1)]:	yes[2)]	yes	yes
Reverse connection protection at U_B:	no	no	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: (at U_B = 5 V short circuit to channel, 0 V, or +U_B is permitted).
[3)] Max. recommended cable length 30 m

Applications:

– Substitute for resolvers
– Packaging machines
– Electrical machines
– Vehicles
– Conveyers, elevators
– Semiconductor machines e.g pick & place, cutting ...
– Material handling
– Special machines.

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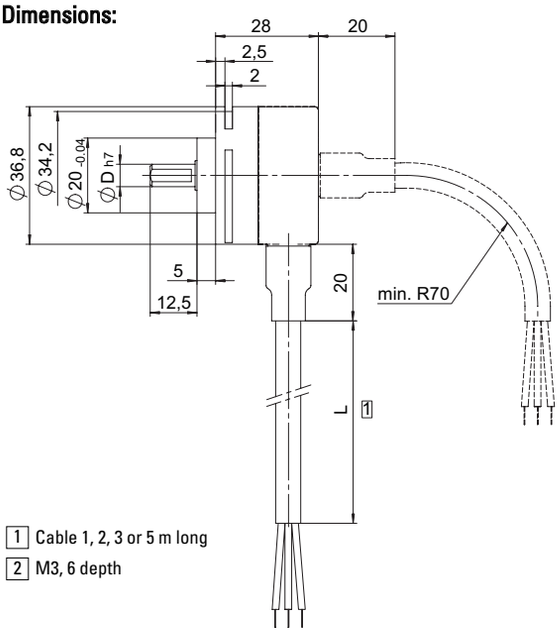
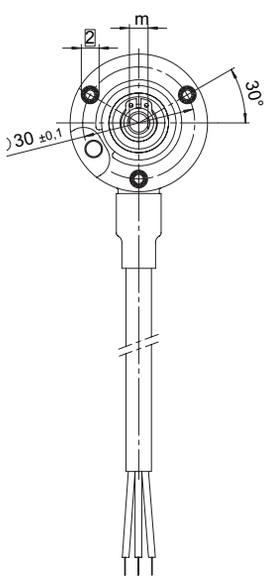
Signal:	0 V	$+U_B$	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	Shield
Colour:	WH	BN	GN	YE	GY	PK	BU	RD	

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

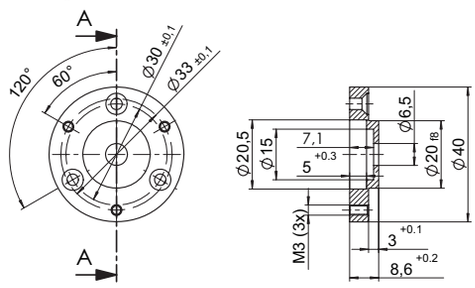
Insulate unused outputs before initial startup.

Dimensions:





Adapting bracket Typ A



1 Cable 1, 2, 3 or 5 m long
2 M3, 6 depth

D	4	5	6	7	1/4"	8
m	3.7	4.6	5.5	6.5	5.8	7.5

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).

Order code:

ESI 37.XXXX.XXXX

Range

Bracket
- **1 = bracket without fixing attachment**

Shaft
- 1 = ø 4 mm
- 2 = ø 5 mm
- **3 = ø 6 mm**
- 4 = ø 1/4"
- 6 = ø 8 mm

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

Type of connection
- 1 = Cable* axial (1 m PVC-cable)
- **2 = Cable* radial (1 m PVC-cable)**
- 3 = Cable* axial (2 m PVC-cable)
- 4 = Cable* radial (2 m PVC-cable)
- 5 = Cable* axial (3 m) PVC-cable)
- 6 = Cable* radial (3 m PVC-cable)
- 7 = Cable* axial (5 m PVC-cable)
- 8 = Cable* radial (5 m PVC-cable)

Output and voltage display
- 1 = RS 422: 5 V DC ±5 %
- **3 = push pull with inverted signals: 5 ... 30 V DC**
- **4 = push pull with inverted signals: 10 ... 30 V DC**

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

* "Tube Tech®" cable outlet guarantees 10x higher strain relief than traditional cabling methods plus higher IP-Protection.
Other cable lengths on request.