

Incremental encoders

Mini series end shaft $\varnothing 12$ mm, hollow shaft $\varnothing 6$ mm

Resolution 10...2048 pulses

BHK



BHK with end shaft

Features

- Mini encoder with end shaft or hollow shaft
- Optical sensing
- Resolution max. 2048 ppr
- Housing $\varnothing 40$ mm
- Operation speed max. 12000 rpm
- End shaft $\varnothing 12$ mm, hollow shaft $\varnothing 6$ mm
- Versatile mounting accessories

Technical data - electrical ratings

Voltage supply	5 VDC ± 10 % 10...30 VDC
Consumption w/o load (typ.)	60 mA (5 VDC) 30 mA (24 VDC)
Resolution (steps/turn)	10...2048
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	≤ 100 kHz
Output signals	A 90° B, N + inverted
Output circuit	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

Dimensions (flange)	$\varnothing 40$ mm
Shaft	$\varnothing 6$ mm hollow shaft $\varnothing 12$ mm end shaft
Protection DIN EN 60529	IP 42, IP 65
Operating speed	≤ 12000 rpm
Operating torque typ.	0.0021 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, 10-200 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.	100 g

Incremental encoders

Mini series end shaft $\varnothing 12$ mm, hollow shaft $\varnothing 6$ mm

Resolution 10...2048 pulses

BHK

Part number

BHK 16. - -

								<u>Connection</u>	
								5	Cable 1 m, radial
								9	Connector radial
									<u>Shaft</u>
								B2	End shaft $\varnothing 12$ mm, IP 42, with clamping ring
								B6	Hollow shaft $\varnothing 6$ mm, IP 42, with clamping ring
								E6	Hollow shaft $\varnothing 6$ mm, IP 64, with clamping ring
								I2	End shaft $\varnothing 12$ mm, IP 42, with clamping ring and spring plate
								M6	Hollow shaft $\varnothing 6$ mm, IP 64, with clamping ring and spring plate

See part number (pulses)

Voltage supply / signals

05A 5 VDC / antivalent (TTL compatible)

24K 10...30 VDC / push-pull short-circuit proof

Accessories

Connectors and cables

10132983	Female connector M9, 8-pin, straight
10123168	Female connector M9, 8-pin, straight, 2 m cable
10123169	Female connector M9, 8-pin, straight, shielded, 5 m cable
10123166	Female connector M9, 5-pin, straight, shielded, 2 m cable
10123167	Female connector M9, 5-pin, straight, shielded, 5 m cable

Mounting accessories

10158423	Set of spring coupling (round) for hollow shaft encoder ($< \varnothing 8$ mm)
10158424	Set of spring coupling (square) for hollow shaft encoder ($\geq \varnothing 8$ mm)

Part number (pulses)

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

Other pulse numbers upon 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	$> +V_s - 5,7$ V ($I = -30$ mA)
Output level Low	$< 5,7$ V ($I = 30$ mA)
Load High	< 30 mA
Load Low	< 30 mA

Incremental encoders

Mini series end shaft $\varnothing 12$ mm, hollow shaft $\varnothing 6$ mm

Resolution 10...2048 pulses

BHK

Terminal assignment

Cable

for connection reference -5

05A

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
grey	CHN compl.	–	–
white	0 V	white	0 V
Cable data	8 x 0.14 mm ²	5 x 0.14 mm ²	
Screen	connected to flange		

Connector M9 male

for connection reference -9

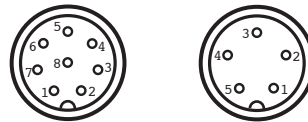
05A

Connector	Core colour*	Signals
Pin 1	white	0 V
Pin 2	brown	+Vs
Pin 3	green	CHA
Pin 4	yellow	CHB
Pin 5	grey	CHN compl.
Pin 6	pink	CHN
Pin 7	blue	CHB compl.
Pin 8	red	CHA compl.

24K

Connector	Core colour*	Signals
Pin 1	white	0 V
Pin 2	brown	+Vs
Pin 3	brack	CHA
Pin 4	blue	CHB
Pin 5	grey	CHN

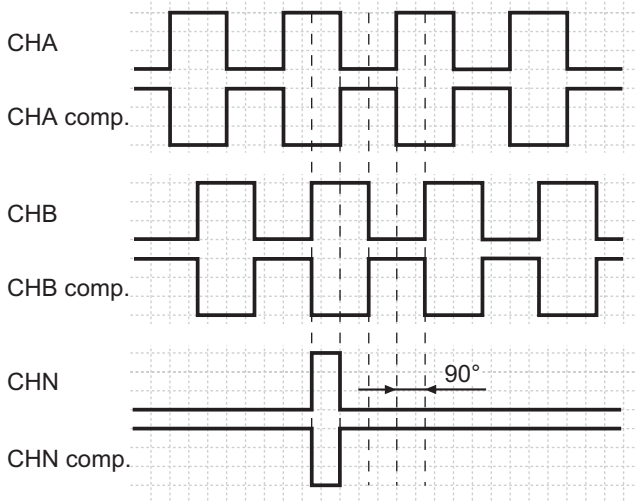
*these core colours are valid for the assembled mating connectors (see accessories)



Output signals

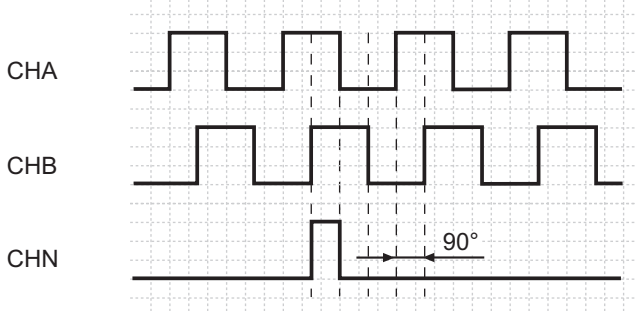
Counter clockwise rotating direction when looking at the flange.

05A



Counter clockwise rotating direction when looking at the flange.

24K



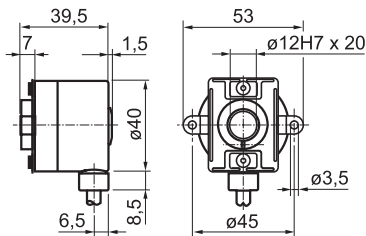
Incremental encoders

Mini series end shaft $\varnothing 12$ mm, hollow shaft $\varnothing 6$ mm
Resolution 10...2048 pulses

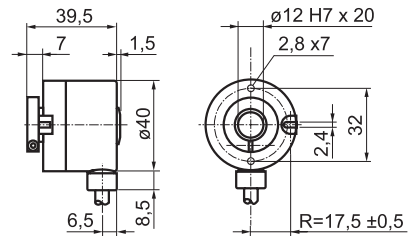
BHK

Dimensions

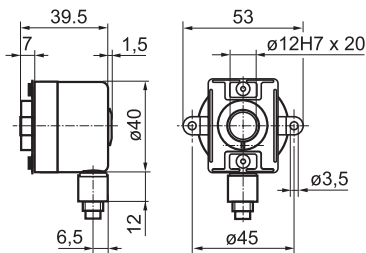
BHK clamping ring and spring washer



BHK clamping ring



BHK connector output radial



BHK connector dimensions

