

**NEW**

# Encoders

magnetic Encoder, digital outputs, 2 channels,  
64 - 4096 lines per revolution

For combination with  
DC-Micromotors

## Series IEH2 – 4096

	IEH2	- 64	- 128	- 256	- 512	- 1024	- 2048	- 4096	
Lines per revolution	N	64	128	256	512	1024	2048	4096	
Frequency range, up to <sup>1)</sup>	f	20	40	80	160	320	640	875	kHz
Signal output, square wave		2							channels
Supply voltage	U <sub>DD</sub>	4,5 ... 5,5							V DC
Current consumption, typical <sup>2)</sup>	I <sub>DD</sub>	typ. 15, max. 25							mA
Output current, max. allowable <sup>3)</sup>	I <sub>OUT</sub>	2,5							mA
Phase shift, channel A to B <sup>4)</sup>	Φ	90 ±45					90 ±65	90 ±75	°e
Signal rise/fall time, max. (C <sub>LOAD</sub> = 50 pF)	tr/tf	0,05 / 0,05							µs
Inertia of code disc	J	0,09							gcm <sup>2</sup>
Operating temperature range		- 40 ... +100							°C

<sup>1)</sup> speed (rpm) = f (Hz) x 60/N

<sup>2)</sup> U<sub>DD</sub> = 5V: with unloaded outputs

<sup>3)</sup> U<sub>DD</sub> = 5V: low logic level < 0,4V, high logic level > 4,6V: CMOS- and TTL compatible

<sup>4)</sup> at 5000 rpm

### For combination with motor

Dimensional drawing A	<L1 [mm]		
1516...SR	18,2		
1524...SR	26,2		
1717...SR	19,4		
1724...SR	26,4		
2224...SR	26,6		
2232...SR	34,6		

### Features

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

The encoder is integrated in the DC-Micromotors SR-Series and extends the overall length by only 1,4 mm.

A segmented magnetic disc provides a magnetic field which is detected and further processed by a single chip angle sensor. The output signals of both channels consist of a square wave signal with 90° phase shift and up to 4096 impulses per motor revolution.

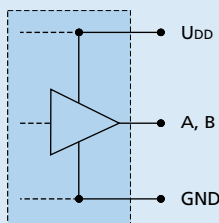
The encoder is available with different standard resolutions.

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

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

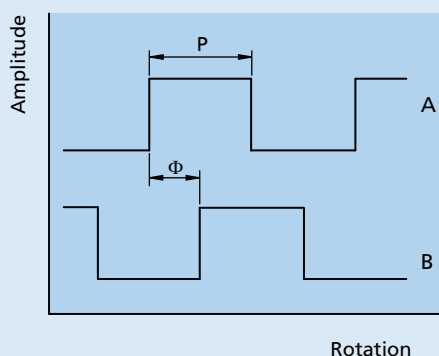
### Output signals / Circuit diagram

#### Output circuit



#### Output signals

with clockwise rotation as seen from the shaft end



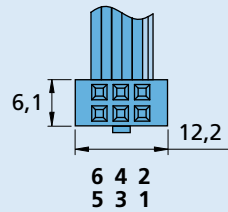
Admissible deviation of phase shift:

$$\Delta\Phi = \left| 90^\circ - \frac{\Phi}{P} * 180^\circ \right| \leq \text{see above}$$

### Connector information / Variants

No.	Function
1	Motor -
2	Motor +
3	GND
4	U <sub>00</sub>
5	Channel B
6	Channel A

#### Connection Encoder



**Cable**  
PVC-ribbon cable  
6-conductors, 0,09 mm<sup>2</sup>

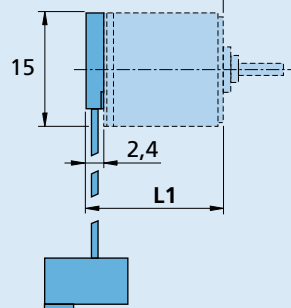
**Connector**  
DIN-41651  
grid 2,54 mm

#### Full product description

■ Example:  
1516T006SR IEH2-256

### Dimensional drawing A

Example of combination with 1516...SR



IEH2 - 64 ... 4096

