

# Absolute encoders - SSI

## Shaft with synchro flange

### Magnetic singleturn encoders 12 bit

#### BMSV 70 SSI - MAGRES



BMSV 70 SSI with synchro flange

#### Features

- Encoder singleturn / SSI
- Magnetic sensing, permanent shock proof
- Resolution: singleturn 12 bit
- High resistance to shock and vibrations
- Reset input
- Safety screw connection

#### 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
Function	Singleturn
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

#### Technical data - mechanical design

Dimensions (flange)	$\varnothing$ 70 mm
Shaft	$\varnothing$ 12 mm
Flange	Synchro flange
Protection DIN EN 60529	IP 64
Operating speed	$\leq$ 6000 rpm
Operating torque typ.	0.023 Nm
Shaft loading	$\leq$ 40 N axial $\leq$ 60 N radial
Materials	Housing: steel ETG100, bronzed Bus cover, lid: 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 20 g, 6 ms
Weight approx.	770 g
Connection	Connector M12, 8-pin Connector M23, 12-pin Cable

# Absolute encoders - SSI

## Shaft with synchro flange

### Magnetic singleturn encoders 12 bit

#### BMSV 70 SSI - MAGRES

#### Part number

#### Singleturn synchro flange

**BMSV 70S1**   **12/00** **L2**

5	Connection
A	Cable radial
A	Connector M23, radial
N	Connector M12, 5-pin, radial
<b>Shaft</b>	
L2	ø12 mm, IP 64
<b>Resolution</b>	
12/00	12 bit singleturn
<b>Voltage supply / signals</b>	
05C	5 VDC / SSI
24C	10...30 VDC / SSI
<b>Code</b>	
N	Binary code
G	Gray code

#### Accessories

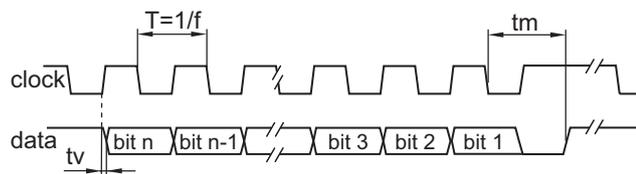
#### Connectors and cables

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

10252773	Clamp set
----------	-----------

#### 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

# Absolute encoders - SSI

## Shaft with synchro flange

### Magnetic singleturn encoders 12 bit

#### BMSV 70 SSI - MAGRES

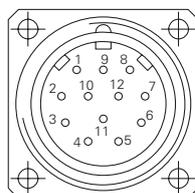
##### Terminal significance

+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



##### Trigger level

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

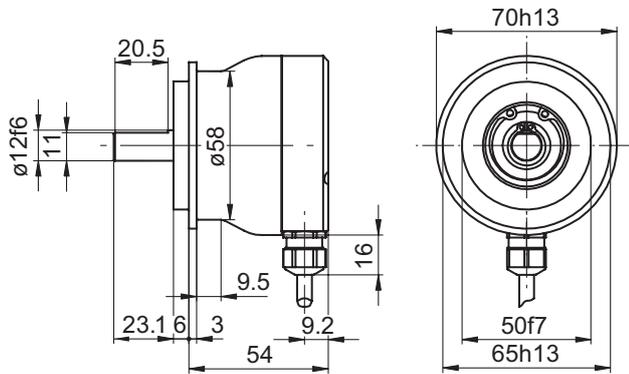
# Absolute encoders - SSI

Shaft with synchro flange  
Magnetic singleturn encoders 12 bit

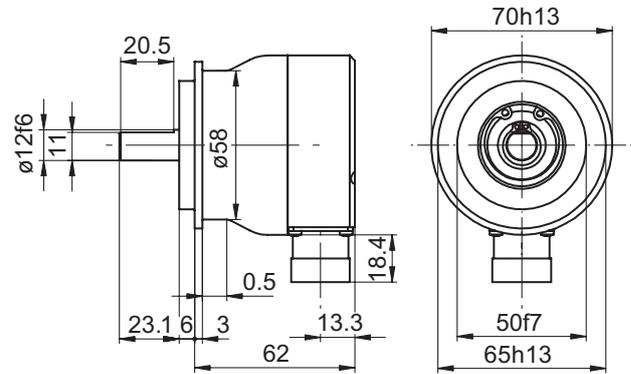
## BMSV 70 SSI - MAGRES

### Dimensions

**BMSV 70 SSI, cable radial**



**BMSV 70 SSI, M23 radial**



**BMSV 70 SSI, M12 radial**

