Encoders

Magnetic Encoders

Features:
15 or 16 Lines per revolution
2 Channels
Digital output

Series 20B, 21B

		20B	21B	
Lines per revolution	N	15	16	
Signal output, square wave		2	2	channels
Supply voltage	V_{CC}	4,5 ... 5,5	4,5 ... 5,5	V DC
Current consumption, typical (V_{CC} = 5 V DC)	I_{CC}	5	5	mA
Pulse width	P	180 ± 45	180 ± 45	°e
Phase shift, channel A to B	Φ	90 ± 45	90 ± 45	°e
Logic state width	S	90 ± 45	90 ± 45	°e
Cycle	C	360 ± 30	360 ± 30	°e
Signal rise/fall time, typical	tr/tf	5 / 0,2	5 / 0,2	µs
Frequency range [1]	f	up to 7,2	up to 7,2	kHz
Inertia of code disc	J	0,2	0,2	gcm²
Operating temperature range		– 20 ... + 85	– 20 ... + 85	°C

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

Ordering information

Encoder type		number of channels	lines per revolution 20B	lines per revolution 21B	in combination with DC-Micromotors and DC-Motor-Tacho units
20B3	**21B3**	2	15	16	**free standing for independent use**
20B18	**21B18**	2	15	16	**series 1336, 1841, 2251**

Features

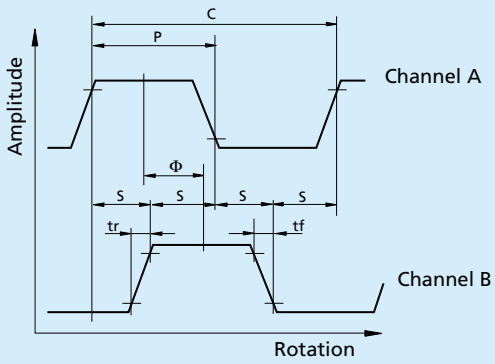
These incremental shaft encoders in combination with the FAULHABER DC-Micromotors are designed for indication and control of both, shaft velocity and direction of rotation as well as for positioning.

Solid state Hall sensors and a low inertia magnetic disc provide two channels with 90° phase shift.

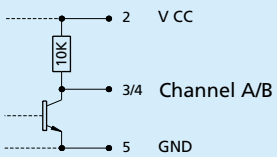
The supply voltage for the encoder and the DC-Micromotor as well as the two channel output signals are interfaced with a 150 mm ribbon cable and a 10-pin connector.

Details for the DC-Micromotors and suitable reduction gearheads are on separate catalogue pages.

Output signals / Circuit diagram / Connector information

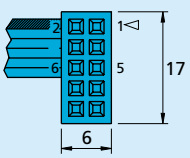


Output signals
with clockwise rotation as seen from the shaft end
Encoders 20B Channel A leads B
Encoders 21B Cahnnel B leads A

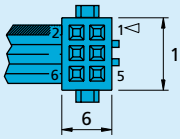


Output circuit

Connectors



Standard 10P
(Panduit 050-010-455)



Option 6P
(FCI Quickie IDC 71601-106)

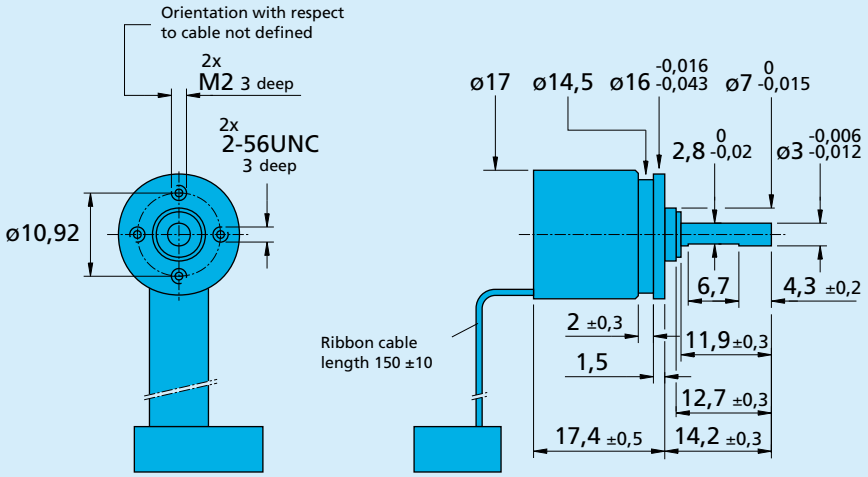
Pin Function

1 Motor +
2 V_{CC}
3 Channel A
4 Channel B
5 GND
6 Motor –
7 –
8 –
9 –
10 –

Ribbon cable
PVC - 6 conductors
0,09 mm² / 28 AWG

For details on technical information and lifetime performance refer to pages 140-142.

Encoders 20B3, 21B3 free standing, with ball bearings



DC-Micromotor 1336 U ... C - 123 with Encoders 20B18, 21B18