

# Encoders

## Magnetic Encoders

**Features:**  
 16, 32, 64 Lines per revolution  
 3 Channels  
 Digital output

### Series HXM3-64

		HXM3-64	
Signal output, square wave		3	channels
Supply voltage <sup>1)</sup>	V <sub>CC</sub>	4,5 ... 5,5	V DC
Current consumption, typical (V <sub>CC</sub> = 5 V DC)	I <sub>CC</sub>	9	mA
Pulse width	P	180 ± 45	°e
Phase shift, channel A to B	Φ	90 ± 45	°e
Logic state width	S	90 ± 45	°e
Cycle	C	360 ± 30	°e
Signal rise/fall time, typical (C <sub>LOAD</sub> = 50 pF)	tr/tf	60 / 60	µs
Rotational speed up to	n <sub>max.</sub>	30 000	rpm
Inertia of code disc <sup>1)</sup>	J	0,02	gcm <sup>2</sup>
Operating temperature range		-25 ... +85	°C

<sup>1)</sup> No additional inertia for series 0620...B

#### Ordering information

Encoder	number of channels	lines per revolution	in combination with:
HXM3-64	3	64	DC-Micromotors 0615...S Brushless DC-Servomotors 0620...B

Note: Lines per revolution refers to pre-quadrature resolution and equals the cycles per revolution

#### Features

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

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

The supply voltage for the encoder and the DC-Micromotor as well as the output signals are interfaced with a flexible printed circuit (FPC) to a 8-pin ZIF connector.

Encoder is programmable by user to 16, 32, and 64 lines per revolution by setting the CFG2 pin to high, open, or ground respectively. The input power must be cycled off and on to change the settings.

Please note: Velocity (rpm) = f (Hz) x 60/N

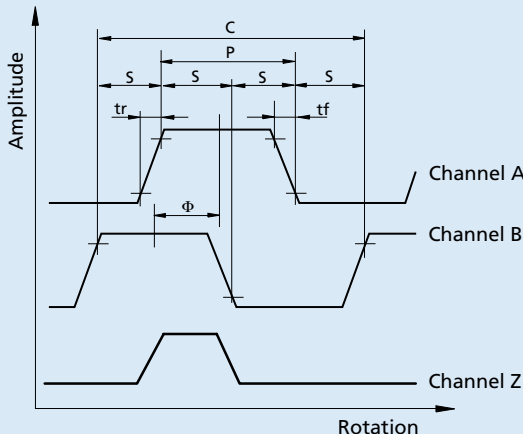
Details for the DC-Micromotors and suitable reduction gearheads are on separate catalog pages.

An optional interface board with suitable connector is also available on request.

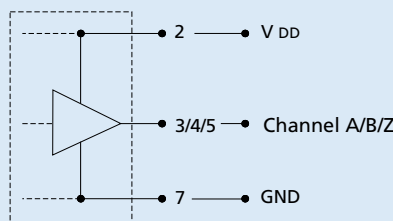
#### Output signals / Circuit diagram / Connector information

##### Output signals

with clockwise rotation as seen from the shaft end



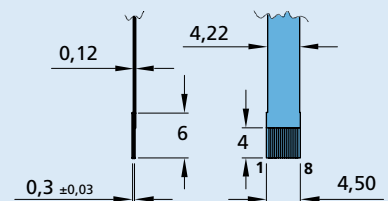
##### Output circuit



##### Pin Function

- 1 Motor + \*
- 2 V<sub>DD</sub>
- 3 Channel Z
- 4 Channel A
- 5 Channel B
- 6 Cfg2
- 7 GND
- 8 Motor - \*

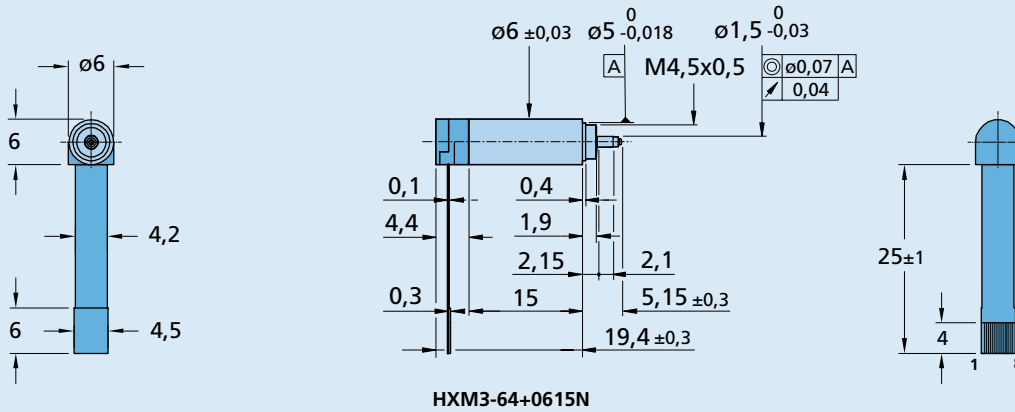
\* Note: Brushless motors have separate motor leads.



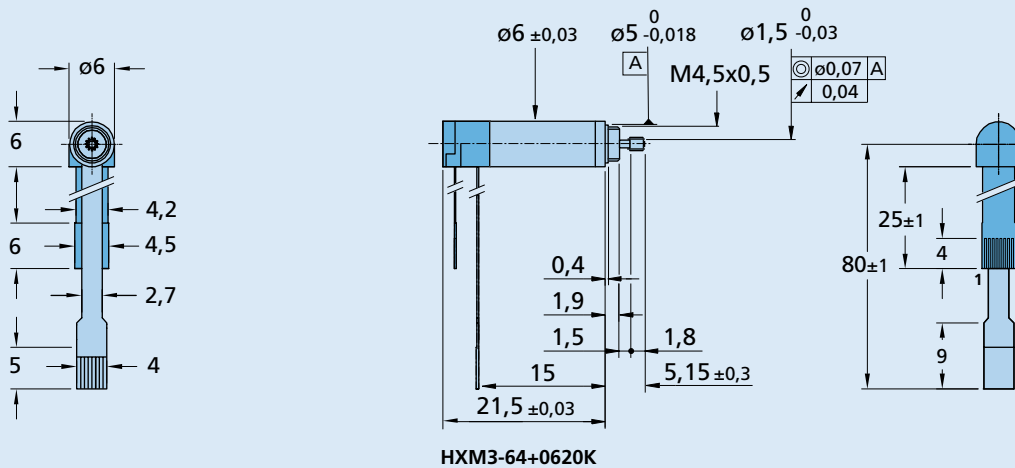
##### Connector

Molex 52745, grid 0,5 mm  
 FPC / FFC, 8-conductors

**DC-Micromotor 0615 N ... S - K1707 with Encoder HXM3-64**



**Brushless DC-Servomotor 0620 K ... B - K1674 with Encoder HXM3-64**



**Optional interface board**

