Encoders

Optical Encoders with Line Driver

Features:
1 000 Lines per revolution
3 Channels + complementary signals
Digital output
Line driver

Series 40B

		40B	
Lines per revolution	N	1 000	
Signal output, square wave		2 + 1 index and complementary signals	channels
Supply voltage	V_{CC}	4,5 ... 5,5	V DC
Current consumption, max. (V_{CC} = 5 V DC)	I_{CC}	100	mA
Pulse width	P	180 ± 18	°e
Index pulse width	P_O	180 ± 36	°e
Phase shift, channel A to B	Φ	90 ± 18	°e
Signal rise/fall time, typical	tr/tf	0,25 / 0,25	µs
Frequency range [1]	f	up to 200	kHz
Inertia of code disc	J	4,7	gcm²
Operating temperature range		– 40 ... + 120	°C
EMC radiated emission		EN 50081–2	
Protection classification		IP54	

[1] Velocity (rpm) = f (Hz) x 60/N

Ordering information

Encoder type	number of channels	lines per revolution	For combination with brushless DC-Servomotors
40B27 - 1000/3	2+1	1 000	4490 ... B, 4490 ... BS

Suggested Line Receivers: AM26LS32, SN75175, MC3486

Features

Designed for industrial environments, this high-performance incremental shaft encoder in combination with the Brushless DC-Servomotors is for the indication and control of both shaft velocity and direction of rotation as well as for positioning.

A LED source and lens system transmits collimated light through a low inertia disc to give two channels with 90° phase shift.

The index pulse is synchronized with the channel $\overline{B}$.
Each encoder channel provides complementary output signals.

The single 5 volt supply and the digital output signals are interfaced with a shielded cable.

The line driver offers enhanced performance when the encoder is used in noisy environment, or when it is required to operate over long cables.
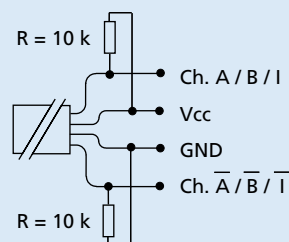
Details for the Brushless DC-Servomotors and suitable reduction gear-heads are on separate catalogue pages.

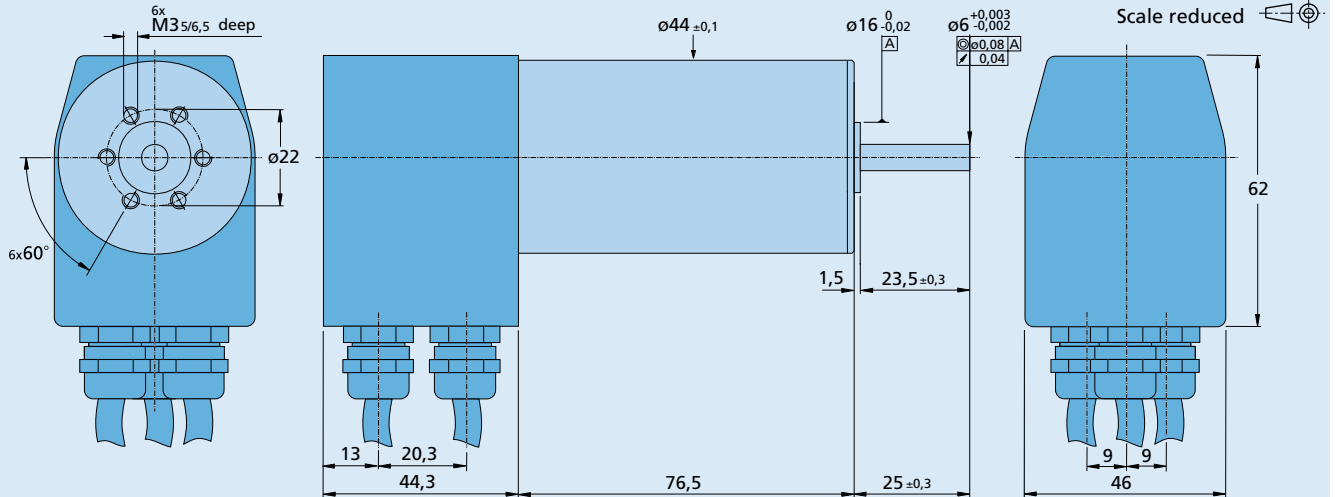### Output signals / Circuit diagram
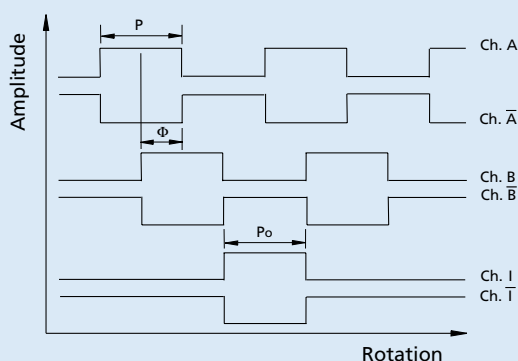
Output signals
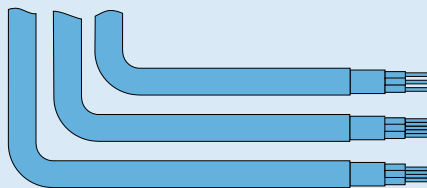with clockwise rotation as seen from the shaft end

Connection diagram
Recommended pull-up and pull-down resistors for best signal quality

Brushless DC-Servomotor 4490 H ... B - K1300, 4490 H ... BS - K1300 with Encoder 40B

6x
M3 5/6,5 deep

ø22

6x60°

ø44 ±0,1

ø16 0 -0,02 [A]

ø6 +0,003 -0,002 ◎ ⌀0,08 [A] / 0,04

Scale reduced

62

1,5   23,5 ±0,3

13   20,3

44,3

76,5

25 ±0,3

9 9

46

Connection informations

Cables
Shielded cables, PVC insulation, black
Length 300 mm ± 15mm

Motor power
3 conductors, AWG 16

Encoder signals
8 conductors, AWG 28

Motor logic
5 conductors, AWG 26

Encoder signals

Function	Colour
V_{CC}	red
GND	black
A	green
$\overline{A}$	red / black
B	orange
$\overline{B}$	white / black
I	white
$\overline{I}$	blue

Motor power

Function	Colour
Phase A	brown
Phase B	orange
Phase C	yellow

Motor logic

Function	Colour
Hall sensor A	green
Hall sensor B	blue
Hall sensor C	grey
Logical supply +5V	red
GND Logical	black