Encoders

magnetic absolute Encoder, SSI Interface,
4096 lines per revolution

For combination with
Brushless DC-Motors

Series AES-4096

		AES-4096	
Lines per revolution	*N*	4 096	
Resolution		12 Bit	
Signal output		Synchronous Serial Interface (SSI)	
Supply voltage	U_{DD}	4,5 ... 5,5	V
Current consumption, typical [1]	I_{DD}	typ. 16, max. 23	mA
Output current, max. (DATA) [2]		4	mA
Clock Frequency, max. (CLK)		2	MHz
Input low level (CLK)		0 ... 0,8	V
Input high level (CLK)		2 ... U_{DD}	V
Setup time after power on, max.	t_{setup}	4	ms
Timeout	$t_{timeout}$	16	µs
Inertia of code disc	*J*	0,08	gcm²
Operating temperature range		-40 ... +100	°C

[1] U_{DD} = 5 V: with unloaded outputs
[2] U_{DD} = 5 V: low logic level < 0,4 V, high logic level > 4,6 V: CMOS- and TTL compatible

For combination with Motor	
Dimensional drawing A	**<L1 [mm]**
2232 ... BX4	50,2
2232 ... BX4 S	50,2
2250 ... BX4	68,2
2250 ... BX4 S	68,2
Dimensional drawing B	**<L1 [mm]**
3242 ... BX4	60,0
3268 ... BX4	86,0

Characteristics

The absolute encoder in combination with the Faulhaber motors is ideal for commutation, speed and position control. It can also be used to create a sinusoidal commutation signal.

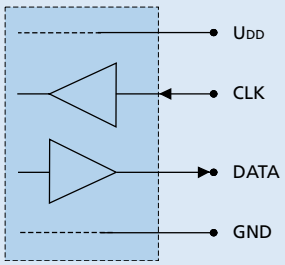
In the AES version, absolute position information is provided with a resolution of up to 4096 steps per revolution at the signal outputs and communicated via a serial (SSI) interface. Absolute means, that each shaft position is assigned to a unique angular value within one revolution. This value is already available directly after power-on.

The advantages are a reduced torque ripple, a higher efficiency, and reduced electrical noise generation. When using sinusodial commutation.

Motor and encoder are connected via a common ribbon cable.

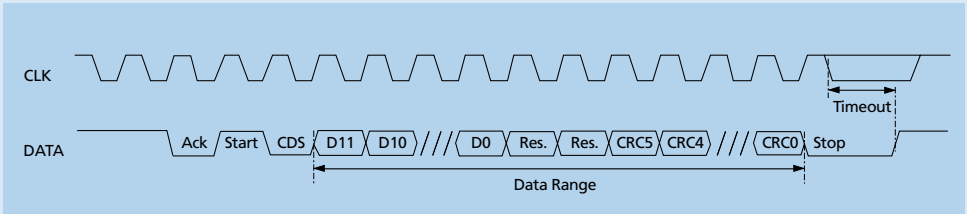
Circuit diagram / Output signals

Output circuit



Interface signals (SSI)

Angle position values are ascending for clockwise rotation.
Clockwise rotation as seen from the shaft end.



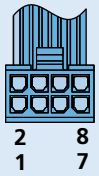
Connector information / Variants

No.	Function
1	Phase C
2	Phase B
3	Phase A
4	GND
5	U_{DD}
6	CLK
7	N.C.
8	DATA

Connection Encoder and Motor

Option

- Connector variants (Option no.: 3830)
  AWG 26 / PVC ribbon cable with connector MOLEX Microfit 3.0, 43025-0800, recommended mating connector 43020-0800

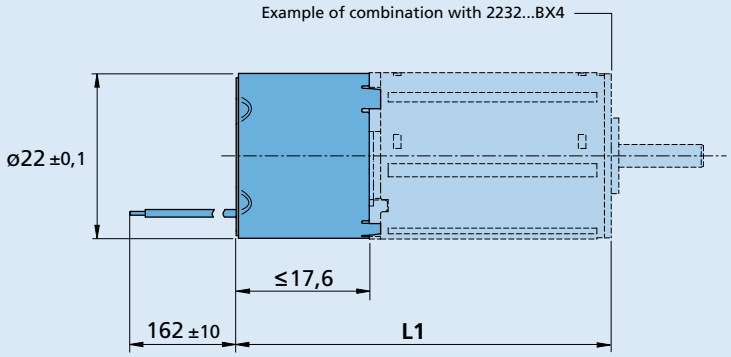


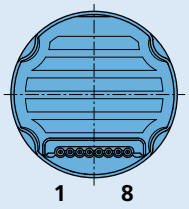
Caution:
Incorrect lead connection will damage the motor electronics!

Full product description

- Example:
  2232S012BX4 AES-4096
  3242G024BX4 AES-4096

Dimensional drawing A

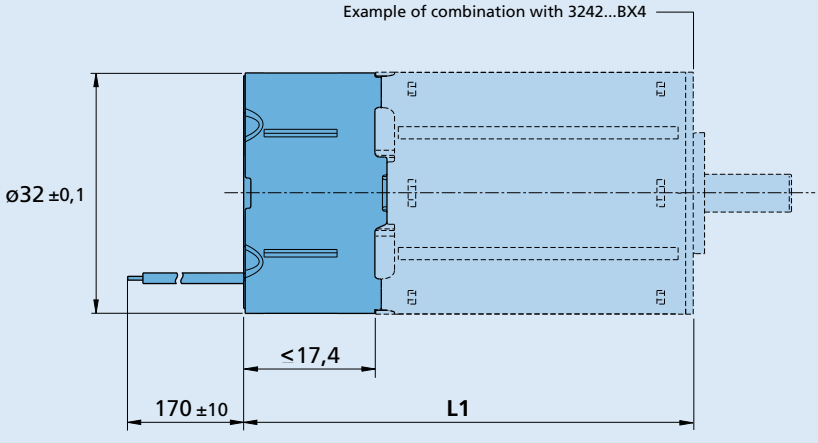


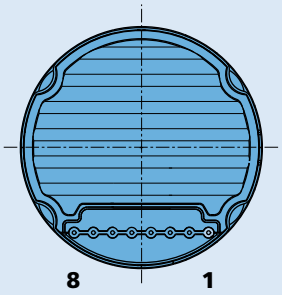


Cable
PVC-ribbon cable
8-AWG 26, 1,27 mm

AES-4096

Dimensional drawing B





Cable
PVC-ribbon cable
8-AWG 24, 2,54 mm

AES-4096

Encoders

magnetic absolute Encoder, SSI Interface,
4096 lines per revolution

For combination with
Brushless DC-Motors

Series AESM-4096

		AESM-4096	
Lines per revolution	N	4 096	
Resolution		12 Bit	
Signal output		Synchronous Serial Interface (SSI)	
Supply voltage	U_{DD}	4,5 ... 5,5	V
Current consumption, typical [1]	I_{DD}	typ. 16, max. 23	mA
Output current, max. (DATA) [2]		4	mA
Clock Frequency, max. (CLK)		2	MHz
Input low level (CLK)		0 ... 0,8	V
Input high level (CLK)		2 ... U_{DD}	V
Setup time after power on, max.	t_{setup}	4	ms
Timeout	$t_{timeout}$	16	µs
Inertia of code disc	J	0,007	gcm²
Operating temperature range		-30 ... +100	°C

[1] U_{DD} = 5 V: with unloaded outputs
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For combination with Motor	
Dimensional drawing A	**<L1 [mm]**
0824 ... B	24,1
Dimensional drawing B	**<L1 [mm]**
1028 ... B	28,1

Characteristics

The absolute encoder in combination with the FAULHABER motors is ideal for commutation, speed and position control. It can also be used to create a sinusoidal commutation signal.

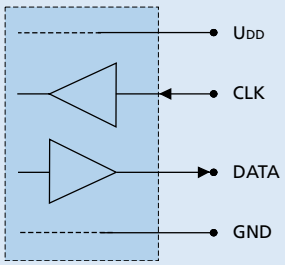
In the AESM version, absolute position information is provided with a resolution of up to 4096 steps per revolution at the signal outputs and communicated via a serial (SSI) interface.
Absolute means, that each shaft position is assigned to a unique angular value within one revolution. This value is already available directly after power-on. The advantages are a reduced torque ripple, a higher efficiency, and reduced electrical noise generation.

When using sinusodial commutation. It is also especially suitable for slow speed regulation.

Motor and encoder are connected via a common flexboard.

Circuit diagram / Output signals

Output circuit



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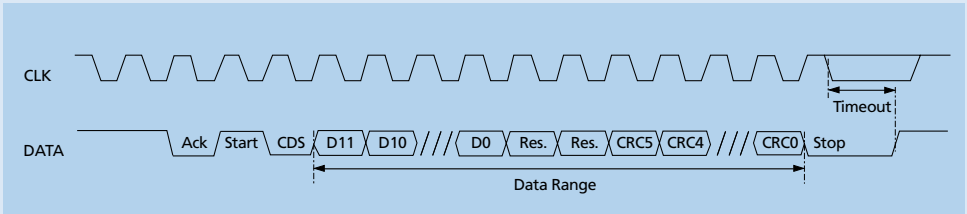

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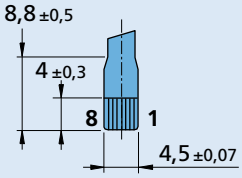
Connection Encoder and Motor

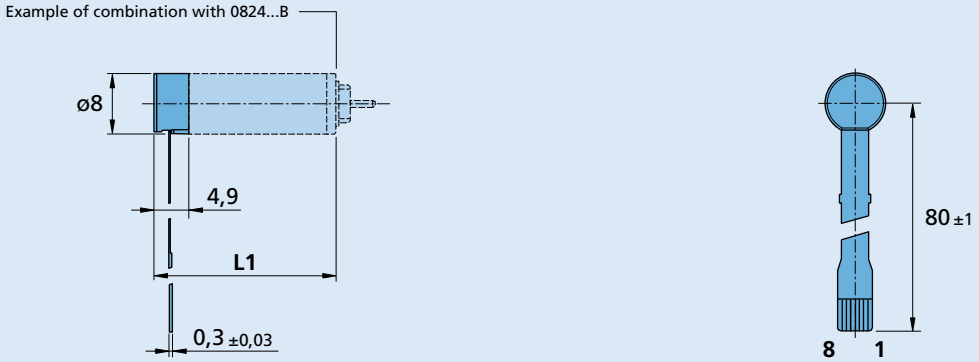


Flexboard
8 circuits, 0,5 mm pitch

Recommended connector
Top contact style
8 circuits, 0,5 mm pitch, e.g.:
Molex: 52745-0896/0897

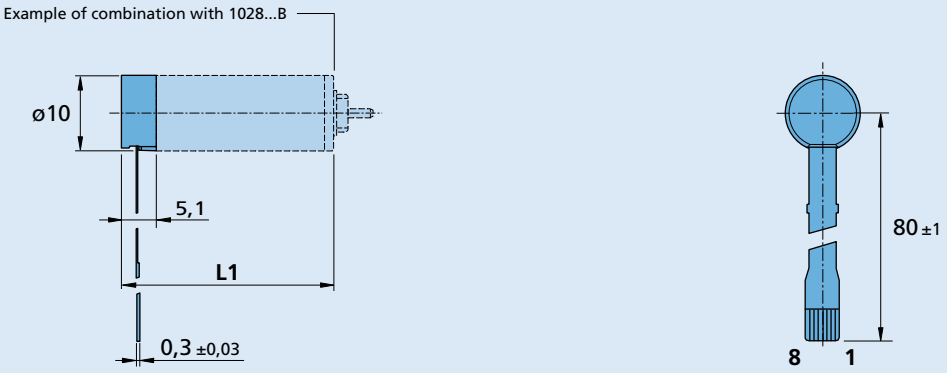
Full product description
Examples:
0824K006B AESM-4096
1028S012B AESM-4096

Dimensional drawing A



AESM-4096

Dimensional drawing B



AESM-4096