

Encoders

magnetic Encoder, digital outputs,
3 channels, 1 - 1024 lines per revolution

For combination with
Brushless DC-Motors
DC-Micromotors

Series IE3-1024

		IE3-32	IE3-64	IE3-128	IE3-256	IE3-512	IE3-1024	
Lines per revolution	N	32	64	128	256	512	1 024	
Frequency range, up to ¹⁾	f	15	30	60	120	240	430	kHz
Signal output, square wave		2+1 Index						Channels
Supply voltage ²⁾	U_{DD}	4,5 ... 5,5						V
Current consumption, typical ³⁾	I_{DD}	typ. 20, max. 30						mA
Output current, max. ⁴⁾	I_{OUT}	4						mA
Index Pulse width ⁵⁾	P_0	90 ± 45						°e
Phase shift, channel A to B ⁵⁾	Φ	90 ± 45						°e
Signal rise/fall time, max. ($C_{LOAD} = 50$ pF)	tr/tf	0,1 / 0,1						µs
Inertia of sensor magnet	J	0,08						gcm ²
Operating temperature range		-40 ... +100						°C
Accuracy, typ.		0,5						°m
Repeatability, typ.		0,1						°m
Hysteresis		0,17						°m
Edge spacing, min.		421						ns
Mass, typ.		13,5						g

¹⁾ Velocity (min⁻¹) = f (Hz) x 60/ N

²⁾ 3,0 ... 3,6 V optional available on request

³⁾ $I_{DD} = 5$ V: with unloaded outputs

⁴⁾ $U_{DD} = 5$ V: low logic level < 0,4 V, high logic level > 4,5 V: CMOS- and TTL compatible

⁵⁾ At 5 000 min⁻¹

For combination with Motor

Dimensional drawing A	<L1 [mm]	Dimensional drawing D	<L1 [mm]
2214 ... BXT H	26,8	2444 ... B - K1838	55,3
3216 ... BXT H	28,6	3056 ... B - K1838	67,3
4221 ... BXT H	34,0	3564 ... B - K1838	75,3
		4490 ... B - K1838	100,3
		4490 ... BS - K1838	100,3
Dimensional drawing B	<L1 [mm]	Dimensional drawing E	<L1 [mm]
2237 ... CXR	52,5	2232 ... BX4	50,2
2264 ... BP4	79,1	2250 ... BX4	68,2
3274 ... BP4	90,8	2250 ... BX4 S	68,2
Dimensional drawing C	<L1 [mm]	Dimensional drawing F	<L1 [mm]
2342 ... CR	60,5	3242 ... BX4	60,0
2642 ... CXR	60,5	3268 ... BX4	86,0
2642 ... CR	60,5		
2657 ... CXR	75,5	Dimensional drawing G	<L1 [mm]
2657 ... CR	75,5	3863 ... CR - 2016	82,6
2668 ... CR	86,5	3890 ... CR - 2016	108,6
3242 ... CR	60,5		
3257 ... CR	75,5		
3272 ... CR	90,5		

Characteristics

These incremental encoders with 3 output channels, in combination with the FAULHABER Motors, are used for the indication and control of both shaft velocity and direction of rotation as well as for positioning.

A permanent magnet on the shaft creates a moving magnetic field which is captured using an angular sensor and further processed. At the encoder outputs, two 90° phase-shifted square wave signals are available with up to 1024 impulses and an index impulse per motor revolution.

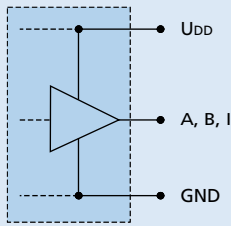
The encoder is available in a variety of different resolutions.

Motor and encoder are connected via a common ribbon cable.

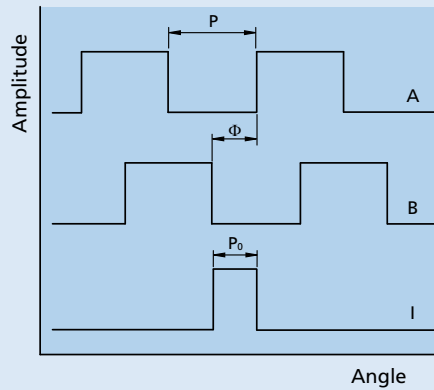
To view our large range of accessory parts, please refer to the "Accessories" chapter.

Circuit diagram / Output signals

Output circuit



Output signals
with clockwise rotation as seen from the shaft end



Connector information / Variants

No.	Function
1	N.C.
2	Channel I
3	GND
4	U _{DD}
5	Channel B
6	Channel A

Connection Encoder



Cable
PVC-ribbon cable
6-AWG 28, 1,27 mm

Option

Connector variants AWG 28 / PVC ribbon cable with connector MOLEX Picoblade 51021-0600, recommended mating connector 53047-0610.

Option no.: 3807 for combination with DC-Motors series CR, CXR and with Brushless DC-Motor series BP4.

Option no.: 3592 for combination with Brushless DC-Motors series BX4.
Note: inclusive motor connector 3830.

Resolutions from 1 - 1024 lines per revolution are available by request.



Caution:

Incorrect lead connection will damage the motor electronics!

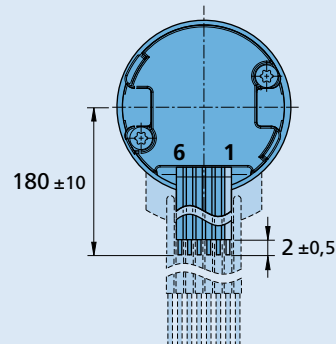
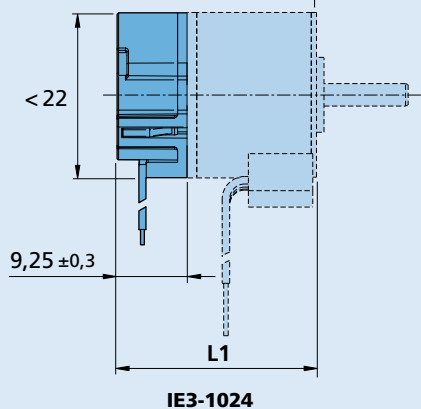
In combination with the BX4 brushless DC-servomotors with digital Hall sensors, the sensor supply connections of encoder and motor are connected to each other.

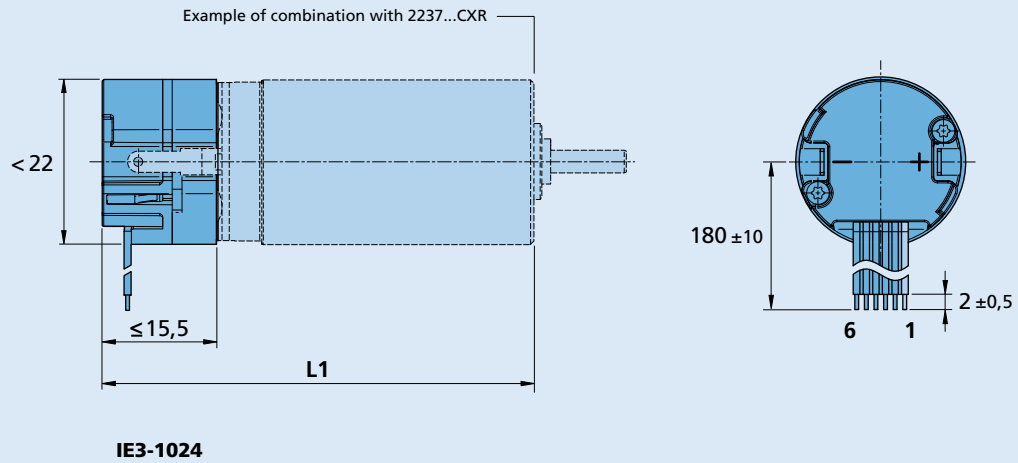
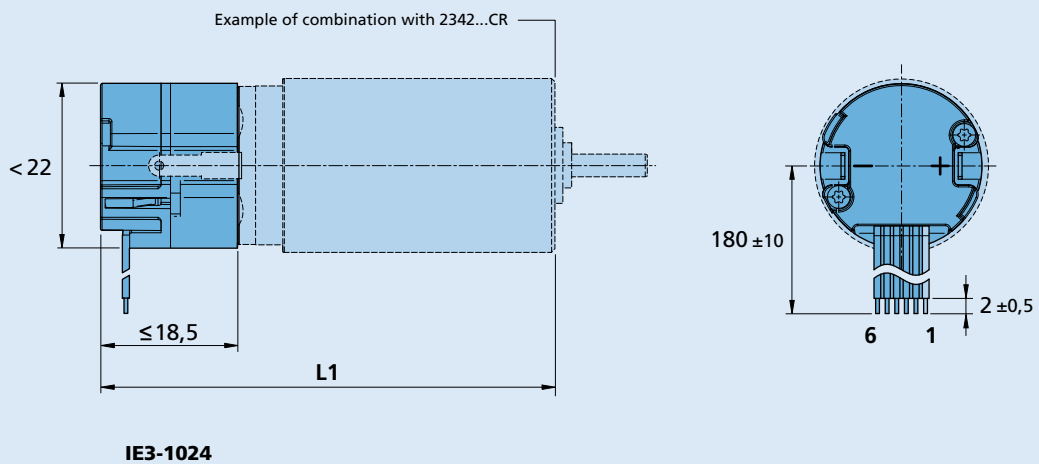
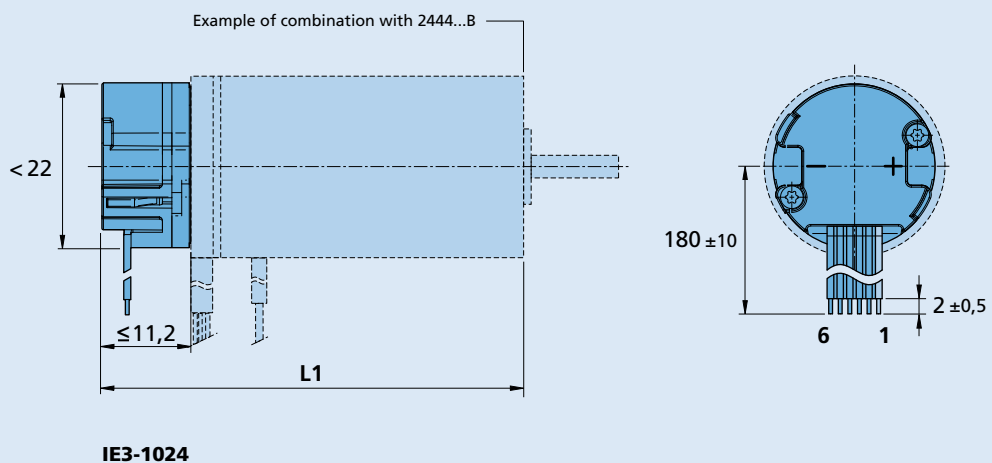
Full product description

- Example:
2444S024B-K1838 IE3-1024
2232S024BX4 IE3-256

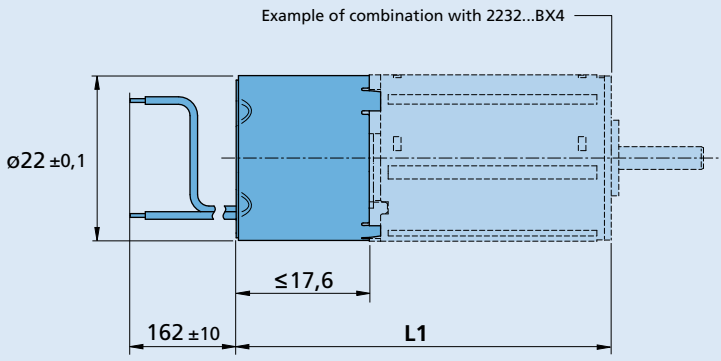
Dimensional drawing A

Example of combination with 2214...BXTH



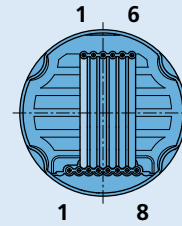
Dimensional drawing B

Dimensional drawing C

Dimensional drawing D


Dimensional drawing E



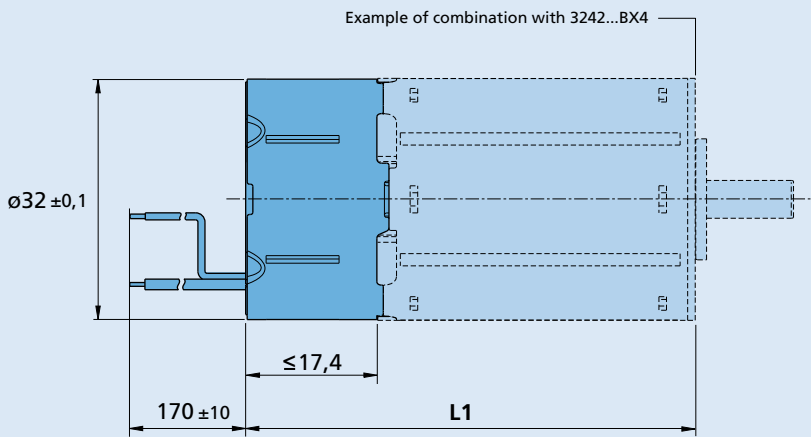
IE3-1024

Connection Encoder



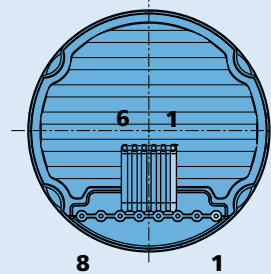
Connection Motor

Dimensional drawing F



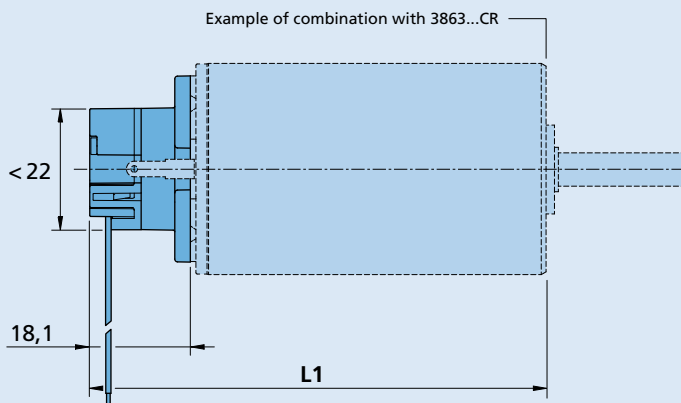
IE3-1024

Connection Encoder



Connection Motor

Dimensional drawing G



IE3-1024

Scale reduced

