Encoders

magnetic Encoder, digital outputs,
3 channels, 32 - 256 lines per revolution

For combination with
DC-Micromotors

Series HEM3-256 W

		HEM3-32 W	HEM3-64 W	HEM3-128 W	HEM3-256 W	
Lines per revolution	N	32	64	128	256	
Frequency range, up to[1]	f	16	32	64	128	kHz
Signal output, square wave		2+1 Index				Channels
Supply voltage[2]	U_{DD}	3 ... 3,6				V
Current consumption, typical[3]	I_{DD}	16				mA
Output current, max.[4]	I_{OUT}	2				mA
Pulse width	P	180 ± 45				°e
Phase shift, channel A to B	Φ	90 ± 45				°e
Logic state width	S	90 ± 45				°e
Signal rise/fall time, max. (C_{LOAD} = 50 pF)	tr/tf	0,1 / 0,1				µs
Inertia of sensor magnet	J	0,02				gcm²
Operating temperature range		-30 ... +85				°C

[1] Velocity (min^{-1}) = f (Hz) x 60/N
[2] U_{DD} = 3,3 V: connect Pin 3 and 4 to 3,3 V. U_{DD} = 5 V: connect Pin 3 to 5 V, Pin 4 open
[3] U_{DD} = 3,3 or 5 V: with unloaded outputs
[4] U_{DD} = 5 V: low logic level < 0,5 V, high logic level > 4,5 V: CMOS- and TTL compatible

For combination with Motor

Dimensional drawing A	**<L1 [mm]**
0816 ... SR - K2566	24,4

Dimensional drawing B	**<L1 [mm]**
1016 ... SR - K2566	24,4
1024 ... SR - K2566	32,4

Dimensional drawing C	**<L1 [mm]**
1224 ... SR - K1707	31,1

Characteristics

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 sensors and a low inertia magnetic disc provide two channels with 90° phase shift and one index channel.
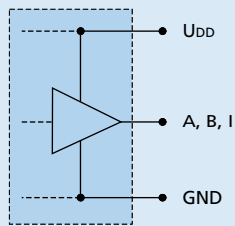
The nominal supply voltage for the encoder is selectable and either 3,3 VDC or 5,0 VDC. The supply voltage for the encoder and the DC-Micromotor as well as the output signals are interfaced with discrete wires and an 8-pin Molex crimp style connector.

Details for the DC-Micromotors and suitable reduction gearheads are on separate catalog pages.
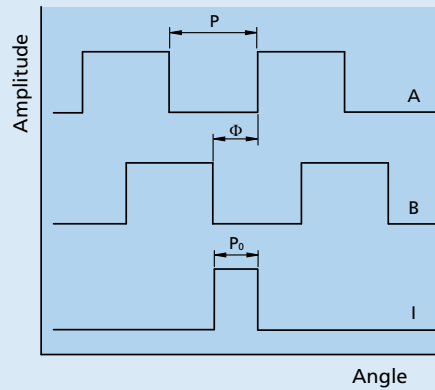
To view our large range of accessory parts, please refer to the "Accessories" chapter.
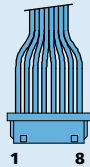
Circuit diagram / Output signals

Output circuit

UDD

A, B, I

GND

Output signals
with clockwise rotation as seen
from the shaft end

Amplitude

P

Φ

A

B

P_0

I

Angle

Connector information / Variants

No.	Function
1	Motor –
2	GND
3	$U_{DD\ 5V}$
4	$U_{DD\ 3,3V}$
5	Channel A
6	Channel B
7	Channel I
8	Motor +

**Connection Encoder
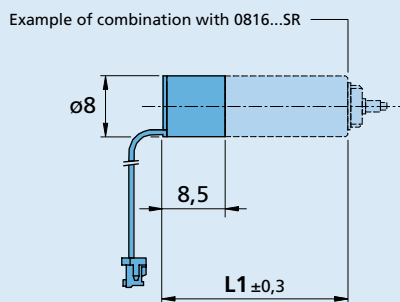and Motor**

1   8

Cable
ETFE, AWG 30

Recommended connector
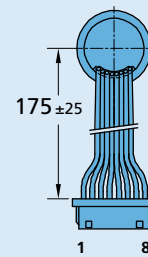8 circuits, 1,25 mm pitch, e.g.:
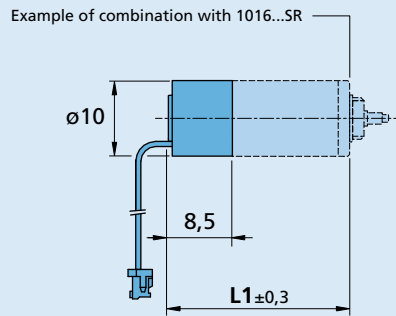Molex: 51021-0800

Full product description
Examples:
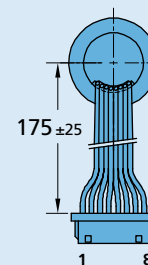**1016N012SR-K2566 HEM3-32**
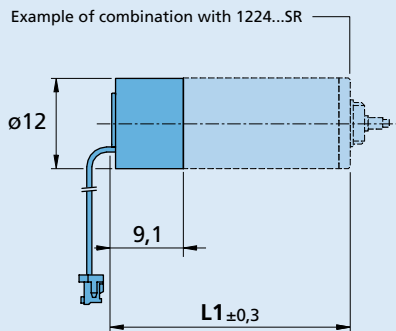**1224N012SR-K1707 HEM3-256**

Dimensional drawing A

Example of combination with 0816...SR

ø8

8,5

L1 ±0,3

175 ±25

1   8

HEM3-256 W

Dimensional drawing B

Example of combination with 1016...SR

ø10

8,5

L1±0,3

175 ±25

1   8

HEM3-256 W

Dimensional drawing C

Example of combination with 1224...SR

ø12

9,1

L1±0,3

175 ±25

1   8

HEM3-256 W