Rotary Measuring Technology
Incremental shaft encoders

Heavy duty Type 9000 / 9000 stainless steel

RoHS Ex 2/22

- Highly flexible, chemical resistant PUR cable (stands up to constant flexing at -20 °C … + 70 °C)
- Temperature and ageing compensation
- Large temperature range
- Short-circuit proof outputs

Type heavy duty:
- Designed for heavy duty
- Sealed connector

Applications: steel industry, forestry, road construction and wood industry

Type stainless steel:
- Stainless steel housing and shaft
- Precision graduation at high resolution

Applications: Food- and pharmaceutical industry, automatic packaging machines, bottling plants, chemical process technology

Mechanical characteristics:

Speed:	max. 6000 min^{-1}
Rotor moment of inertia:	approx. 15 x 10^{-6} kgm^2
Starting torque:	< 0.05 Nm
Radial load capacity of shaft*:	140 N
Axial load capacity of shaft:*:	70 N
Weight:	approx. 1.2 kg stainless steel: 2.8 kg

Protection acc. to EN 60 529:	IP 66
EX approval for hazardous areas:	optional zone 2 and 22
Working temperature:	-20° C ... +85 °C[1)2)]
Shaft:	stainless steel
Shock resistance acc. to DIN-IEC 68-2-27	1000 m/s2, 6 ms
Vibration resistance acc. to DIN-IEC 68-2-6:	100 m/s^2, 10...2000 Hz

1) 80 °C with cable
2) Non-condensing

Electrical characteristics:

Output circuit:	RS 422 (TTL-compatible)	Push-pull
Supply voltage:	5 V (±5 %) or 10 ... 30 V DC	10 ... 30 V DC
Power consumption (no load) without inverted signal:	-	typ. 55 mA / max. 125 mA
Power consumption (no load) with inverted signals:	typ. 40 mA / max. 90 mA	typ. 80 mA/ max.150 mA
Permissible load/channel:	max. ±20 mA	max. ±30 mA
Pulse frequency:	max. 300 kHz	max. 300 kHz
Signal level high:	min. 2.5 V	min. U_B–2.5 V
Signal level low:	max. 0.5 V	max. 2.0 V
Rise time t_r	max. 200 ns	max. 1 µs
Fall time t_f	max. 200 ns	max. 1 µs
Short circuit proof outputs:[1)]	yes[2)]	yes
Reverse connection protection at U_B:	5 V: no, 10 ... 30 V: yes	yes
Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3		
RoHS compliant acc. to EU guideline 2002/95/EG		

1) If supply voltage correctly applied
2) Only one channel allowed to be shorted-out:
(If UB=5 V, short-circuit to channel, 0 V, or +UB is permitted)
(If UB=5-30 V, short-circuit to channel or 0 V is permitted)

Terminal assignment

Signal:	0V	0V Sensor[2)]	$+U_B$	$+U_B$ Sensor[2)]	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	Shield
Colour:	WH 0,5 mm^2	WH	BN 0,5 mm^2	BN	GN	YE	GY	PK	BU	RD	

1) PH = Shield is attached to connector housing
2) 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

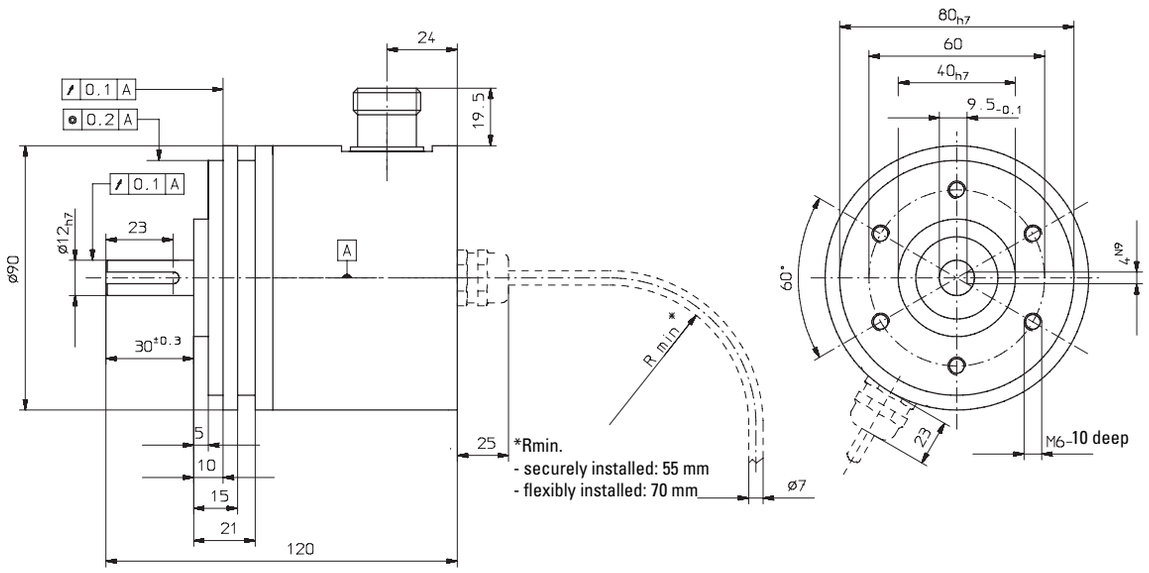
- If sensor cables are not in use, they have to be isolated or 0 V Sensor has to be connected to 0 V and U_BSensor has to be connected to U_B

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

Isolate unused outputs before initial startup.

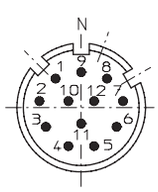
Heavy duty Type 9000 / 9000 stainless steel

Dimensions:



Top view of mating side, male contact base:

12 pin plug



Order code:

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Type

Output circuit and voltage display
- **4 = RS 422 (with inverted signal) 5 V supply voltage**
- 5 = RS 422 (with inverted signal) 10 ... 30 V supply voltage
- **6 = Push-pull (with inverted signal) 10 .. 30 V supply voltage**
- 7 = Push-pull (without inverted signal) 10 ... 30 V supply voltage

Version
- 0000 = Standard
- 5007 = Stainless steel version

Pulse rate
- 50, 500, 1000, 1024, 2000, 2048, 2500, 3000, 4096, 5000
- (e.g. 250 pulses=> 0250)
- Other pulse rates on request

Type of connection
- 1 = Cable axial (1 m PUR-cable)
- **2* = Cable radial (1 m PUR-cable)**
- 3* = axial 12 pin plug axial without mating connector
- **5* = radial 12 pin plug without mating connector**

*not with stainless steel version

Preferred types are indicated in ***bold***

Accessories:
Cables and connectors, also pre-assembled, can be found in the chapter Connection Technology
Mounting attachments and couplings can be found in the chapter Accessories

Accessories:
Corresponding mating connector to connection type of 3 or 5
Order No. 8.0000.5012.0000