

Encoders

magnetic Encoder, digital outputs, 2 channels,
16 lines per revolution

For combination with
DC-Micromotors

Series IE2 – 16

IE2 – 16			
Lines per revolution	N	16	
Frequency range, up to ¹⁾	f	7	kHz
Signal output, square wave		2	channels
Supply voltage	U _{DD}	4 ... 18	V DC
Current consumption, typical ²⁾	I _{DD}	typ. 6, max. 12	mA
Output current, max. allowable	I _{OUT}	15	mA
Phase shift, channel A to B ³⁾	Φ	90 ± 45	°e
Signal rise/fall time, max. (C _{LOAD} = 100 pF)	tr/tf	2,5 / 0,3	µs
Inertia of code disc	J	0,11	gcm ²
Operating temperature range		- 25 ... + 85	°C

¹⁾ speed (rpm) = f(Hz) × 60/N

²⁾ U_{DD Enc} = 12 V: with unloaded outputs

³⁾ Tested at 2 kHz

For combination with motor

Dimensional drawing A	<L1 [mm]	Dimensional drawing C	<L1 [mm]
1336...CXR-123	47,5	1727...C-123	38,2
		1741...CXR-123	49,4
Dimensional drawing B	<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!

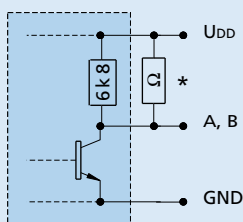
Solid state Hall sensors and a low inertia magnetic disc provide two channels with 90° phase shift.

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

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

Output signals / Circuit diagram

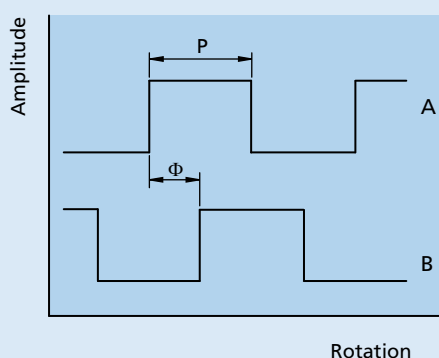
Output circuit



* An additional external pull-up resistor can be added to improve the rise time.
Caution: I_{OUT} max. 15 mA must not be exceeded!

Output signals

with clockwise rotation as seen from the shaft end

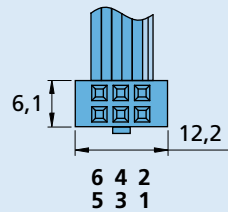


Admissible deviation of phase shift:

$$\Delta\Phi = \left| 90^\circ - \frac{\Phi}{P} * 180^\circ \right| \leq 45^\circ$$

Connector information / Variants

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

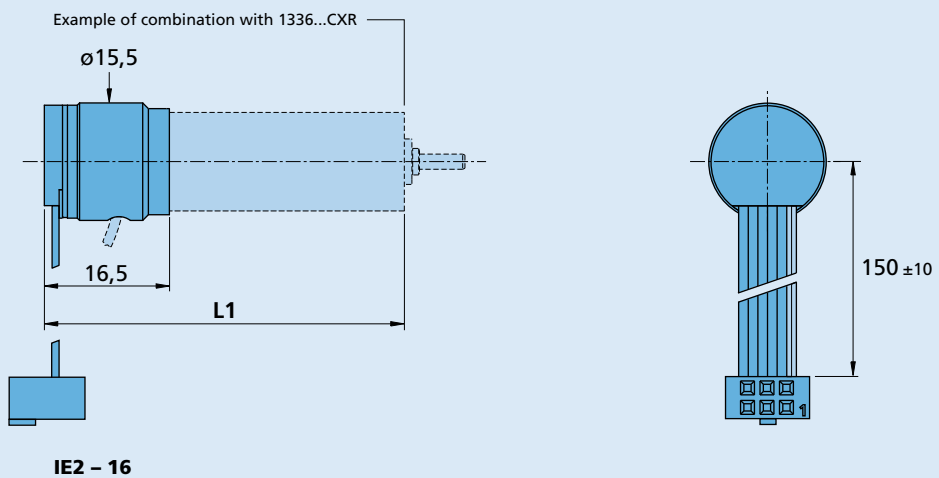
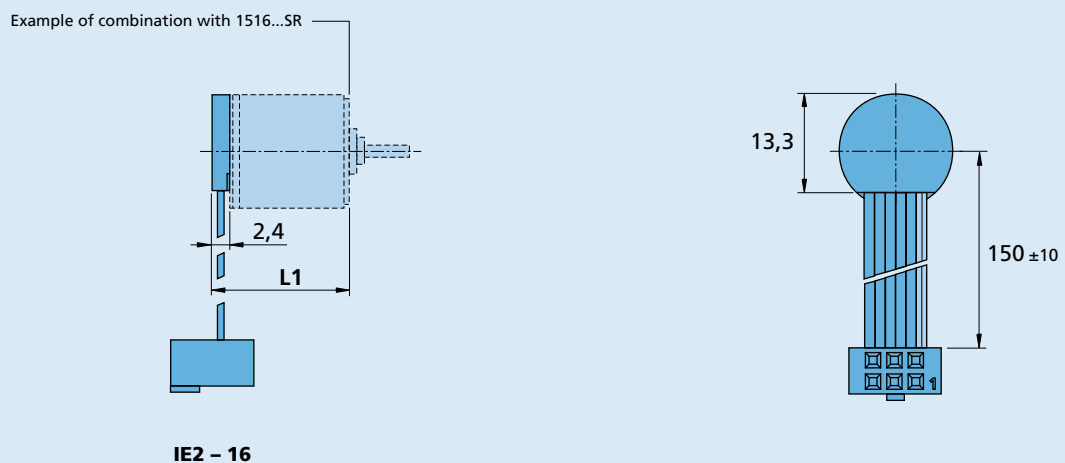
Connection Encoder


Cable
PVC-ribbon cable
6-conductors, 0,09 mm²

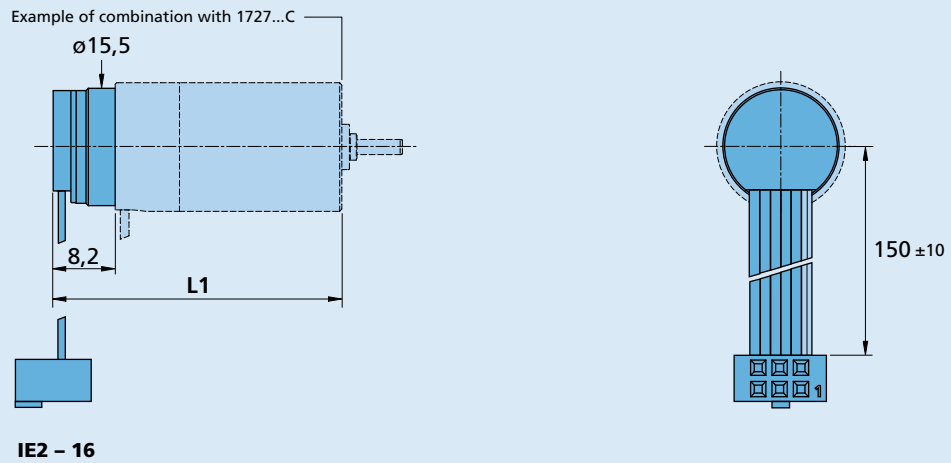
Connector
DIN-41651
grid 2,54 mm

Full product description

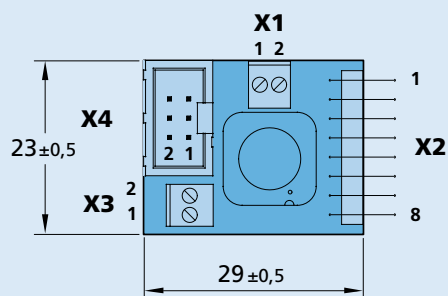
■ Example:
1336U012C-123 IE2-16
1516T006SR IE2-16

Dimensional drawing A

Dimensional drawing B


Dimensional drawing C



Interface board for MCDC 3002 S



Interface Board IE2
Part. No.: 6501.00143

Connection

Pin	Connection X1	Pin	Connection X3
1	5. In	1	Motor -
2	4. In	2	Motor +

Pin	Connection X2	Pin	Connection X4
1	4. In	1	Motor -
2	Channel A	2	Motor +
3	Channel B	3	SGND
4	U _{DD}	4	U _{DD}
5	SGND	5	Channel B
6	Motor +	6	Channel A
7	Motor -		
8	5. In		