

TECHNICAL DATASHEET

EEx Incremental Encoders RX 70TI / RX 71TI



- Explosion proof class II according to EX II 2 G/D EEX d IIC T6/T4
- Highest working reliability
- Resolution up to 10.000 ppr
- Stainless steel version available (RX 71TI)
- Applications: enamelling production line, surfacing machines, bottling machines, mixers, silo works



ATEX



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

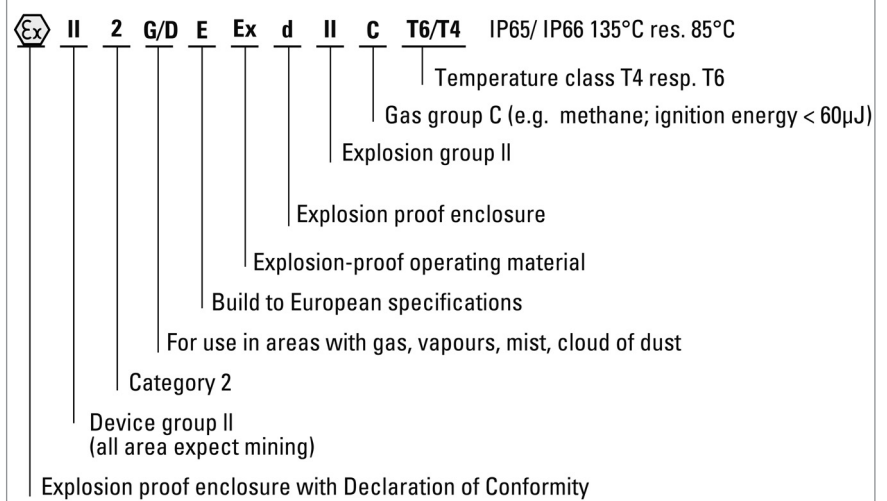
The incremental shaft encoder is available in explosion proof design with explosion proof enclosure "d" under RX 70 and RX 71 (stainless steel).

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.

TECHNICAL DATASHEET

EEx Incremental Encoders RX 70TI / RX 71TI



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

TECHNICAL DATA
mechanical

Housing diameter	70 mm
Shaft diameter	10 mm (Solid shaft)
Flange (Mounting of housing)	Clamping flange
Protection class shaft input (EN 60529) ¹	T4: IP64 or IP67 T6: IP64
Protection class housing (EN 60529)	T4: IP65 or IP67 T6: IP65
Shaft load axial / radial	50 N / 100 N
Max. speed	T4: max. 10 000 rpm T6: max. 6000 rpm
Torque	≤ 1 Ncm
Moment of inertia	approx. 20 gcm ²
Vibration resistance (DIN EN 60068-2-6)	10 g = 100 m/s ² (10 ... 2000 Hz)
Shock resistance (DIN EN 60068-2-27)	100 g = 1000 m/s ² (6 ms)
Ambient temperature	T4: -25 °C ... +60 °C T6: -25 °C ... +40 °C
Storage temperature	-25 °C ... +85 °C
Material shaft	Stainless Steel
Material housing	RX 70TI: Aluminum RX 71TI: Stainless Steel
Weight	RX 70TI: approx. 1.4 kg RX 71TI: approx. 4.8 kg
Connection ^{2,3}	Cable, axial

¹ No dust explosion-proof certification for IP64

² Standard cable length: 5 m cable, other cable length on request

³ Connection cable for fixed installation

TECHNICAL DATASHEET

EEx Incremental Encoders RX 70TI / RX 71TI

TECHNICAL DATA electrical

General design	as per DIN VDE 0160, protection class III, contamination level 2, overvoltage class II
Supply voltage ¹	RS422 + Sense (T): DC 5 V ±10 % RS422 + Alarm (R): ± 10% DC 5 V or DC 10 - 30 V Push-pull (K), Push-pull antivalent (I): DC 10-30 V
Max. current w/o load	40 mA (DC 5 V), 60 mA (DC 10 V), 30 mA (DC 24 V)
Max. pulse frequency	RS422: 300 kHz Push-pull: 200 kHz
Standard output versions ²	RS422 + Alarm (R): A, B, N, \bar{A} , \bar{B} , \bar{N} , \overline{Alarm} RS422 + Sense (T): A, B, N, \bar{A} , \bar{B} , \bar{N} , Sense Push-pull (K): A, B, N, \overline{Alarm} Push-pull complementary (I): A, B, N, \bar{A} , \bar{B} , \bar{N} , \overline{Alarm}
Pulse width error	± max. 25° electrical
Number of pulses	1 ... 10 000
Output current	RS 422: ±30 mA Push-pull with short-circuit protection: 30 mA (DC 10 - 30 V)
Alarm output	NPN-O.C., max. 5 mA
Pulse shape	Square wave
Pulse duty factor	1:1

¹ Pole protection with supply voltage DC 10 - 30 V

² Output code "K" and "I": short-circuit-proof

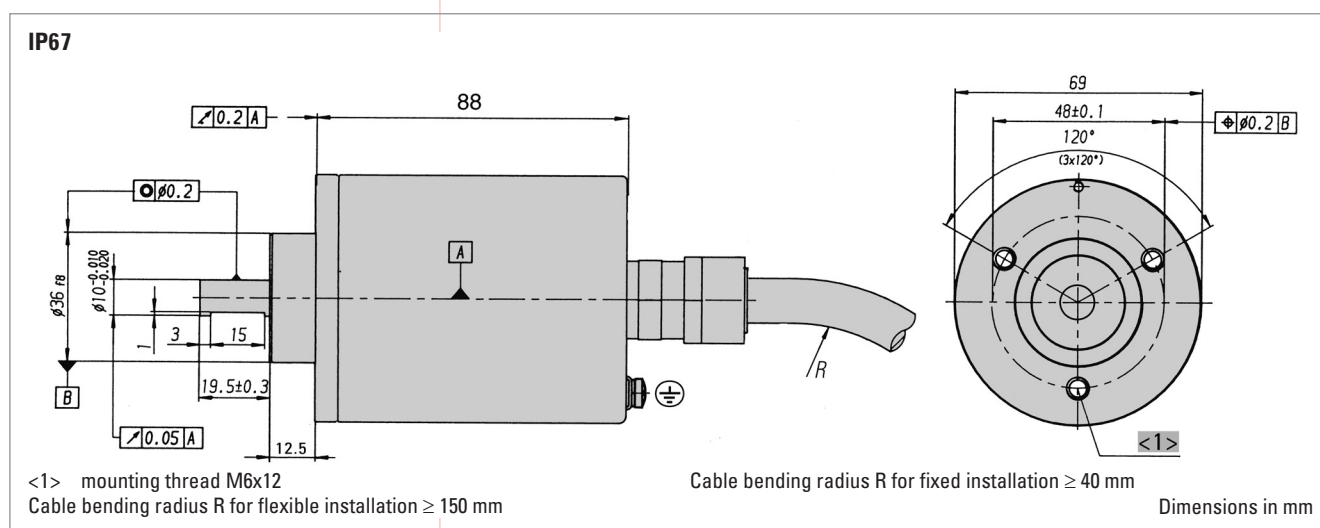
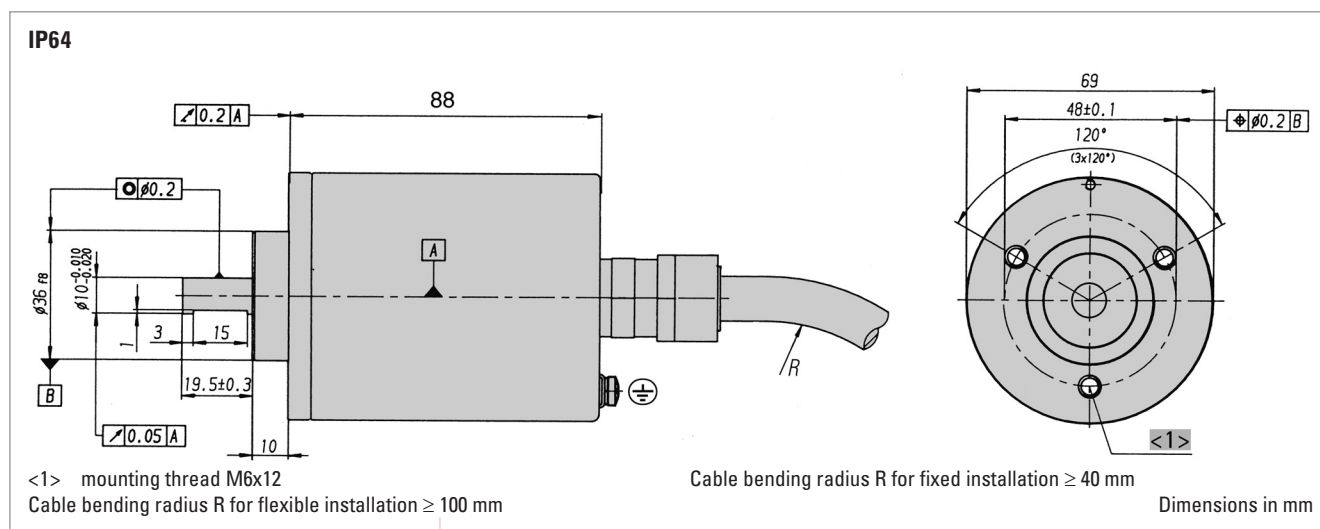
ELECTRICAL CONNECTIONS Cable PVC

Cable Colour	Cable 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 _{CC}			
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}
violett	7		\overline{Alarm}	\overline{Alarm}	\overline{Alarm}
screen			Cable screen connected to housing		
Screw terminal			for additional connection of an earth conductor		

TECHNICAL DATASHEET

EEx Incremental Encoders RX 70TI / RX 71TI

DIMENSIONED DRAWINGS



ORDERING INFORMATION

Type	Model	Number of pulses	Supply voltage ¹ ₂	Flange, Protection, Shaft ³	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RX70 RX71 Stain- less Steel	TI Incre- mental	1 ... 10000	A DC 5 V E DC 10 - 30 V	K.42 Clamping, IP64, 10 mm K.72 Clamping, IP67, 10 mm	R RS422 +Alarm T RS422 +Sense K Push-pull I Push-pull complementary	E TPE cable, axial

¹ DC 5 V: only with output "T", "R" available

² DC 10 - 30 V: only with output "K", "I", "R" available

³ No dust explosion-proof certification (D) for IP64

TECHNICAL DATASHEET**EEx Incremental Encoders RX 70TI / RX 71TI****ORDERING INFORMATION**
Selection of cable length

Versions with cable outlet (connection A, B, E or F) are available with various lengths of cable. To order your desired cable length, please add the respective code to the end of your ordering code. Further cable lengths on request.

Code	Cable length
-F0 / without code	5 m
-K0	10 m
-P0	15 m
-U0	20 m
-V0	25 m

TECHNICAL DATASHEET

EEx Incremental Encoders RX 70TI / RX 71TI Accessories

FLEXIBLE COUPLINGS



Bellows coupling



Helical coupling



Isolated disk coupling

		Ordering code
Bellows coupling	10 mm / 10 mm	3 520 037
Bellows coupling	8 mm / 10 mm	3 520 077
Helical coupling 25/32	6 mm / 10 mm	3 520 066
Helical coupling 25/32	10 mm / 12 mm	3 520 065
Helical coupling 25/32	10 mm / 10 mm	3 520 074
Isolated disk coupling	6 mm / 10 mm	3 520 082
Isolated disk coupling	10 mm / 10 mm	3 520 088