

magnetic single-turn absolute Encoder,  
SSI Interface with BISS-C Protocol,  
4096 steps per revolution

**For combination with  
Brushless DC-Motors**

## Series AESM-4096

		AESM-4096	
Steps per revolution		4 096	
Single-turn resolution		12 Bit	
Signal output		SSI Interface with BISS-C Protocol	
Supply voltage	$U_{DD}$	4,5 ... 5,5	V
Current consumption, typical <sup>1)</sup>	$I_{DD}$	typ. 16, max. 23	mA
Output current, max. (DATA) <sup>2)</sup>		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 sensor magnet	$J$	0,007	gcm <sup>2</sup>
Operating temperature range		-30 ... +100	°C

<sup>1)</sup>  $U_{DD} = 5 \text{ V}$ : with unloaded outputs

<sup>2)</sup>  $U_{DD} = 5 \text{ V}$ : low logic level  $< 0,4 \text{ V}$ , high logic level  $> 4,6 \text{ V}$ : CMOS- and TTL compatible

**For combination with Motor**

[illegible]

## 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 SSI Interface with BISS-C Protocol.

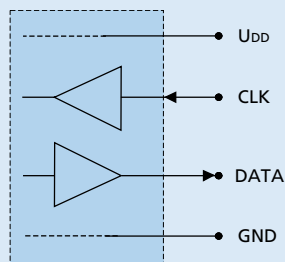
Absolute means, that each shaft position is assigned to an unique angular value within one revolution. This value is already available directly after power-on. The advantages are a reduced torque ripple, a higher efficiency, and reduced electrical noise generation.

Motor and encoder are connected via a common flexboard.

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

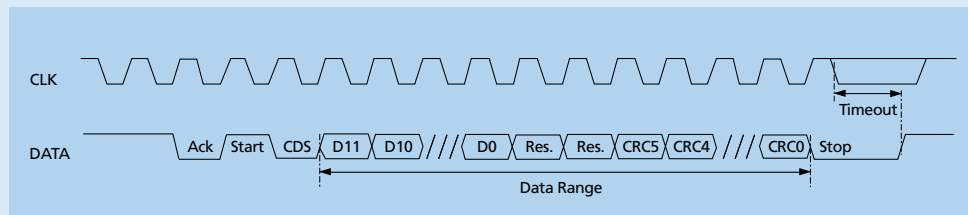
## Circuit diagram / Output signals

### Output circuit



### Interface Protocol BiSS-C

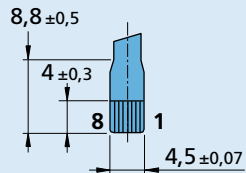
Angle position values are ascending for clockwise rotation.  
Clockwise rotation as seen from the shaft end.



## Connector information / Variants

No.	Function
1	Phase C
2	Phase B
3	Phase A
4	GND
5	UDD
6	CLK
7	N.C.
8	DATA

### 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: 52745-0897

### Full product description

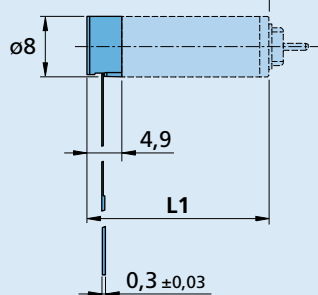
- Examples:  
0824K006B AESM-4096  
1028S012B AESM-4096

### Caution:

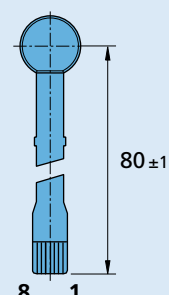
Incorrect lead connection will damage the motor electronics!

## Dimensional drawing A

Example of combination with 0824...B



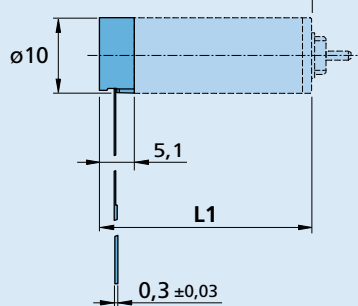
**AESM-4096**



# Dimensional drawing B



Example of combination with 1028...B



AESM-4096

