Encoders

magnetic Encoder, digital outputs, 3 channels,
16 - 64 lines per revolution

For combination with
DC-Micromotors
Brushless DC-Servomotors

Series HXM3 – 64

		HXM3 – 16	HXM3 – 32	HXM3 – 64	
Lines per revolution	N	16	32	64	
Signal output, square wave		3			channels
Supply voltage	U_{DD}	4,5 … 5,5			V DC
Current consumption, typical [1]	I_{DD}	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 ± 45			°e
Signal rise/fall time, max. (C_{LOAD} = 50 pF)	tr/tf	60 / 60			µs
Rotational speed up to	n max.	30 000			rpm
Inertia of code disc [2]	J	0,02			gcm^2
Operating temperature range		– 25 ... + 85			°C

[1] U_{DD} = 5V: with unloaded outputs
[2] No additional inertia for series 0620...B

For combination with motor				
Dimensional drawing A	**L1** [mm]			
0615...S - K1707	19,4			
Dimensional drawing B	**L1** [mm]			
0620...B - K1674	21,5			

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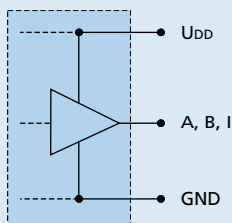
Please note: Velocity (rpm) = f (Hz) x 60/N

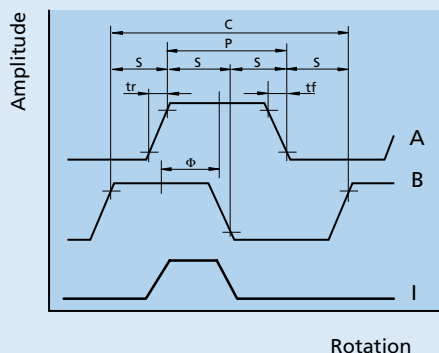Details for the DC-Micromotors and suitable reduction gearheads are on separate catalog pages.

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

Output signals / Circuit diagram

Output circuit

Output signals
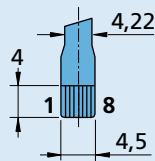with clockwise rotation as seen from the shaft end

Connector information / Variants

No.	Function
1	Motor +*
2	U_{DD}
3	Channel I
4	Channel A
5	Channel B
6	Cfg2
7	GND
8	Motor –*

* **Note:** Brushless motors have separate motor leads.

Connection Encoder and Motor
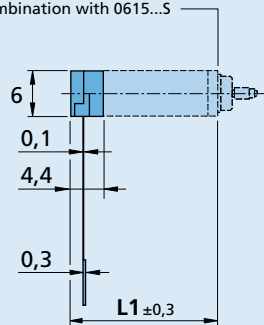
4,22
4
1   8
4,5

Flexboard
8 circuits, 0,5 mm pitch

Recommended connector
Top contact style
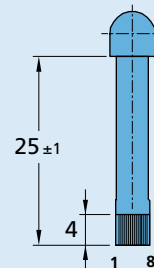8 circuits, 0,5 mm pitch, e.g.:
Molex: 52745

Full product description
Examples:
0615N003SK1707 HXM3-64
0620K012BK1674 HXM3-64

Dimensional drawing A
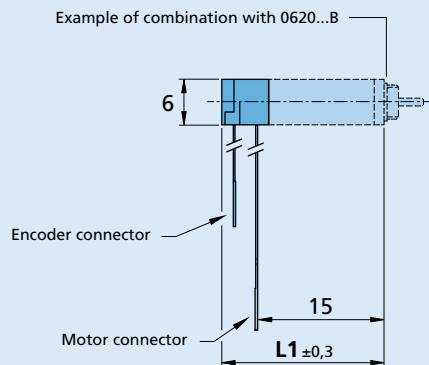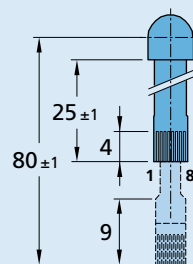
Example of combination with 0615...S

6
0,1
4,4
0,3
L1 ±0,3

25 ±1
4
1   8

HXM3 – 64

Dimensional drawing B

Example of combination with 0620...B

6
Encoder connector
Motor connector
15
L1 ±0,3

25 ±1
4
1   8
80 ±1
9

HXM3 – 64

Interface board MCDC 3002 S

X2

1   3

23 ±0,5   **X4**   1

X1

1

8

29 ±0,5
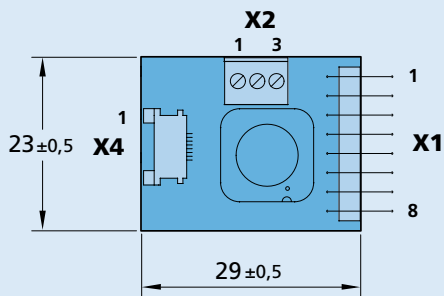
Interface Board HXM3 – 64
Part. No.: 6501.00145

Connection

Pin	Connection X1
1	4. In
2	Channel A
3	Channel B
4	U_{DD} = 5V
5	SGND
6	Motor +
7	Motor -
8	5 .In

Pin	Connection X2
1	Channel Z
2	5. In
3	4. In

Pin	Connection X4
1	Motor +
2	U_{DD} = 5V
3	Kanal Z
4	Channel A
5	Channel B
6	N.C.
7	SGND
8	Motor -

Optional interface board

21

9

6,2

25,4

J2

J1

4,3   10,1

25,4   2

10
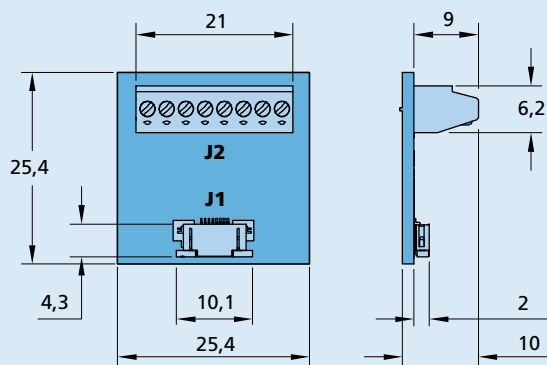
Interface board HXM3-64
Part No.: D100308900

J2   **J1**

HXM3-64 Flexboard connector
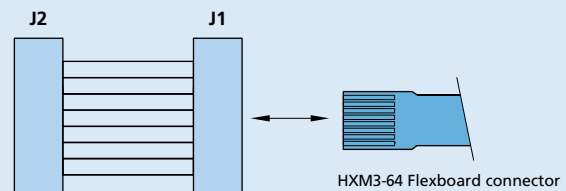
Connector
J1 - Molex 52745-0896
J2 - Phoenix 1725711

For notes on technical data and lifetime performance
refer to "Technical Information".