Absolute encoders - SSI

Magnetic sensor bore max. ø8 mm

Magnetic single- or multiturn encoders / kit 10 bit ST / 15 bit MT

BMSK 30, BMMK 30 SSI - *MAGRES*

BMMK 30 SSI kit

Features

- **Mini encoder / kit single- or multiturn / SSI**
- **Magnetic sensing**
- **Resolution: singleturn 10 bit, multiturn 15 bit**
- **Housing ø30 mm**
- **High protection standard**
- **High resistance to shock and vibrations**
- **Reset input**

Technical data - electrical ratings

Voltage supply	5 VDC ±10 % 10...30 VDC
Consumption w/o load (typ.)	100 mA (5 VDC) 50 mA (24 VDC)
Initializing time (typ.)	70 ms after power on
Interface	SSI
Steps per turn	1024 / 10 bit
Absolute accuracy	±1 °
Sensing method	Magnetic
Code	Gray or binary
Code sequence	CW: ascending values with clockwise sense of rotation (looking at flange)
Inputs	SSI clock Reset input
Output circuit	SSI data: linedriver RS485
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3
Approval	UL approval / E217823
BMSK 30	
Function	Singleturn
BMMK 30	
Function	Multiturn
Number of turns	32768 / 15 bit

Technical data - mechanical design

Dimensions (flange)	ø30 mm
Shaft	Magnet hole 5 mm Magnet hole 6 mm Magnet hole 8 mm
Protection DIN EN 60529	IP 67
Operating speed	≤6000 rpm
Materials	Housing: steel Flange: aluminium
Operating temperature	-20...+85 °C
Relative humidity	95 %
Resistance	DIN EN 60068-2-6 Vibration 30 g, 10-2000 Hz DIN EN 60068-2-27 Shock 100 g, 6 ms
Connection	Connector M9, 8-pin Cable 1 m
Gap tolerance	≤0.3 mm axial ≤0.1 mm radial
BMSK 30	
Weight approx.	60 g
BMMK 30	
Weight approx.	70 g

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Part number

Singleturn

BMSK 30S1 | | | **10/00** | | |

Connection
- 4 Cable 1 m, axial
- 5 Cable 1 m, radial
- 6 Connector M9, axial
- 9 Connector M9, radial

Shaft
- 05 Magnet hole ø5 mm
- 06 Magnet hole ø6 mm
- 08 Magnet hole ø8 mm

Resolution
- 10/00 10 bit singleturn

Voltage supply / signals
- 05C 5 VDC / SSI
- 24C 10...30 VDC / SSI

Code
- G Gray code
- N Binary code

Multiturn

BMMK 30S1 | | | **10/15** | | |

Connection
- 4 Cable 1 m, axial
- 5 Cable 1 m, radial
- 6 Connector M9, axial
- 9 Connector M9, radial

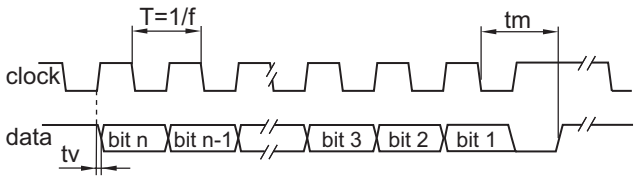
Shaft
- 05 Magnet hole ø5 mm
- 06 Magnet hole ø6 mm
- 08 Magnet hole ø8 mm

Resolution
- 10/15 10/15 bit single-/multiturn

Voltage supply / signals
- 05C 5 VDC / SSI
- 24C 10...30 VDC / SSI

Code
- G Gray code
- N Binary code

Data transfer



Clock frequency f	100...1000 kHz
Scan ratio of T	40...60 %
Time lag tv	200 ns
Monoflop time tm	20 µs + T/2

Accessories

Connectors and cables

10132983	Female connector M9, 8-pin, straight
10123168	Female connector M9, 8-pin, straight, 2 m cable
10123169	Female connector M9, 8-pin, straight, shielded, 5 m cable

Mounting accessories

10106004	Clamp set
10112433	Hexagon wrench 2 mm

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Terminal significance	
+Vs	Encoder supply voltage.
0 V	Encoder ground connection relating to +Vs.
Data+	Positive, serial data output of differential linedriver.
Data-	Negative, serial data output of differential linedriver.
Clock+	Positive SSI clock input. Clock+ together with Clock- forms a current loop. A current of approx. 7 mA towards Clock+ input means logic 1 in positive logic.
Clock-	Negative SSI clock input. Clock- together with Clock+ forms a current loop. A current of approx. 7 mA towards Clock- input means logic 0 in positive logic.
Zero	Input for setting a zero point anywhere within the encoder resolution. The zero setting operation is triggered by a Low impulse. Connect to +Vs after setting operation for maximum interference immunity. Impulse duration >2 ms.
Rot. direction	Ascending position values when looking at the flange and rotating the shaft clockwise.

Terminal assignment

Cable
for connection references **-4** and **-5**

Core colour	Signals	Description
brown	+Vs	Supply voltage
white	0 V	Supply voltage
grey	Data+	Data signal
pink	Data-	Data signal
green	Clock+	Clock signal
yellow	Clock-	Clock signal
blue	Zero	Zero setting input
red	d.u.	do not use
Screen	connected to housing	
Cable data	8 x 0,14 mm^2	

Connector M9 male
for connection references **-6** and **-9**

Connector	Signals	Description
Pin 1	0 V	Supply voltage
Pin 2	+Vs	Supply voltage
Pin 3	Clock+	Clock signal
Pin 4	Clock-	Clock signal
Pin 5	Data+	Data signal
Pin 6	Data-	Data signal
Pin 7	Zero	Zero setting input
Pin 8	d.u.	do not use

Trigger level	
Control inputs	**Input circuit**
Input level Low	<0,4 V (>2 ms)
Input level High	+Vs or open

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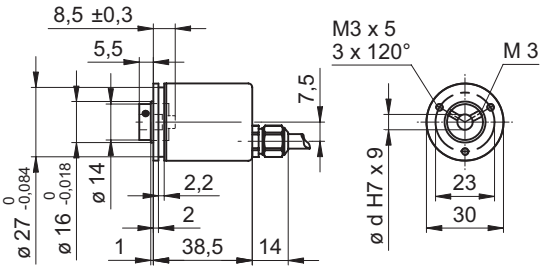
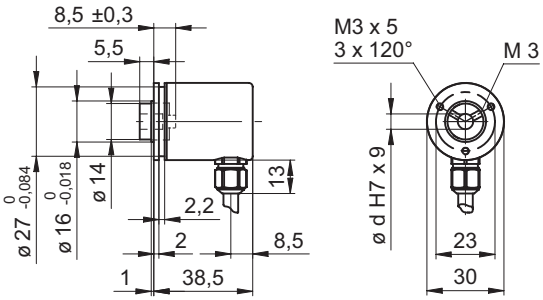
Dimensions

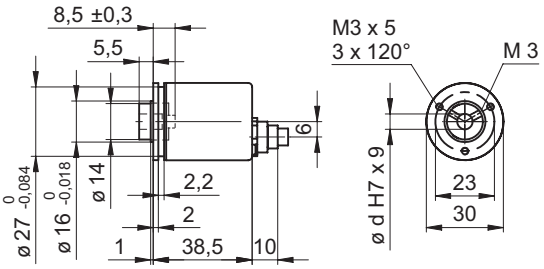
BMSK/BMMK 30 SSI cable axial



BMSK/BMMK 30 SSI cable radial



BMSK/BMMK 30 SSI connector output axial



BMSK/BMMK 30 SSI connector output radial