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### Important Note

The information shown in these documents is for guidance only. No liability is accepted for any errors or omissions. The designer or user is solely responsible for the safe and proper application of the parts, assemblies or equipment described.

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# Incremental Shaft Encoders Type RX 70/71

## Explosion-proof encoders



- Encoder for explosion group II
- Highest working reliability
- Application e.g.:
  - enamelling production lines
  - surfacing machines
  - bottling machines
  - mixers
  - silo works
- For absolute explosion-proof encoders, see "Absolute Encoders Type AX 70 / 71"



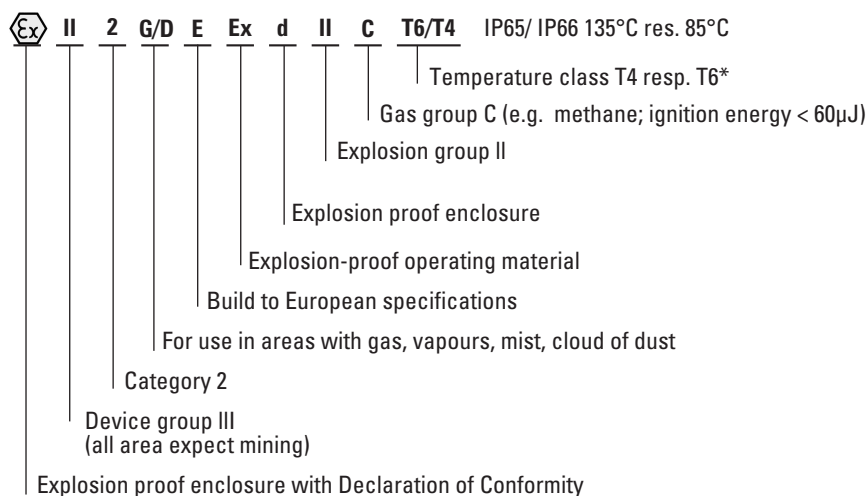
### NUMBER OF PULSES

1 / 2 / 3 / 4 / 5 / 10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60 / 64 / 70 / 72 / 80 / 100 / 125 / 128 / 144 / 150 / 180 / 200 / 230 / 250 / 256 / 300 / 314 / 350 / 360 / 375 / 400 / 460 / 480 / 500 / 512 / 600 / 625 / 635 / 720 / 750 / 900 / 1000 / 1024 / 1200 / 1250 / 1500 / 1600 / 1800 / 2000 / 2048 / 2500 / 3000 / 3480 / 3600 / 3750 / 3968 / 4000 / 4096 / 4800 / 5000 / 5400 / 6000 / 7200 / 7680 / 8000 / 8192 / 9000 / 10000

Other number of pulses on request

### EX-CLASSIFICATION

The incremental shaft encoder is available in explosion proof design with explosion proof enclosure "d" under RX 70 and RX 71 (stainless steel). The PTB has assured with the Declaration of Conformity that the RX 70 / 71 meets the requirements of safety and health according to EN 50014 and EN 50018. Therefore it is approved in explosive areas, code „Ex II 2 G/D E Ex d II C T4/T6 IP65/ IP66 135°C resp. 85°C“. For applications under tough environmental conditions and food industry the stainless steel version RX 71 is available.



T6 = Highest permissible surface temperature +85°C (max. speed = 6000 U/min<sup>-1</sup>)  
 T4 = Highest permissible surface temperature +130°C(max. speed = 10000 U/min<sup>-1</sup>)

# Incremental Shaft Encoders Type RX 70/71

## Explosion-proof encoders

### TECHNICAL DATA mechanical

Shaft diameter	10 mm
Absolute max. shaft load	radial 100 N, axial 40 N
Absolute max. speed	10 000 min <sup>-1</sup> (EEx d IIC T4), 6 000 min <sup>-1</sup> (EEx d IIC T6)
Torque	≤ 1 Ncm
Moment of inertia	approx. 20 gcm <sup>2</sup>
Protection class (EN 60529)	Housing IP65, bearings IP64
Operating temperature	-10 ... +40 °C (EEx d IIC T6) -20 ... +60 °C (EEx d IIC T4)
Storage temperature	-25 ... +85 °C
Vibration resistance (IEC 68-2-6)	10 g = 100 m/s <sup>2</sup> (10...2000 Hz)
Shock resistance (IEC 68-2-27)	100 g = 1000 m/s <sup>2</sup> (6 ms)
Connection	5 m cable axial <sup>1</sup> for fixed layout
Size	Ø 70 mm
Flange	Clamping flange, Bohrungen 3 x M6
Weight approx.	1400 g

<sup>1</sup> Other cable length on request

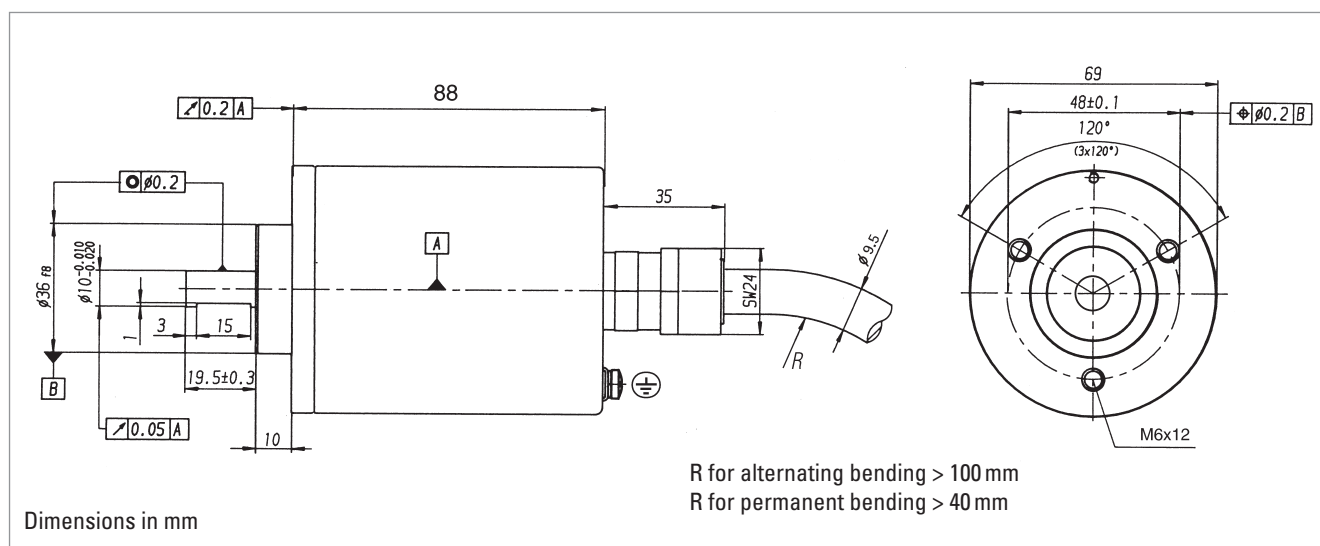
### TECHNICAL DATA electrical

General design	as per DIN VDE 0160, protection class III, Contamination level 2, over voltage level II	
Supply voltage (SELV)	with RS 422 + Sense (T): DC 5V ± 10 % with RS 422 + Alarm (R): DC 5V ± 10 % oder DC 10 - 30 V <sup>1</sup> with push-pull (K, I): DC 10 - 30 V <sup>1</sup>	
Max. current w/o load	40 mA (DC 5V), 60 mA (DC 10V), 30 mA (DC 24V)	
Standard output versions <sup>2</sup>	RS 422 (R):	A, B, N, $\bar{A}$ , $\bar{B}$ , $\bar{N}$ , Alarm
	RS 422 (T):	A, B, N, $\bar{A}$ , $\bar{B}$ , $\bar{N}$ , Sense
	push-pull (K):	A, B, N, Alarm
	push-pull complementary (I):	A, B, N, $\bar{A}$ , $\bar{B}$ , $\bar{N}$ , Alarm

<sup>1</sup> Pole protection with supply voltage DC 10 - 30 V

<sup>2</sup> Output description and technical data see chapter "Technical basics"

### DIMENSIONAL DRAWINGS



# Incremental Shaft Encoders Type RX 70/71

## Explosion-proof encoders

### PIN ASSIGNMENT

Cable Colour	No.	Output			
		RS 422+ Sense (T)	RS 422+ Alarm (R)	push-pull (K)	push-pull complementary (I)
brown/green	12	DC 5 V	DC 5/10 - 30 V	DC 10 - 30 V	DC 10 - 30 V
white/green	11	GND	GND	GND	GND
blue	10	Sense V <sub>CC</sub>			
white	9	Sense GND			
brown	1	Channel A	Channel A	Channel A	Channel A
green	2	Channel $\bar{A}$	Channel $\bar{A}$		Channel $\bar{A}$
grey	3	Channel B	Channel B	Channel B	Channel B
pink	4	Channel $\bar{B}$	Channel $\bar{B}$		Channel $\bar{B}$
red	5	Channel N	Channel N	Channel N	Channel N
black	6	Channel $\bar{N}$	Channel $\bar{N}$		Channel $\bar{N}$
violet	7		Alarm	Alarm	Alarm
screen			Cable screen connected to housing		
Screw terminal			for additional connection of an earth conductor		

### ORDERING INFORMATION

Type	Model	Number of pulses	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>RX70-T</b>	<b>I</b> Incremental	<b>1 ... 10 000</b>	<b>A</b> DC 5 V <sup>1</sup> <b>E</b> DC 10-30 V <sup>2</sup>	<b>K.42</b> Clamping, IP64, 10 mm	<b>K</b> push-pull short circuit proof <b>T</b> RS 422 + Sense <b>I</b> push-pull complementary <b>R</b> RS 422 + Alarm	<b>A</b> PVC cable axial (5m)
<sup>1</sup> with output T, R <sup>2</sup> with output K, I, R						

Type	Model	Number of pulses	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>RX71-T</b> Stainless steel	<b>I</b> Incremental	<b>1 ... 10 000</b> increments	<b>A</b> DC 5 V <sup>1</sup> <b>E</b> DC 10-30 V <sup>2</sup>	<b>K.42</b> Clamping, IP64, 10 mm	<b>K</b> push-pull short circuit proof <b>T</b> RS 422 + Sense <b>I</b> push-pull complementary <b>R</b> RS 422 + Alarm	<b>A</b> PVC cable axial (5m)
<sup>1</sup> with output T, R <sup>2</sup> with output K, I, R						