Compact
Plastic housing, optical

3700 / 3720 (Shaft / Hollow shaft)

Push-Pull / RS422

The incremental economy encoders type 3700 / 3720 with optical sensor technology are a particularly compact and economical solution.

The carbon-fibre reinforced plastic housing of these incremental encoders is, nevertheless, extremely robust and resistant.

Magnetic field proof | Reverse polarity protection | Short-circuit proof | High protection level | Optical sensor

Reliable

- Tube Tech® cable outlet with extremely high strain relief
- Ideal for outdoor use thanks to high IP protection

Versatile

- Through hollow shaft up to 8 mm
- Compact size of only 37 mm
- Up to 1024 pulses per revolution

Order code Shaft version

8.3700 . X X X X . XXXX
Type — a b c d — e

If for each parameter of an encoder the **underlined preferred option** is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.

10 by 10

a *Flange*
1 = clamping / synchro flange, ø 36.8 mm [1.45"]
A = flange adapter, mounted, ø 36.8 mm [1.45"]

b *Shaft (ø x L), with flat*
1 = ø 4 x 12.5 mm [0.16 x 0.49"]
2 = ø 5 x 12.5 mm [0.20 x 0.49"]
3 = ø 6 x 12.5 mm [0.24 x 0.49"]
6 = ø 8 x 12.5 mm [0.32 x 0.49"]
4 = ø 1/4" x 12.5 mm [1/4" x 0.49"]

c *Output circuit / Power supply*
1 = RS422 / 5 V DC ±5 %
3 = Push-Pull (with inverted signal) / 5 ... 30 V DC
4 = Push-Pull (with inverted signal) / 10 ... 30 V DC

d *Type of connection* [1)]
1 = axial cable, 1 m [3.28'] PVC cable
2 = radial cable, 1 m [3.28'] PVC cable
3 = axial cable, 2 m [6.56'] PVC cable
4 = radial cable, 2 m [6.56'] PVC cable
5 = axial cable, 3 m [9.84'] PVC cable
6 = radial cable, 3 m [9.84'] PVC cable
7 = axial cable, 5 m [16.40'] PVC cable
8 = radial cable, 5 m [16.40'] PVC cable

e *Pulse rate*
10, 25, 50, 60, 100, 200, 250, 300, **360**, 400, **500**, **512**, 600, **1000**, **1024**
(e.g. 360 pulses => 0360)
Other pulse rates on request

Stock types
8.3700.1332.0360
8.3700.1332.0500
8.3700.1332.1000
8.3700.1332.1024

Order code Hollow shaft

8.3720 . X X X X . XXXX
Type — a b c d — e

If for each parameter of an encoder the **underlined preferred option** is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.

10 by 10

a *Flange*
1 = with spring element, short
2 = with spring element, long
5 = with stator coupling, ø 46 mm [1.81"]

b *Hollow shaft*
1 = ø 4 mm [0.16"]
2 = ø 5 mm [0.20"]
3 = ø 6 mm [0.24"]
6 = ø 8 mm [0.32"]
4 = ø 1/4"

c *Output circuit / Power supply*
1 = RS422 / 5 V DC ±5 %
3 = Push-Pull (with inverted signal) / 5 ... 30 V DC
4 = Push-Pull (with inverted signal) / 10 ... 30 V DC

d *Type of connection* [1)]
1 = radial cable, 1 m [3.28'] PVC cable
2 = radial cable, 2 m [6.56'] PVC cable
3 = radial cable, 3 m [9.84'] PVC cable
4 = radial cable, 5 m [16.40'] PVC cable

e *Pulse rate*
10, 25, 50, 60, 100, 200, 250, 300, **360**, 400, **500**, **512**, 600, **1000**, **1024**
(e.g. 360 pulses => 0360)
Other pulse rates on request

Stock types
8.3720.5631.0360
8.3720.5611.1024

1) "Tube Tech®" cable outlet guarantees 10 x higher strain relief than traditional cabling methods plus higher IP-Protection. Other cable lengths are available on request.

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Plastic housing, optical

3700 / 3720 (Shaft / Hollow shaft)

Push-Pull / RS422

Mounting accessory for shaft encoders		Order-No.
Coupling	Bellows coupling ø 15 mm [0.59"] for shaft 6 mm [0.24"]	**8.0000.1201.0606**

Further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories
Additional connectors can be found in the connection technology section or in the connection technology area of our website at: www.kuebler.com/connection_technology

Technical data

Mechanical characteristics

Speed		max. 6 000 min^{-1}
Moment of inertia	shaft version	approx. 0.4 x 10^{-6} kgm^2
	hollow shaft version	1.4 x 10^{-6} kgm^2
Starting torque - at 20°C [68°F]		
	shaft version	< 0.007 Nm
	hollow shaft version	< 0.01 Nm
Shaft load capacity	radial	20 N
	axial	10 N
Weight		approx. 0.1 kg [35.27 oz]
Protection acc. to EN 60529		
	bearings, shaft	IP65
	cable outlet	IP67
EX approval for hazardous areas		optional zone 2 and 22
Working temperature range		-20°C ... +70°C [1]
		[-4°F ... 158°F] [1]
Materials	shaft / hollow shaft	stainless steel
	housing, flange	PPA, 40% CF (carbon fibre)
	cable	PVC
Shock resistance acc. to EN 60068-2-27		1000 m/s^2, 6 ms
Vibration resistance acc. to EN 60068-2-6		100 m/s^2, 10 ... 2000 Hz

Electrical characteristics

Output circuit	**RS422** (TTL compatible)	**Push-Pull** (7272 comp.) [4]	**Push-Pull** (7272 comp.) [4]
Power supply	5 V DC (±5%)	5 ... 30 V DC	10 ... 30 V DC
Power consumption with inverted signal (no load)	typ. 40 mA / max. 90 mA	typ. 50 mA/ max. 100 mA	typ. 50 mA/ max. 100 mA
Permissible load / channel	max. ±20 mA	max. ±20 mA	max. ±20 mA
Pulse frequency	max. 250 kHz	max. 250 kHz	max. 250 kHz
Signal level HIGH	min. 2.5 V	min. +V - 2.0 V	min. +V - 2.0 V
LOW	max. 0.5 V	max. 0.5 V	max. 0.5 V
Rising edge time t_r	max. 200 ns	max. 1 µs	max. 1 µs
Falling edge time t_f	max. 200 ns	max. 1 µs	max. 1 µs
Short circuit proof outputs [2]	yes [3]	yes	yes
Reverse polarity protection of the power supply	no	no	yes
UL approval	File 224618		
CE compliant acc. to	EMC guideline 2004/108/EC		
RoHS compliant acc. to	guideline 2011/65/EU		

Terminal assignment

Output circuit	Type of connection	Cable (isolate unused wires individually before initial start-up)							
1, 3, 4	1 ... 8	Signal:	0 V	+V	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$
		Cable colour:	WH	BN	GN	YE	GY	PK	BU	RD

+V: Encoder power supply +V DC
0 V: Encoder power supply ground GND (0 V)
A, $\overline{A}$: Incremental output channel A
B, $\overline{B}$: Incremental output channel B
0, $\overline{0}$: Reference signal

1) For versions with push-pull output and supply voltage >15 V DC: max. 55°C [+131°F]
2) If supply voltage correctly applied
3) Only one channel allowed to be shorted-out:
If +V = 5 V DC short circuit to channel, 0 V, or +V is permitted.
If +V = 5 ... 30 V DC short circuit to channel or 0 V is permitted.
4) Max. recommended cable length 30 m [98.43']

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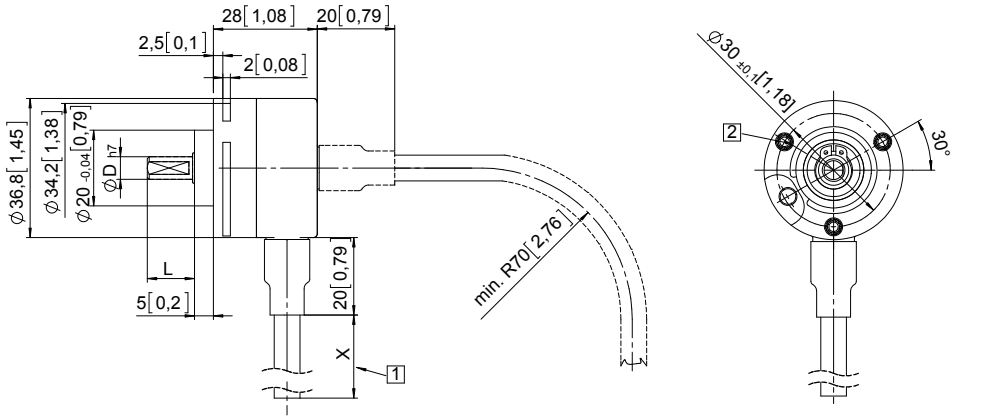
Dimensions shaft version

Dimensions in mm [inch]

Clamping / Synchro flange, ø 36.8 [1.45]
Flange type 1

1 Cable length
1, 2, 3 or 5 m
[3.28', 6.56', 9.84' or 16.40']

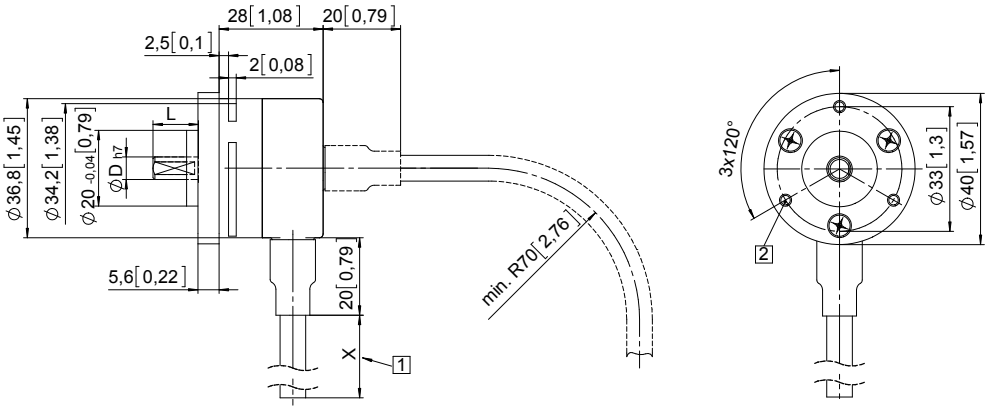
2 M3, 6 [0.24] deep



Flange adapter, ø 36.8 [1.45]
Flange type A

1 Cable length
1, 2, 3 or 5 m
[3.28', 6.56', 9.84' or 16.40']

2 M3, 6 [0.24] deep



Compact
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Dimensions hollow shaft version

Dimensions in mm [inch]

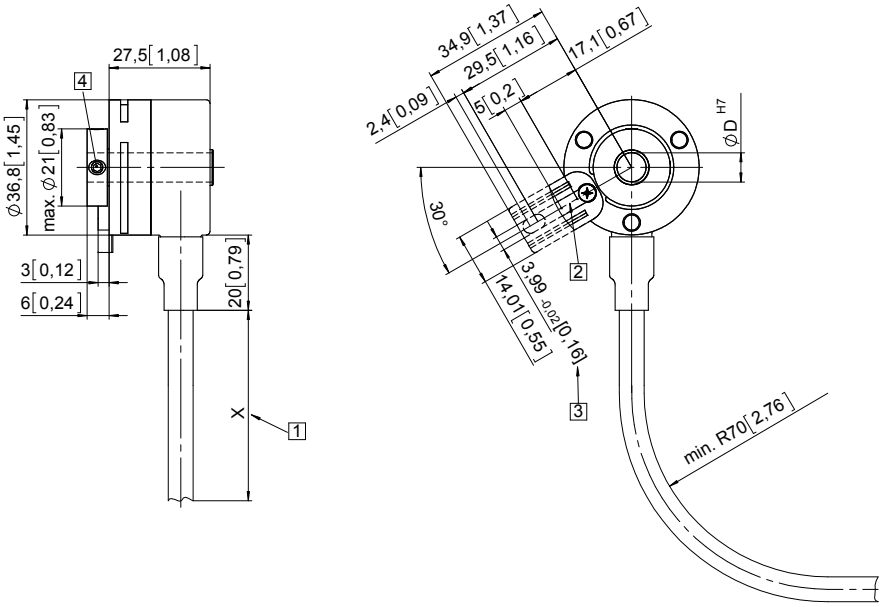
Flange with spring element short
(Long spring element version is shown dashed)
Flange type 1 (2)

1 Cable length
1, 2, 3 or 5 m
[3.28', 6.56', 9.84' or 16.40']

2 Slot for torque stop, 3 [0.12] deep

3 Torque stop slot,
Recommendation: Cylindrical pin
DIN 7, ø 4 [0.16]

4 Recommended torque for the
clamping ring 1.0 Nm



Flange with stator coupling, ø 46 [1.81]
Flange type 5

1 Cable length
1, 2, 3 or 5 m
[3.28', 6.56', 9.84' or 16.40']

2 Recommended torque for the
clamping ring 1.0 Nm