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 method**
- **Max. 5000 pulses per revolution**
- **Clamping flange with solid shaft ø10 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

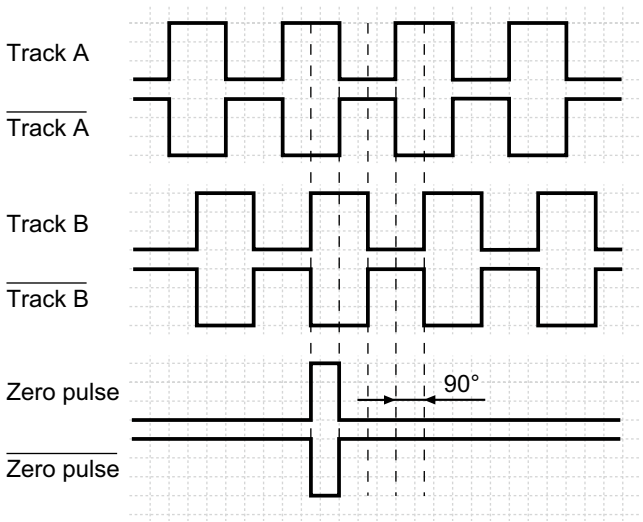
Voltage supply	4.75...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤50 mA
Pulses per revolution	5...5000
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	≤300 kHz
Output signals	A 90° B, N + inverted
Output stages	Push-pull short-circuit proof
Interference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

Technical data - mechanical design

Size (flange)	ø70 mm
Shaft type	ø10 mm solid shaft (clamping flange)
Admitted shaft load	≤60 N axial ≤50 N radial
Flange	Clamping flange
Protection DIN EN 60529	IP 67
Operating speed	≤6000 rpm
Starting torque	≤0.04 Nm (+25 °C)
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.

X 700 - incremental

Part number

X 700.I 1 | | | | . | |

Temperature class
- T4 Max. ignition temperature >135...<200 °C
- T6 Max. ignition temperature >85...<100 °C

Pulse number - see table

Connection
- 32 Cable 2 m, axial
- 34 Cable 5 m, axial

Voltage supply / signals
- 1 4.75...30 VDC / push-pull
- 2 5 VDC / RS422

Flange / Solid shaft
- 1 Clamping flange / ø10 mm, IP 67

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.

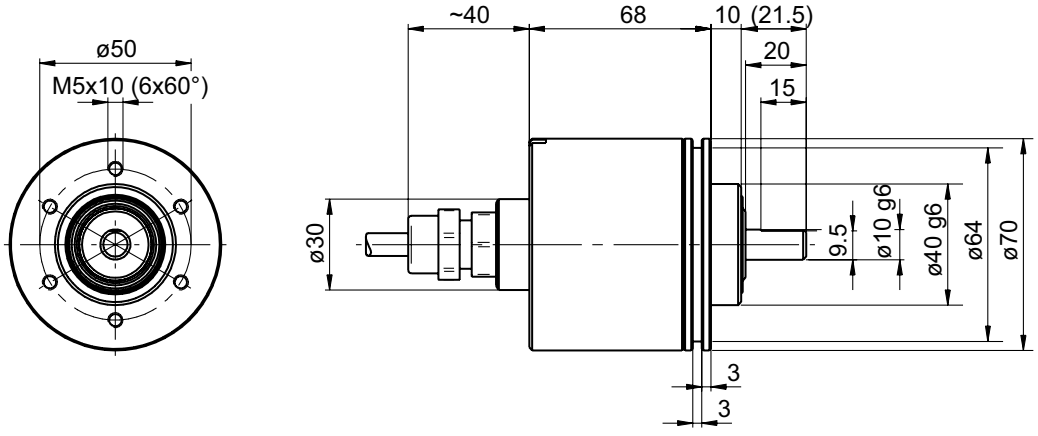
Terminal assignment

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

Dimensions



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

Device group		please tick
Device group I		☐
Device group II		☐

Category / Zone	**Ex-atmosphere prevailing**	
Category 1 (= Zone 0/20)	... permanently, long-term or frequently	☐
Category 2 (= Zone 1/21)	... only now and then	☐
Category 3 (= Zone 2/22)	... rarely or seldom	☐

Zone classification		
G (gases)	Zone 0, zone 1, zone 2	☐
D (dusts)	Zone 20, zone 21, zone 22	☐

Check list for EX-approval

Ignition protection		please tick
Ex d	Flameproof (pressure-proof capsule)	☐
Ex ia	Intrinsic safety	☐
Ex ib	Intrinsic safety	☐

Gas explosion group

Gases are classified into explosion groups. Danger increases from group II A to II C.		please tick
II A	Propane	☐
II B	Ethylene	☐
II C	Hydrogen, Acetylene	☐

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
T4 (on request)	135	>135...< 200	☐
T5	100	>100...< 135	void
T6	85	> 85...< 100	☐

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 _____

Stamp:

Date _____ Release EExB / trained sales _____