

Rotary Measuring Technology

Incremental hollow shaft encoder

Large diameter Type A020



A020

- Only 43 mm clearance needed
- Hollow shaft diameter up to 42 mm
- Very easy mounting. The encoder is mounted directly on the drive shaft without couplings.
- Electronical temperature and ageing compensation
- RS 422, push-pull or sine wave output
- High scanning rate

Mechanical characteristics:

Speed:	max. 1500 min ⁻¹
Rotor moment of inertia:***	<150 x 10 ⁻⁶ kgm ²
Starting torque with sealing:	< 0,2 Nm
Weight:	app. 0,7 kg
Protection acc. to EN 60 529:	IP 65
Working temperature:	-20° C ... +70 °C
Operating temperature:	-20° C ... +75 °C
Shaft:	stainless steel H7
Shock resistance acc. to DIN-IEC 68-2-27:	1000 m/s ² , 6 ms
Vibration resistance acc. to DIN-IEC 68-2-6:	100 m/s ² , 10...2000 Hz

*** depending on shaft diameter

Electrical characteristics RS 422 or push-pull output:

Output circuit:	RS 422 (TTL-compatible)	Push-pull	Push-pull (7272)
Supply voltage:	5 V (±5 %) or 10 ... 30 V DC 10 ... 30 V DC	5 ... 30V DC	
Power consumption (no load) without inverted signal:	not available	typ. 55 mA / max. 125 mA	–
Power consumption (no load) with inverted signal:	typ. 40 mA / max. 90 mA	typ. 80 mA/ max.150 mA	typ. 50 mA/ max.100 mA
Permissible load/channel:	max. ±20 mA	max. ±30 mA	max. ±20 mA
Pulse frequency:	max. 300 kHz	max. 300 kHz	max. 300 kHz ³⁾
Signal level high:	min. 2,5 V	min. U _B -3 V	min. U _B -2,0 V
Signal level low:	max. 0,5 V	max. 2,5 V	max. 0,5 V
Rise time tr	max. 200 ns	max. 1 µs	max. 1 µs
Fall time tf	max. 200 ns	max. 1 µs	max. 1 µs
Short circuit proof outputs ¹⁾ :	yes ²⁾	yes	yes
Reverse connection protection at U _B :	5 V: no, 10 ... 30 V: yes	yes	no
Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3			

¹⁾ When supply voltage correctly applied

²⁾ Only one channel at a time:

(when U_B = 5 V, short-circuit to channel, 0 V, or +U_B is permitted.)

(when U_B = 10 ... 30 V short-circuit to channel or 0 V is permitted.)

³⁾ cable length up to 30 m

Electrical characteristics sine wave output:

Output circuit:	Sinus	Sinus
	U = 1 V _{ss}	U = 1 V _{ss}
Supply voltage:	5 V (±5 %)	10 ... 30 V DC
Current consumption (no load) with inverted signals:	typ. 65 mA / max. 110 mA	typ. 65 mA / max. 110 mA
-3 dB frequency:	≥180 kHz	≥180 kHz
Signal level channels A/B:	1 V _{ss} (±20%)	1 V _{ss} (±20 %)
Signal level channel 0:	0,1 ... 1,2 V	0,1 1,2 V
Short circuit proof outputs ¹⁾ :	yes	yes
Reverse connection protection at U _B :	no	yes
Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3		

Pulse rates available at short notice:

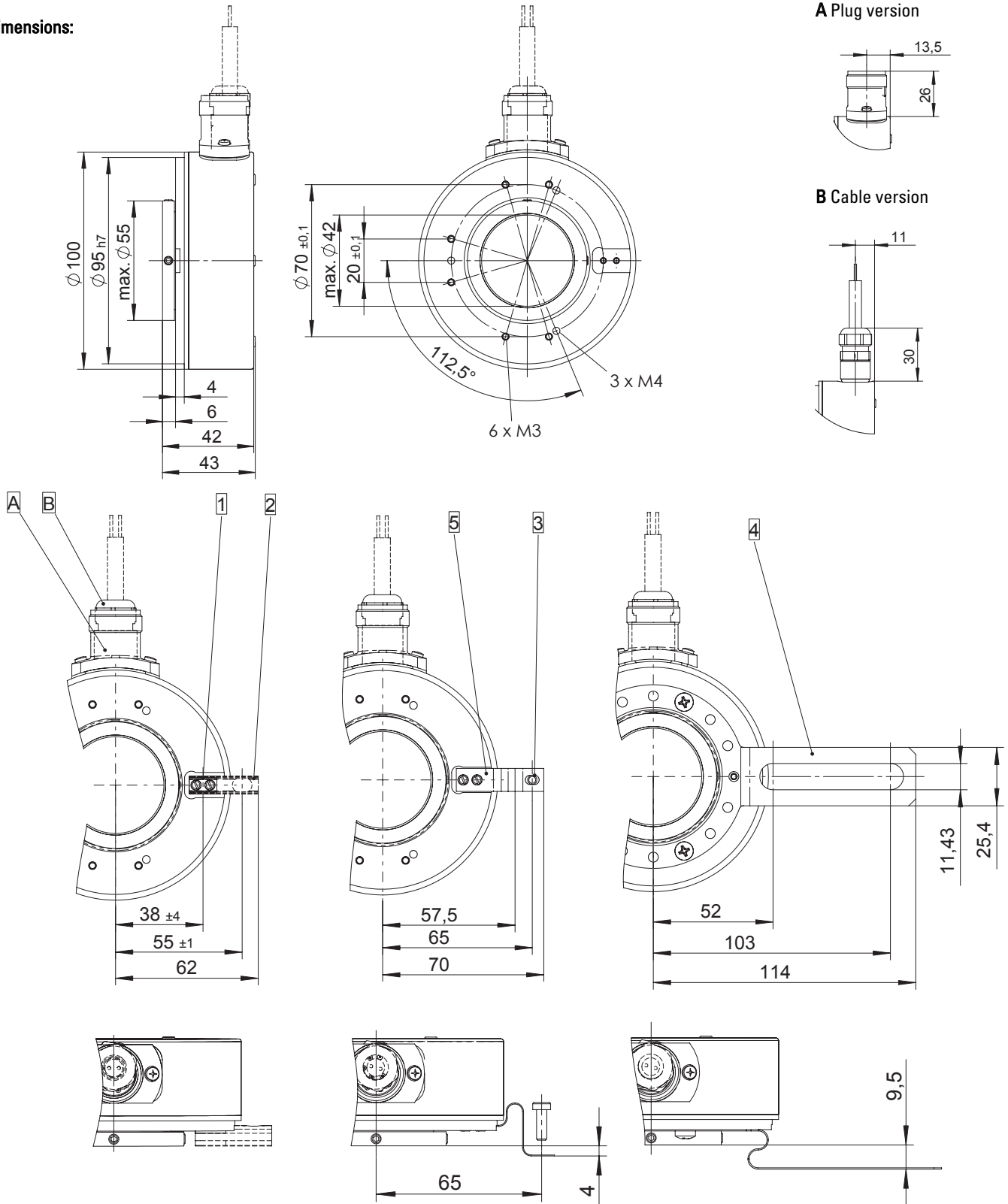
360*, 512, 600, 1000, 1024, 1500, 2048, 2500, 4096, 5000

*not with sine wave output

Other pulse rates on request

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Dimensions:



- 1 Spring element short (Flansch Nr. 2)
- 2 Spring element long (Flansch Nr. 3)
- 3 Slotted hole for screw M4
- 4 Tether arm long
- 5 Tether arm short

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Terminal assignment:

Sig.:	0 V	0 V Sens ²⁾	+U _B	+U _B Sens ²⁾	A	\bar{A}	B	\bar{B}	0	$\bar{0}$	
Pin:	10	11	12	2	5	6	8	1	3	4	PH ¹⁾
Col.:	WH	GY PK	BN	RD BU	GN	YE	GY	PK	BU	RD	

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 sensor cables are not in use, they have to be insulated 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. Insulate unused outputs before initial startup.

Order code:

8.A020.XXXX.XXXX

<p>Range</p>		<p>Pulse rate (e.g. 360 pulses=> 0360)</p>
<p>Flange</p> <p>1 = without mounting aid 2 = with short spring device 3 = with long spring device 4 = with mounting bracket short 5 = with mounting bracket long</p> <p>¹⁾not with A020H</p>		<p>Type of connection</p> <p>1 = Cable radial (1 m PVC-cable) 2 = radial 12 pin plug without mating connector</p>
<p>Hollow shaft</p> <p>1 = \varnothing 42 mm 2 = \varnothing 38 mm 3 = \varnothing 28 mm 4 = \varnothing 25,4 mm (1") 5 = \varnothing 25 mm 6 = \varnothing 24 mm A = \varnothing 30 mm B = \varnothing 40 mm</p>		<p>Output circuit and voltage display</p> <p>1 = RS 422 (with inverted signal) 5 V supply voltage</p> <p>2 = Push-pull (without inverted signal) 10 ... 30 V supply voltage</p> <p>3 = Push-pull (with inverted signal) 10 ... 30 V supply voltage</p> <p>4 = RS 422 (with inverted signal) 10 ... 30 V supply voltage</p> <p>5 = Push pull (with inverted signal) 5 ... 30 V supply voltage</p> <p>8 = SIN/COS 1 Vpp (with Invertierungen) 5 V supply voltage</p> <p>9 = SIN/COS 1 Vpp (with inverted signal) 10 .. 30 V supply voltage</p> <p>A = Line driver 7272 5 ... 30 V supply voltage</p>

Prefered types are fat marked

Accessories

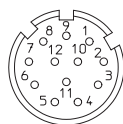
Corresponding mating connector to

Type of connection 3 or 5,
 12 pin: Art.-No.. 8.0000.5012.0000
 pin assignment ccw

Corresponding mating connector with cable
 pre-assembled: Art.- No. 8.0000.6101.XXXX
 (XXXX = length [m])

Set includes Connector typ 8.0000.5012.0000
 and cable typ 8.0000.6100.XXXX
 (Cable PUR 10 x 0,14 mm² + 2 x 0,5 mm²)

PIN allocation:



Dimensions:

