

# Absolute encoders - SSI

## Shaft with clamping or synchro flange

### Magnetic single- or multiturn encoders 12 bit ST / 13 bit MT

#### BMSV 58, BMMV 58 SSI - MAGRES



BMSV 58K SSI with clamping flange

#### Features

- Encoder single- or multiturn / SSI
- Magnetic sensing
- Resolution: singleturn 12 bit, multiturn 13 bit
- High resistance to shock and vibrations
- Reset input
- Clamping or synchro flange

#### Technical data - electrical ratings

Voltage supply	5 VDC $\pm$ 10 % 10...30 VDC
Consumption w/o load (typ.)	100 mA (5 VDC) 50 mA (24 VDC)
Initializing time (typ.)	170 ms after power on
Interface	SSI
Steps per turn	4096 / 12 bit
Absolute accuracy	$\pm$ 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

#### BMSV 58K, BMSV 58S

Function	Singleturn
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#### BMMV 58K, BMMV 58S

Function	Multiturn
Number of turns	8192 / 13 bit

#### Technical data - mechanical design

Dimensions (flange)	$\varnothing$ 58 mm
Protection DIN EN 60529	IP 65
Operating speed	$\leq$ 12000 rpm (mechanical) $\leq$ 6000 rpm (electric)
Operating torque typ.	0.023 Nm
Materials	Housing: aluminium 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 500 g, 6 ms
Weight approx.	300 g
Connection	Connector M12, 8-pin Connector M23, 12-pin Cable

#### BMSV 58K, BMMV 58K

Shaft	$\varnothing$ 10 mm (clamping flange)
Flange	Clamping flange
Shaft loading	$\leq$ 40 N axial $\leq$ 60 N radial

#### BMSV 58S, BMMV 58S

Shaft	$\varnothing$ 6 mm (synchro flange)
Flange	Synchro flange
Shaft loading	$\leq$ 10 N axial $\leq$ 20 N radial

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### Part number

#### Singleturn clamping flange

BMSV 58K1   12/00 C0

Connection  
 5 Cable radial  
 A Connector M23, radial  
 N Connector M12, radial  
  
Shaft  
 C0 ø10 mm, IP 65  
  
Resolution  
 12/00 12 bit singleturn  
  
Voltage supply / signals  
 05C 5 VDC / SSI  
 24C 10...30 VDC / SSI  
  
Code  
 N Binary code  
 G Gray code

#### Multiturn clamping flange

BMMV 58K1   12/13 C0

Connection  
 5 Cable radial  
 A Connector M23, radial  
 N Connector M12, radial  
  
Shaft  
 C0 ø10 mm, IP 65  
  
Resolution  
 12/13 12/13 bit single-/multiturn  
  
Voltage supply / signals  
 05C 5 VDC / SSI  
 24C 10...30 VDC / SSI  
  
Code  
 N Binary code  
 G Gray code

#### Singleturn synchro flange

BMSV 58S1   12/00 C6

Connection  
 5 Cable radial  
 A Connector M23, radial  
 N Connector M12, radial  
  
Shaft  
 C6 ø6 mm, IP 65  
  
Resolution  
 12/00 12 bit singleturn  
  
Voltage supply / signals  
 05C 5 VDC / SSI  
 24C 10...30 VDC / SSI  
  
Code  
 N Binary code  
 G Gray code

#### Multiturn synchro flange

BMMV 58S1   12/13 C6

Connection  
 5 Cable radial  
 A Connector M23, radial  
 N Connector M12, radial  
  
Shaft  
 C6 ø6 mm, IP 65  
  
Resolution  
 12/13 12/13 bit single-/multiturn  
  
Voltage supply / signals  
 05C 5 VDC / SSI  
 24C 10...30 VDC / SSI  
  
Code  
 N Binary code  
 G Gray code

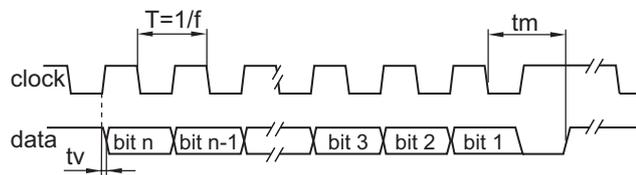
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### Data transfer



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

### Trigger level

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

### Accessories

#### Connectors and cables

10116717	Female connector M23, 12-pin, straight
10153334	Female connector M23, 12-pin, straight, 2 m cable
10153335	Female connector M23, 12-pin, straight, 5 m cable
10146775	Female connector M12, 8-pin, straight
10127844	Female connector M12, 8-pin, straight, shielded, 2 m
10129332	Female connector M12, 8-pin, straight, shielded, 5 m cable

#### Mounting accessories for BMSV 58K, BMMV 58K

10252773	Clamp set
11053277	Bellows coupling aluminium/stainless steel 10 mm

#### Mounting accessories for BMSV 58S, BMMV 58S

10252773	Clamp set
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## Shaft with clamping or synchro flange

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#### BMSV 58, BMMV 58 SSI - MAGRES

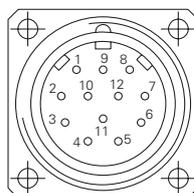
#### Terminal significance

+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

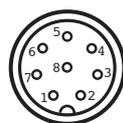
##### Cable / Connector M23 male for connection references -A and -5

Connector	Core colour	Signals	Description
Pin 1	yellow	Clock-	Clock signal
Pin 2	green	Clock+	Clock signal
Pin 3	grey	Data+	Data signal
Pin 4	pink	Data-	Data signal
Pin 5	blue	Zero	Zero setting input
Pin 6	–	n.c.	–
Pin 7	–	n.c.	–
Pin 8	–	n.c.	–
Pin 9	red	d.u.	do not use
Pin 10	–	n.c.	–
Pin 11	brown	+Vs	Supply voltage
Pin 12	white	0 V	Supply voltage
Screen	connected to housing		
Cable data	8 x 0.14 mm <sup>2</sup>		



##### Connector M12 male for connection reference -N

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



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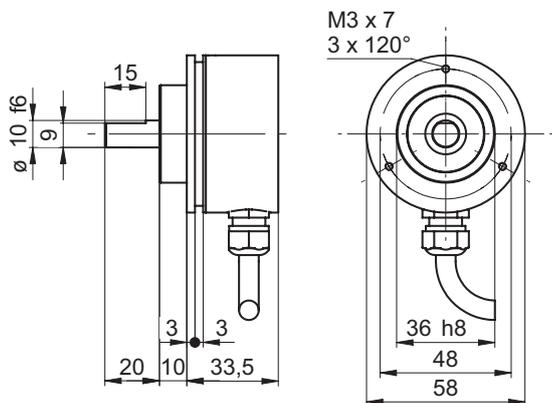
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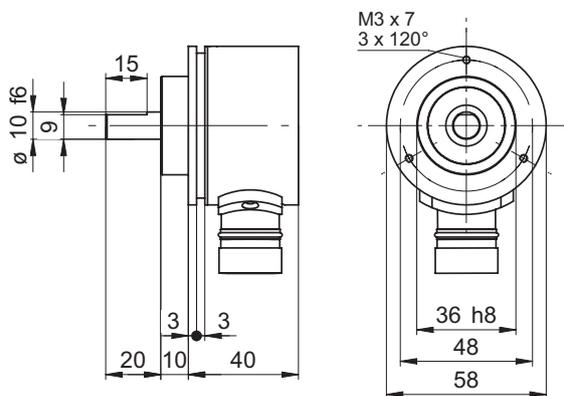
## BMSV 58, BMMV 58 SSI - MAGRES

### Dimensions

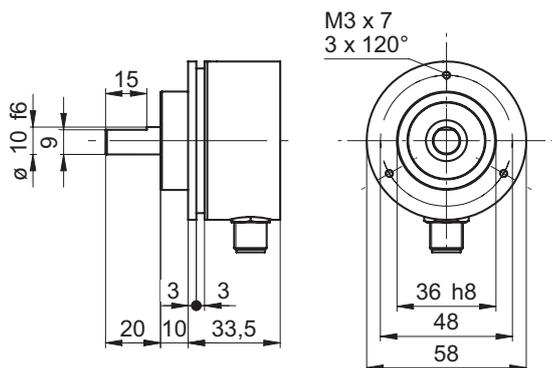
**BMSV/BMMV 58 SSI clamping flange, cable radial**



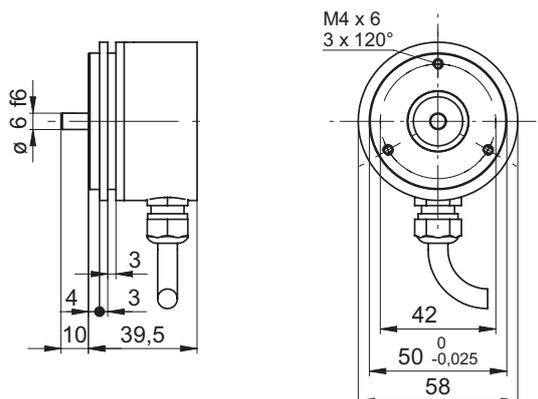
**BMSV/BMMV 58 SSI clamping flange, M23 radial**



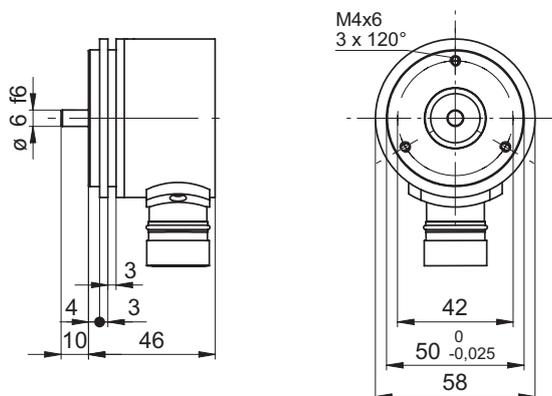
**BMSV/BMMV 58 SSI clamping flange, M12 radial**



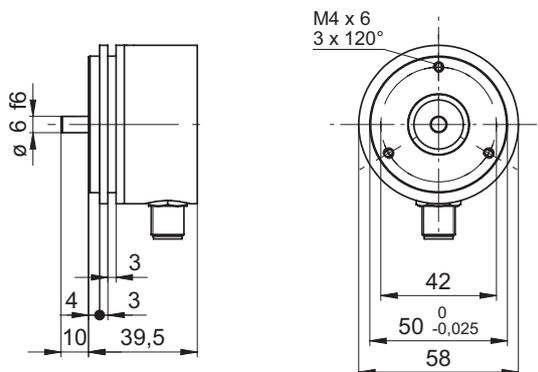
**BMSV/BMMV 58 SSI synchro flange, cable radial**



**BMSV/BMMV 58 SSI synchro flange, M23 radial**



**BMSV/BMMV 58 SSI synchro flange, M12 radial**



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