Large diameter heavy duty Type A02H

- **Rugged: balanced, stainless-steel clamping rings, special bearing-shaft connection increases stability and vibration resistance**
- **Economic alternative to traditional heavy duty encoders that are often over-engineered and expensive**
- **Versatile due to compact size. Optional isolating inserts eliminate possible damage from shaft currents, for example with AC vector motors**

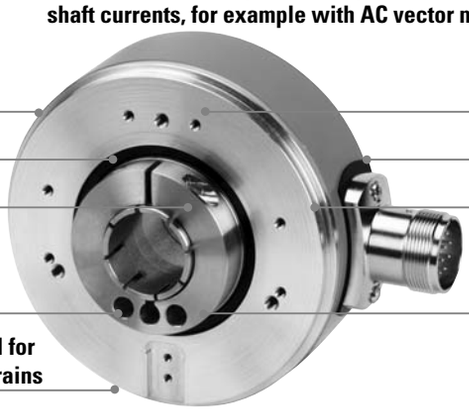
Only 49 mm clearance needed

Hollow shaft diameter up to Ø 42 mm

Very easy mounting without couplings

Optional:
Plastic isolating inserts
protect against shaft currents

New type of mechanical construction, ideal for handling tough mechanical stresses and strains



High scanning rate

RS 422, push-pull or SIN/COS outputs

Extended speed range up to 6000 min^{-1}

High-grade hub/shaft fixing, balanced, stainless-steel – ensures quiet vibration-free running

Mechanical characteristics:

Speed:	max. 6000 min^{-1} at 70°C[1)] max. 3500 min^{-1} at 80°C[1)]
Rotor moment of inertia:	<220 x 10^{-6} kgm^2 [2)]
Starting torque with sealing:	< 0.2 Nm
Weight:	app. . 0.8 kg
Protection acc. to EN 60 529:	IP 65
Working temperature:	–20° C ... +80 °C[3)]
Operating temperature:	–20° C ... +85 °C[3)]
Shaft:	stainless-steel H7
Shock resistance acc. to DIN-IEC 68-2-27:	2000 m/s^2, 6 ms
Vibration resistance acc. to DIN-IEC 68-2-6:	100 m/s^2, 10...2000 Hz

1) During the run-in-phase of approx. 2 seconds, reduce the limits for working temperature$_{max}$ or speed $_{max}$ by 1/3
2) Dependent on the shaft diameter
3) Non-condensing

Pulse rates available at short notice:
50*, 360*, 512, 600, 1000, 1024, 1500, 2000, 2048, 2500, 4096, 5000
*not with sine wave output

Other pulse rates on request
Ex available as explosion proof zone 2 and 22

Electrical characteristics RS 422 or push-pull output:

Output circuit:	RS 422 (TTL-compatible)	Push-pull	Push-pull (7272)[3)]
Supply voltage:	5 V (±5 %) or 10 ... 30 V DC	10 ... 30 V DC	5 ... 30V DC
Power consumption (no load)	not available	typ. 55 mA /	–
without inverted signal:		max. 125 mA	–
Power consumption (no load)	typ. 40 mA /	typ. 80 mA/	typ. 50 mA/
with inverted signal:	max. 90 mA	max.150 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
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) 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)
3) Max. recommended cable length 30 m

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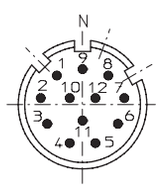
Electrical characteristics sine wave output:

Output circuit:	Sine	Sine
	U = 1 Vss	U = 1 Vss
Supply voltage:	5 V (±5 %)	10 ... 30 V DC
Current consumption	typ. 65 mA /	typ. 65 mA /
(no load) with inverted signals:	max. 110 mA	max. 110 mA
-3 dB frequency:	≥180 kHz	≥180 kHz
Signal level channels A/B:	1 Vss (±20%)	1 Vss (±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		

Top view of mating side, male contact base:
12 pin plug

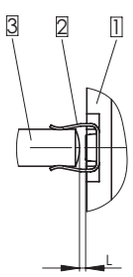


Corresponding mating connector to
Type of connection 2
Art.-Nr. 8.0000.5012.0000
Ask our technical hotline
0049 7720 -3903-92

Mounting:

Mounting using the spring element - short

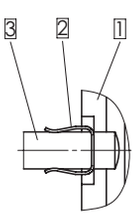
When mounting the encoder, ensure that dim. L is larger than the maximum axial play of the drive in the direction of the arrow.



1 Bracket
2 Spring element - short
3 Cylindrical pin

Mounting using the spring element – long

Cylindrical pin fed through the bore of the spring



1 Bracket
2 Spring element - long
3 Cylindrical pin

Terminal assignment:

Sig.:	0 V	0 V Sens[2]	$+U_B$	$+U_B$ Sens[2]	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
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] 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.

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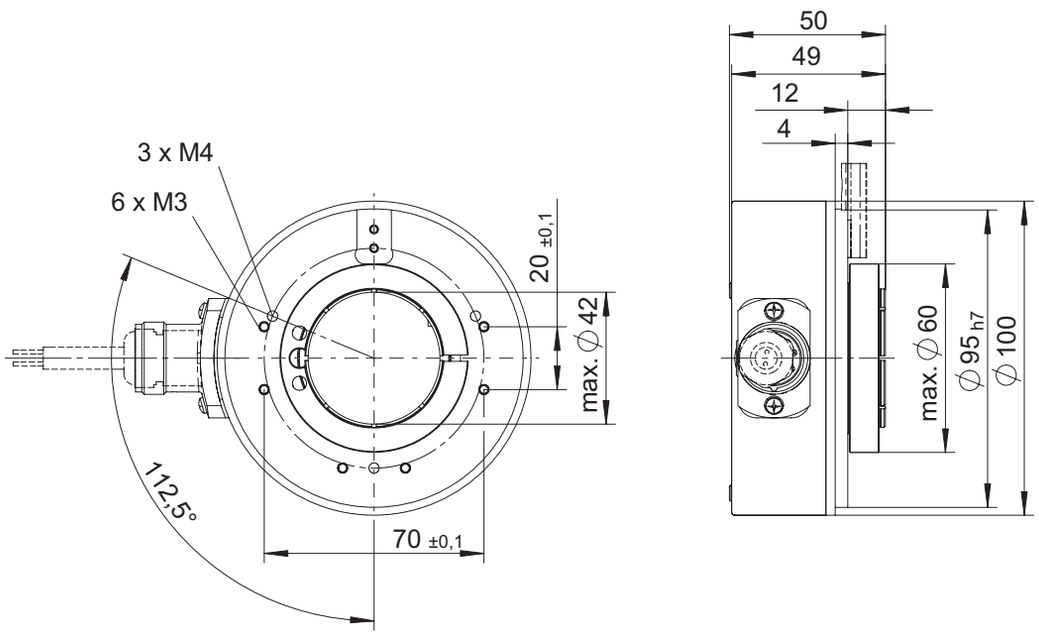
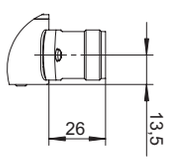
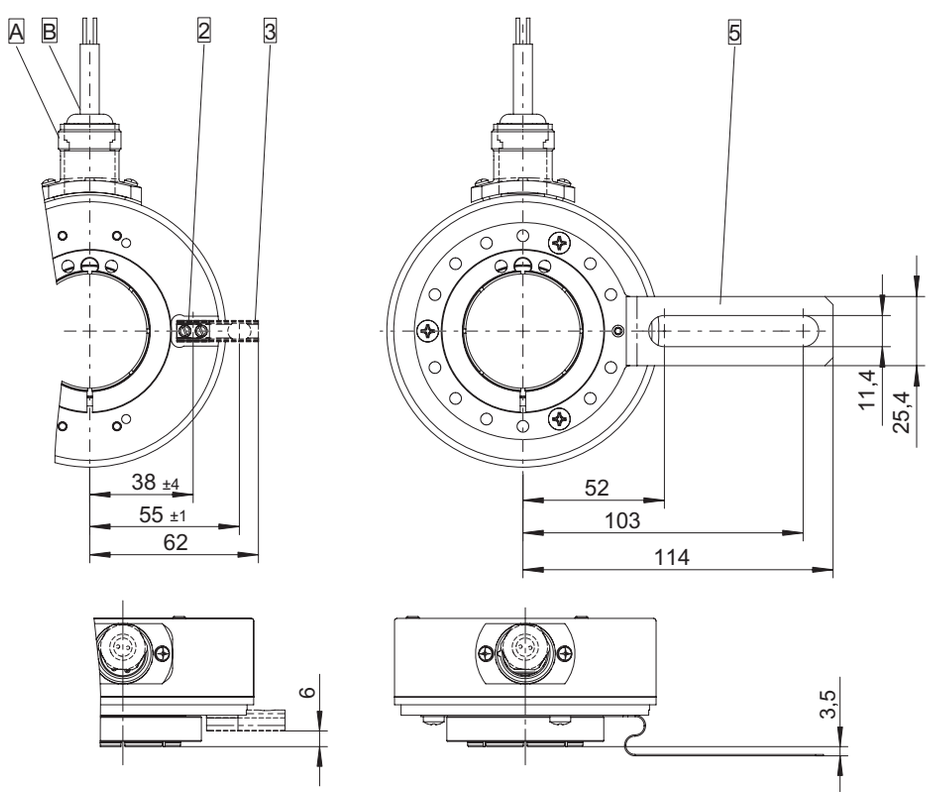
Dimensions:

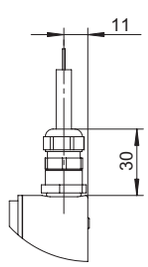


A Plug version





B Cable version



2 Spring element short (bracket no. 2)
3 Spring element long (bracket no. 3)
5 Tether arm long (bracket no. 5)

Note: minimum insertion depth 1.5 x $D_{hollow\ shaft}$

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Order code: **8.A02H.XXXX.XXXX**

Range
A02H = Heavy Duty execution

Bracket
1 = without mounting aid
2 = with short spring device
3 = with long spring device
4 = with mounting bracket short[1)]
5 = with mounting bracket long
[1)] not with A020**H**

Hollow shaft
1 = ø 42 mm
2 = ø 38 mm
3 = ø 28 mm
4 = ø 25.4 mm (1")
5 = ø 25 mm
6 = ø 24 mm
A = ø 30 mm
B = ø 40 mm
C = ø 20 mm
H = ø 35 mm
M = ø 19 mm

Pulse rate
(e.g. 360 pulses=> 0360)

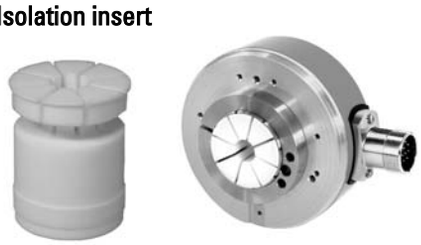
Type of connection
1 = Cable radial (1 m PVC-cable)
2 = radial 12 pin plug without mating connector

Output circuit and voltage display
1 = RS 422 (with inverted signal) 5 V supply voltage
2 = Push-pull (without inverted signal) 10 ... 30 V supply voltage
3 = Push-pull (with inverted signal) 10 ... 30 V supply voltage
4 = RS 422 (with inverted signal) 10 ... 30 V supply voltage
5 = Push pull (with inverted signal) 5 ... 30 V supply voltage
8 = SIN/COS 1 Vpp (with inverted signal) 5 V supply voltage
9 = SIN/COS 1 Vpp (with inverted signal 10 .. 30 V supply voltage
A = Line driver 7272 5 ... 30 V supply voltage

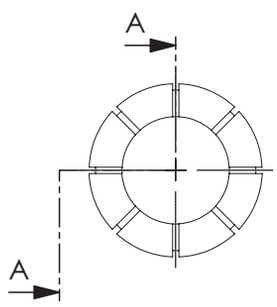
Preferred types are indicated in ***bold***

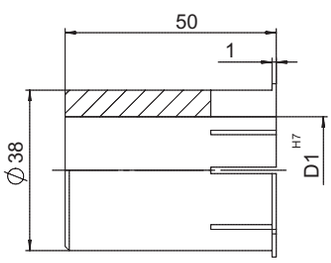
Optional (on request)**:**
– special connector pin out
– special output signals formats

Accessories
Isolation insert



Diameter: D1	Order-no.:
12.7 mm (1/2")	8.0010.4013.0000
15.875 mm	8.0010.4070.0000
18 mm	8.0010.4080.0000
19.05 mm (3/4")	8.0010.4090.0000
20 mm	8.0010.4011.0000
25 mm	8.0010.4012.0000
25.4 mm	8.0010.4050.0000
31.75 mm ($1^1/_4$")	8.0010.4060.000





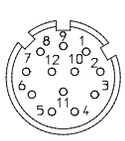
Isolation inserts prevent currents from passing through the encoder bearings. These currents can occur when using inverter controlled three-phase or AC vector motors and considerably shorten the service life of the encoder bearings.

For more details please call our Technical Hotline (+49 7720 3903 92) or send us an e-mail (info@kuebler.com)

Accessories

Corresponding mating connector to
Type of connection 2,
12 pin: Art.-No.. 8.0000.5012.0000
pin assignment cw
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 type 8.0000.6100.XXXX
(Cable PUR 10 x 0.14 mm² + 2 x 0.5 mm²)

PIN allocation:



Dimensions: