

# Rotary Measuring Technology

## Incremental shaft/hollow shaft encoder

**MICRONOR**  
automation components

### Ex-proof ESI 70EX with ATEX

- Our ATEX encoders now also carry approval for Dust
- 'Flameproof-enclosure' type of construction with approval for Zone 1 and 21
- ExII2GEEExdIICT6 and ExII2DIP6xT85°C
- Through hollow shaft or shaft  $\varnothing$  12 mm

### One type for every situation:

- Zone 1, 2 and 21, 22:  
ExII2GEEExdIICT6 and  
ExII2DIP6xT85°C

### Compact:

- Installation depth of only 94 mm
- Through hollow shaft  
for minimal installation depth



### Safe:

- Short-circuit proof outputs
- Reverse connection protection on inputs
- Over-voltage protection



### Mechanical characteristics:

Speed:	max. 6000 min <sup>-1</sup>
Rotor moment of inertia:	approx. 15 x 10 <sup>-6</sup> kgm <sup>2</sup>
Starting torque:	< 0.05 Nm
Radial load capacity of shaft:	20 N (shaft version)
Axial load capacity of shaft:	10 N (shaft version)
Weight:	approx. 1.2 kg
Protection acc. to EN 60 529:	IP 65
Working temperature:	-20° C ... +60 °C <sup>1)</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 DIN-IEC 68-2-6:	100 m/s <sup>2</sup> , 10 ... 2000 Hz
Explosion proof zone 2 and 22:	ExII2GEEExdIICT6 and ExII2DIP6xT85°C

<sup>1)</sup> 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. 70 mA / max. 90 mA	typ. 80 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 <sub>B</sub> -2.5 V
Signal level low:	max. 0.5 V	max. 2.0 V
Rise time t <sub>r</sub>	max. 200 ns	max. 1 μs
Fall time t <sub>f</sub>	max. 200 ns	max. 1 μs
Short circuit proof outputs: <sup>1)</sup>	yes <sup>2)</sup>	yes
Reverse connection protection at UB:	no	yes
Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3		

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

<sup>2)</sup> 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)

### Please note!

– All standards for installation of electrical systems in hazardous environment have to be observed.

– Manipulations (opening, mechanical treatment etc.) cause the loss of the EX-license, warranty claims will not be accepted and the installer will be responsible for any consequential damages.

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#### 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
Colour:	WH	GY PK	BN	RD BU	GN	YE	GY	PK	BU	RD	PH <sup>1)</sup>

1) PH = Shield is attached to connector housing

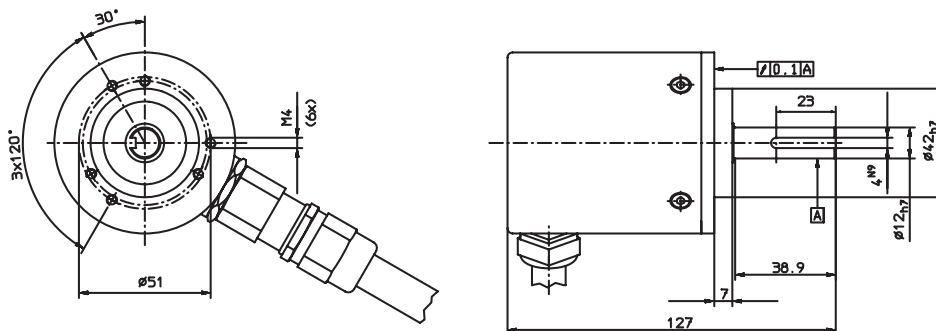
2) Sensor cables are connected to the supply voltage internally if long feeder cables are involved they can be used to adjust or control the voltage at the encoder

- If sensor cables are not in use, they have to be insulated or 0 V<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.

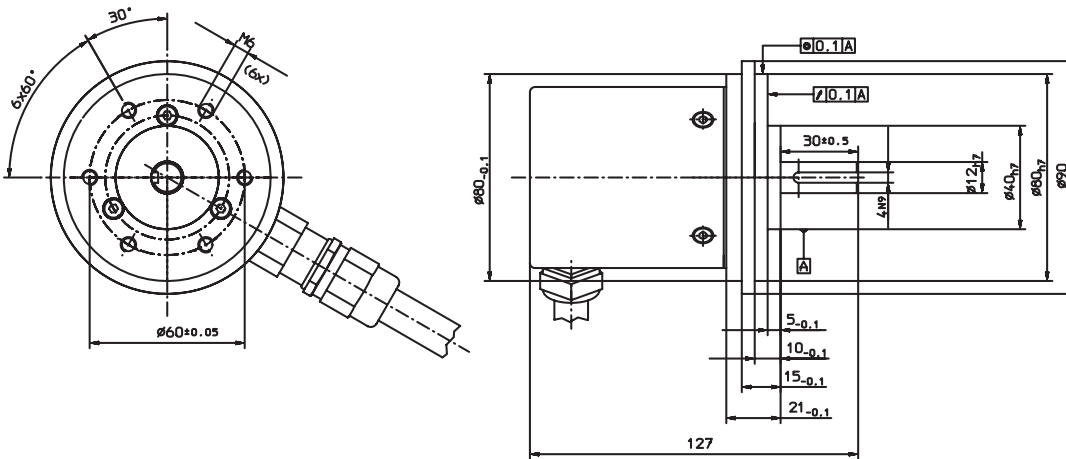
Insulate unused outputs before initial startup.

ESI 70EX.25xx



**Ex-proof ESI 70EX with ATEX**

ESI70EX.26xx



Order code:

ESI70EX.XXXX.XXXX

Range

Bracket shaft **25 = Clamping bracket with shaft ø 12 mm**  
26 = Clamping bracket with shaft ø 12 mm and mounted bracket adapter

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

Type of connection  
**2 = Cable radial (2 m PVC-cable)**  
other cable lengths on request

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

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