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Incremental encoders

Micro series - shaft ø5 mm

10…2048 pulses per revolution

BDK



BDK with shaft

Features

- **Mini encoder with solid shaft ø5 mm**
- **Optical sensing method**
- **Max. 2048 pulses per revolution**
- **Housing ø30 mm**
- **Operation speed max. 12000 rpm**
- **Synchro flange**

Technical data - electrical ratings

Voltage supply	5 VDC ±10 % 10...30 VDC
Consumption typ.	60 mA (5 VDC, w/o load) 30 mA (24 VDC, w/o load)
Pulses per revolution	10...2048
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	≤100 kHz
Output signals	A 90° B, N + inverted
Output stages	Linedriver/RS422 Push-pull short-circuit proof
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3
Approval	UL approval / E217823

Technical data - mechanical design

Size (flange)	ø30 mm
Shaft type	ø5 mm solid shaft
Admitted shaft load	≤10 N axial ≤10 N radial
Flange	Synchro flange
Protection DIN EN 60529	IP 42, IP 65
Operating speed	≤12000 rpm (IP 42) ≤6000 rpm (IP 64)
Operating torque typ.	0.0014 Nm (IP 42) 0.0075 Nm (IP 64)
Materials	Housing: polyamide black Flange: aluminium
Operating temperature	-20...+85 °C
Relative humidity	95 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration 10 g, 16-200 Hz DIN EN 60068-2-27 Shock 50 g, 11 ms
Connection	Connector M9, 5-pin Connector M9, 8-pin Cable 1 m
Weight approx.	85 g

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Part number

BDK 16. [ ][ ] - [ ] - [ ]

Connection
- 4 Cable 1 m, axial
- 5 Cable 1 m, radial
- 9 Connector radial

Solid shaft
- 5 ø5 mm, IP 42
- L5 ø5 mm, IP 64

Pulse number - see table

Voltage supply / signals
- 05A 5 VDC / antivalent (TTL compatible)
- 24K 10...30 VDC / push-pull short-circuit proof

Pulse number

10	50	120	360	1024
20	60	200	500	2000
30	100	250	1000	2048

Other pulse numbers on request.

Trigger level

Outputs 05A	**Complementary Linedriver RS422**
Output level High	>2,4 V (I = -20 mA)
Output level Low	<0,4 V (I = 20 mA)
Load High	<20 mA
Load Low	<20 mA

Outputs 24K (125 Ω)	**Push-pull** short-circuit protection
Output level High	>+Vs - 5,7 V (I = -30 mA)
Output level Low	<5,7 V (I = 30 mA)
Load High	<30 mA
Load Low	<30 mA

Accessories

Connectors and cables

10132983	Female connector M9, 8-pin, straight
11094664	Female connector M9, 8-pin, straight, 2 m cable
11094665	Female connector M9, 8-pin, straight, 5 m cable
11094660	Female connector M9, 5-pin, straight, 2 m cable
11094662	Female connector M9, 5-pin, straight, 5 m cable

Mounting accessories

10106004	Clamp set ø10 mm

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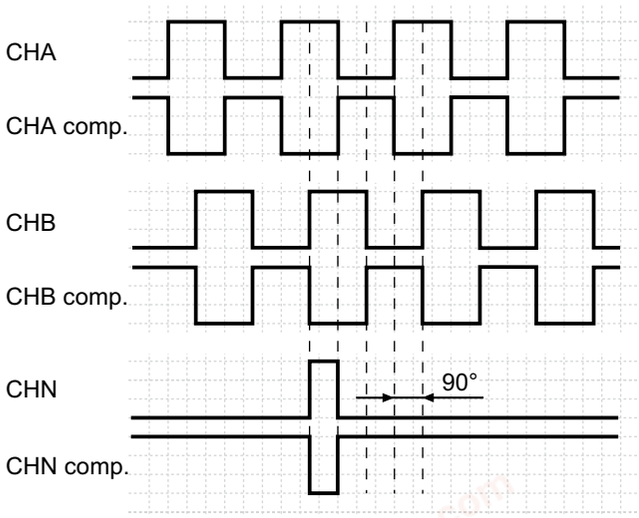
10…2048 pulses per revolution

BDK

Output signals

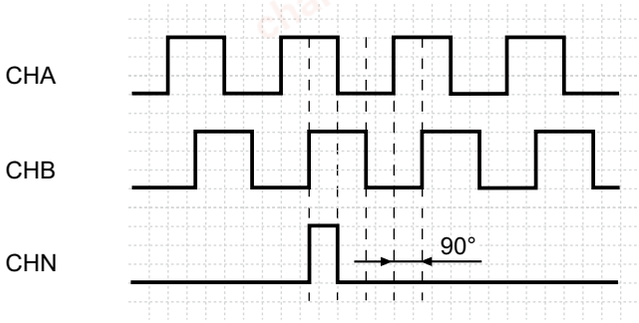
Counter clockwise rotating direction when looking at the flange.

05A



Counter clockwise rotating direction when looking at the flange.

24K



Terminal assignment

Cable

for connection references **-4** and **-5**

05A		**24K**	
Core colour	Signals	Core colour	Signals
brown	+Vs	brown	+Vs
green	CHA	green	CHA
red	CHA compl.	–	–
yellow	CHB	yellow	CHB
blue	CHB compl.	–	–
pink	CHN	pink	CHN
gray	CHN compl.	–	–
white	0 V	white	0 V
Cable data	8 x 0.14 mm²	5 x 0.14 mm²	
Screen	connected to housing		

Connector M9 male

for connection reference **-9**

	05A	**24K**
Connector	Signals	Signals
Pin 1	0 V	0 V
Pin 2	+Vs	+Vs
Pin 3	CHA	CHA
Pin 4	CHB	CHB
Pin 5	CHN compl.	CHN
Pin 6	CHN	–
Pin 7	CHB compl.	–
Pin 8	CHA compl.	–



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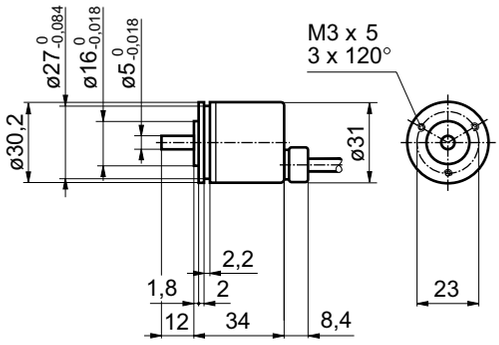
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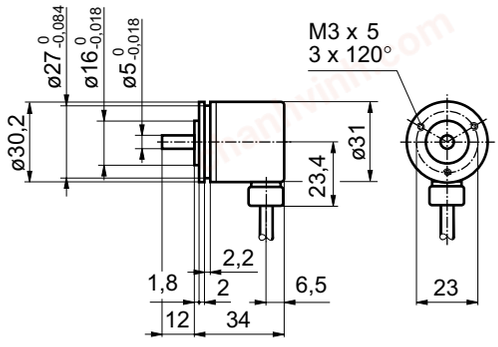
BDK

Dimensions

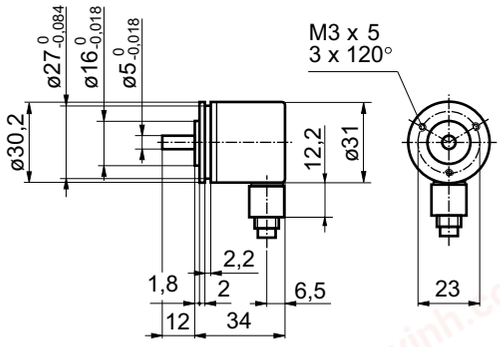
BDK cable axial



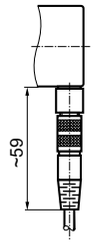
BDK cable radial



BDK connector output radial



BDK connector dimensions



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