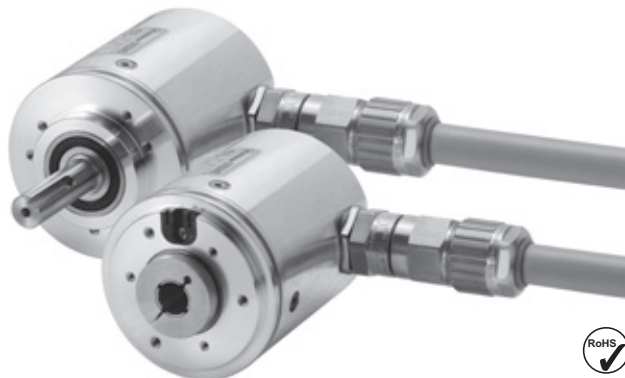


# Incremental Encoders

<b>ATEX, optical</b>	<b>7030 (Welle / Hohlwelle)</b>	<b>Push-Pull / RS422</b>
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The incremental encoders type 7030 with optical sensor technology offer Ex protection in a compact 70 mm housing.

These encoders in shaft or hollow shaft version with their flameproof enclosure are optimally suited for use in hazardous areas.



Incremental Encoders

Ex approval	High rotational speed	High IP value	High shaft load capacity	Shock / vibration resistant	Magnetic field proof	Optical sensor

### Safe

- “Flameproof-enclosure” version: approved for zone 1, 2 and 21, 22
- Zone 1, 2 and 21, 22:  
 Ex II 2G Ex d IIC T6 and Ex II 2D Ex tD A21 IP6X T85°C

### Compact

- Can be used even when space is tight
- Installation depth only 94 mm, diameter 70 mm (hollow shaft version)

### Order code Shaft / Hollow shaft version

<b>8.7030</b>	<b>. XXXX 2 .</b>	<b>XXXX</b>
Type	a b c	d

- a** Flange and hollow shaft or shaft
- 14 = synchro flange with through hollow shaft  $\varnothing$  12 mm
  - 25 = clamping flange with shaft  $\varnothing$  12 mm
  - 26 = clamping flange with shaft  $\varnothing$  12 mm and mounted flange adapter
  - 27 = stator coupling with through hollow shaft 12 mm

- c** Output circuit / Power supply
- 1 = RS422 (with inverted signal) / 5 V
  - 2 = Push-Pull (without inverted signal) / 10 ... 30 V
  - 3 = Push-Pull (with inverted signal) / 10 ... 30 V
  - 4 = RS422 (with inverted signal) / 10 ... 30 V

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

- d** Pulse rate
- 25, 50, 60, 100, 125, 200, 250, 256, 300, 360, 500, 512, 600, 720, 800, 1000, 1024, 1200, 1250, 1500, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000
- (e.g. 250 pulses => 0250)
- Other pulse rates on request

Mechanical characteristics	
<b>Speed</b>	max. 6000 min <sup>-1</sup>
<b>Rotor moment of inertia</b>	approx. 15 x 10 <sup>-6</sup> kgm <sup>2</sup>
<b>Starting torque</b>	< 0.05 Nm
<b>Load capacity of shaft</b>	radial 80 N axial 40 N
<b>Weight</b>	approx. 1.2 kg
<b>Protection acc. to EN 60 529</b>	IP65
<b>EX approval for hazardous areas</b>	ATEX, Explosion proof zone 1, 2 and 21, 22 Category (gas)  Ex II 2G Ex d IIC T6 Category (dust)  Ex II 2D Ex tD A21 IP6X T85°C
<b>Working temperature range</b>	-20°C ... +60°C
<b>Materials</b>	shaft stainless steel
<b>Shock resistance acc. EN 60068-2-27</b>	1000 m/s <sup>2</sup> , 6 ms
<b>Vibration resistance acc. EN 60068-2-6</b>	100 m/s <sup>2</sup> , 35...2000 Hz

Electrical characteristics		
Output circuit	RS422	Push-Pull
<b>Power supply</b>	5 V $\pm$ 5% / 10 ... 30 V DC	10 ... 30 V DC
<b>Power consumption (no load)</b>	without inverted signal – typ. 55 mA/max. 125 mA with inverted signal typ. 40 mA/max. 90 mA	
<b>Permissible load / channel</b>	max. $\pm$ 20 mA	max. $\pm$ 30 mA
<b>Pulse frequency</b>	max. 300 kHz	max. 300 kHz
<b>Signal level</b>	high min. 2.5 V low max. 0.5 V	min U <sub>B</sub> - 2.5 V max. 2.0 V
<b>Rising edge time t<sub>r</sub></b>	max. 200 ns	max. 1 s
<b>Falling edge time t<sub>f</sub></b>	max. 200 ns	max. 1 s
<b>Short circuit proof outputs<sup>1)</sup></b>	yes <sup>2)</sup>	yes
<b>Reverse connection of the supply voltage</b>	no	yes
<b>CE compliant acc. to</b>	EN 61 000-6-2, EN 61 000-6-4 and EN 61 000-6-3	
<b>RoHS compliant acc. to</b>	EU guideline 2002/95/EG	

1) If supply voltage correctly applied.  
 2) Only one channel allowed to be shorted-out:  
 If U<sub>B</sub> = 5 V, short-circuit to channel, 0 V, or +U<sub>B</sub> is permitted.  
 If U<sub>B</sub> = 5 - 30 V, short-circuit to channel or 0 V is permitted.

# Incremental Encoders

<b>ATEX, optical</b>	<b>7030 (Shaft)</b>	<b>Push-Pull / RS422</b>
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## Terminal assignment

Signal	0 V	0 V 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
Cable colour	WH	GY PK	BN	BU RD	GN	YE	GY	PK	BU	RD	PH <sup>1)</sup>

- 1) PH = Shield is attached to connector housing
- 2) The 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.

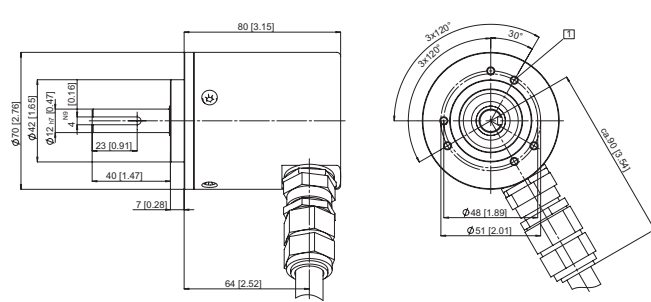
If the circuits are not being used, then they should be individually isolated and not connected.

Using RS 422 outputs and long cable distances, a wave impedance has to be applied at each cable end.

**Isolate unused outputs before initial start-up.**

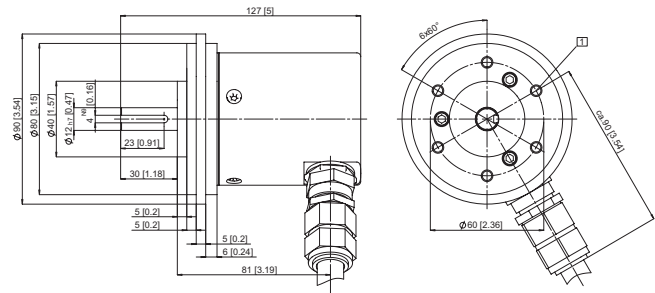
## Dimensions shaft version

### Clamping flange with shaft $\varnothing$ 12 mm



1 6 x M6, 12 [0.47] deep

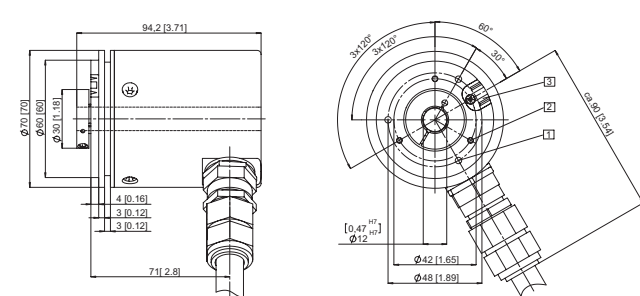
### Clamping flange with shaft $\varnothing$ 12 mm and mounted flange adapter



1 6 x M6, 12 [0.47] deep

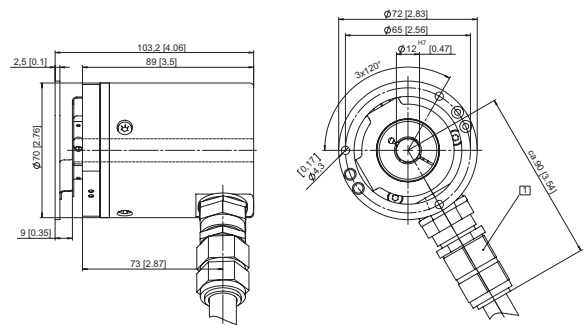
## Dimensions hollow shaft version

### Synchro flange



- 1 3 x M4, 6 [0.24] deep
- 2 3 x M3, 5 [0.20] deep
- 3 Torque stop slot,  
Recommendation: Cylindrical pin DIN7,  $\varnothing$  4 mm

### Stator coupling



1 Angular position of the cable outlet is not defined