

# Incremental encoders

## EX approval Ex II 2D/2G (ATEX)

### 5...5000 pulses per revolution

#### X 700 - incremental



X 700 with EX-proof housing

#### Features

- Encoder incremental / ATEX
- Optical sensing
- Max. 5000 pulses per revolution
- Clamping flange with solid shaft  $\varnothing 10$  mm
- Explosion protection per Ex II 2D/2G (ATEX)
- Device class 2 / zone 1 (gas), zone 21 (dust)
- Material stainless steel

#### Technical data - electrical ratings

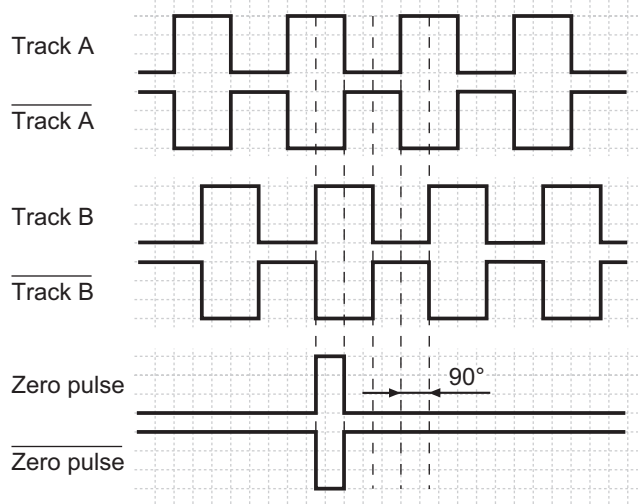
Voltage supply	4.75...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	$\leq 50$ mA
Pulses per revolution	5...5000
Reference signal	Zero pulse, width $90^\circ$
Sensing method	Optical
Output frequency	$\leq 300$ kHz
Output signals	A $90^\circ$ B, N + inverted
Output stages	Push-pull short-circuit proof
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4

#### Technical data - mechanical design

Size (flange)	$\varnothing 70$ mm
Shaft type	$\varnothing 10$ mm solid shaft (clamping flange)
Shaft loading	$\leq 60$ N axial $\leq 50$ N radial
Flange	Clamping flange
Protection DIN EN 60529	IP 67
Operating speed	$\leq 6000$ rpm
Starting torque	$\leq 0.04$ Nm
Materials	Housing: stainless steel Flange: stainless steel
Operating temperature	$-25...+70$ °C
Relative humidity	95 % non-condensing
Resistance	DIN EN 60068-2-27 Shock 300 g, 1 ms DIN EN 60068-2-27 Shock 100 g, 6 ms
Explosion protection	Ex II 2G Ex d IIC T4/T6 Ex II 2D
Connection	Cable 2 m (other length upon request)
Weight approx.	1300 g

#### Output signals

Clockwise rotating direction when looking at flange.



Optional: other reference impulse.

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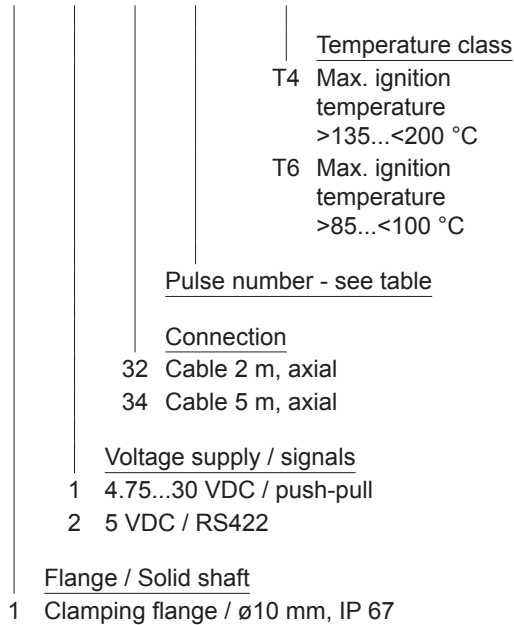
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### Part number

X 700.I 1



### Terminal assignment

Core no.	Core colour	Assignment
#1	white	GND
#2	brown	UB
#3	green	Track A
#4	yellow	Track B
#5	grey	Track N
#6	pink	Track A inv.
#7	blue	Track B inv.
#8	red	Track N inv.

### Trigger level

Outputs	Push-pull short-circuit proof
Output level High	>UB -1.4 V (I = -20 mA)
Output level Low	<0.5 V (I = 20 mA)
Load High / Low	<20 mA

### Pulse number

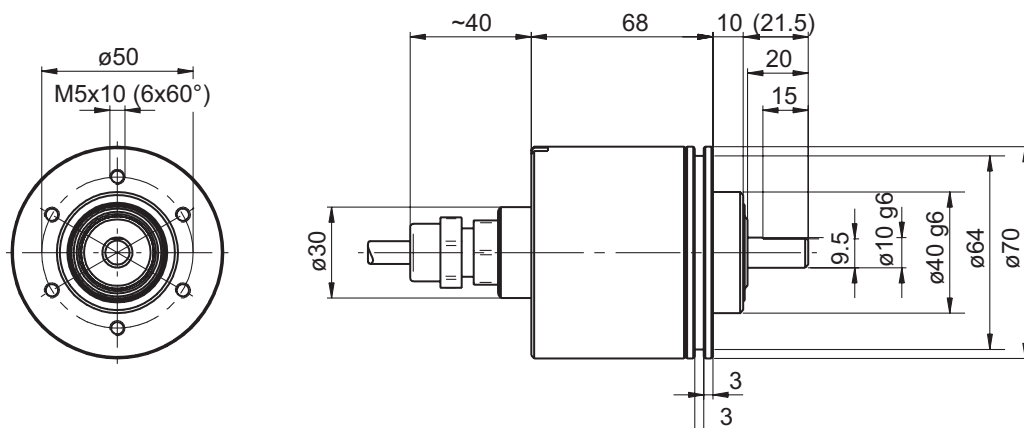
Part number (pulse number)

49 (5)	41 (100)	14 (400)	28 (2000)
36 (10)	57 (128)	15 (500)	34 (4096)
50 (25)	06 (200)	22 (1000)	
39 (50)	09 (250)	23 (1024)	
40 (60)	13 (360)	26 (1500)	

Other pulse numbers on request.

Example: part number 23 = 1024 pulses.

### Dimensions



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## Check list for EX-approval

In compliance with EU standards 94/9/EG for potentially explosive areas it is imperative that the present checklist is duly completed and that all pending questions relating to explosion protection and application are clarified.

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Division: \_\_\_\_\_

In charge: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

e-mail: \_\_\_\_\_

Product name:	Version:	Resolution (ppr / code):	Supply voltage:

Kind of e-connection:	Length of cable (m):	Output circuit:	Special options:

### Responsibility

- Our customer will receive all relevant information to verify a correct application.
- Our customer has to clarify all relevant criterions and characteristics.
- The operator shall be responsible for not exceeding the maximum performance limits of our devices (see data sheet).

**Device utilization/application** (E.g.: Lacquering line, manufacturing tech., gas storing vessel etc.)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Device group, device category and zone classification

<b>Device group</b>	please tick
Device group I	<input type="checkbox"/>
Device group II	<input type="checkbox"/>

<b>Category / Zone</b>	<b>Ex-atmosphere prevailing</b>	
Category 1 (= Zone 0/20)	... permanently, long-term or frequently	<input type="checkbox"/>
Category 2 (= Zone 1/21)	... only now and then	<input type="checkbox"/>
Category 3 (= Zone 2/22)	... rarely or seldom	<input type="checkbox"/>

<b>Zone classification</b>		
G (gases)	Zone 0, zone 1, zone 2	<input type="checkbox"/>
D (dusts)	Zone 20, zone 21, zone 22	<input type="checkbox"/>

## Check list for EX-approval

### Ignition protection

please tick

Ex d	Flameproof (pressure-proof capsule)	<input type="checkbox"/>
Ex ia	Intrinsic safety	<input type="checkbox"/>
Ex ib	Intrinsic safety	<input type="checkbox"/>

### Gas explosion group

Gases are classified into explosion groups. Danger increases from group II A to II C.

please tick

II A	Propane	<input type="checkbox"/>
II B	Ethylene	<input type="checkbox"/>
II C	Hydrogen, Acetylene	<input type="checkbox"/>

### Temperature classes and groups of explosion

Temperature class	Max. surface temperature of operating equipment (°C)	Max. ignition temperature of combustible substances (°C)	please tick
T1	450	> 450	void
T2	300	>300...< 450	void
T3	200	>200...< 300	void
<b>T4</b>	135	>135...< 200	<input type="checkbox"/>
T5	100	>100...< 135	void
<b>T6</b>	85	> 85...< 100	<input type="checkbox"/>

### Information on ambient and operating temperature

Expected operating temperature:	to be clarified
Field ambient temperature:	to be clarified

### Mechanical strain

Rotation speed (rpm)	
Axial shaft load (N)	
Radial shaft load (N)	
Ambient impacts (salt, lye, etc.)	

Date	Signature
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Stamp:

Date	Release EExB / trained sales
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