

Absolute single-turn hollow shaft encoder

BOSD – Digitalizer

SSI

features

- high resolution single-turn encoder 17 bit
- SSI interface programmable
- permanent self-test
- reference point programmable
- through hollow shaft



general data

voltage supply	5 VDC \pm 5%
supply current no load	typ. 150 mA
output circuit encoder	SSI, complementary RS 422, binary and Gray code
max. resolution	17 bit (1 step = 10'')
max. clock frequency	1,1 MHz
repeatability	0,012°
direction of rotation	looking at the flange, position counts up as the shaft rotates clockwise (CW), programmable

mechanical data

max. revolutions	mech. 6'000 rpm electr. 6'000 rpm
moment of inertia	typ. $18,4 \times 10^{-7}$ kgm ²
torque	typ. 4,5 cNm (3'000 rpm / 20 °C / IP 42)
product life	depending on ambient conditions (typ. 10 ⁹ revolutions)
max. protection class	IP 65
material	housing: aluminum
weight	approx. 300 g

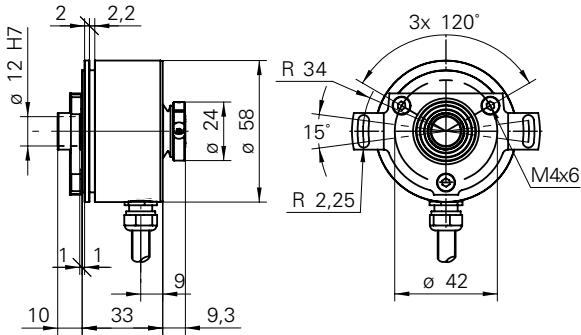
ambient conditions

temperature range	-20...+85 °C
relative humidity	max. 95% non condensing
vibration (sine)	IEC 60068-2-6 (≤ 100 m/s ² / 10 - 2'000 Hz) 150 min per axis
vibration (random)	IEC 60068-2-64 ($\leq 0,1$ g ² /Hz / 20 - 1'000 Hz) 30 min per axis
shock	IEC 60068-2-27 (≤ 500 m/s ² / 11 ms) 10 pulses per axis and direction
noise immunity	EN 61000-6-2
emitted interference	EN 61000-6-3



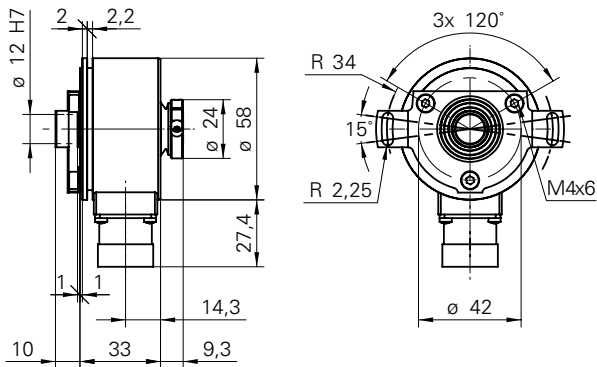
dimensions and connection dimensions

-5



2

-A



Note

Mounting drawings see end of chapter.

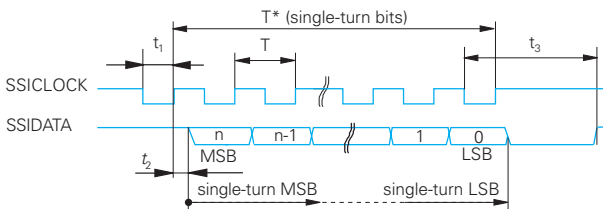
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BOSD – *Dignalizer*

SSI

read out of position values

The SSI interface can be used especially for real time signal processing. It is possible to precisely scan the angle information with the first negative clock.



Important: The SSI protocol does not start with zeros. NSSICLOCK and NSSIDATA are not symbolized.

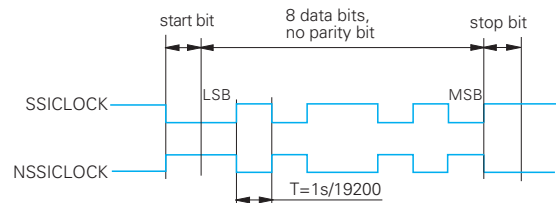
$$T = 0,9 \text{ to } 14 \mu\text{s} \quad t_2 \leq 0,6 \mu\text{s}$$

$$0,45 \mu\text{s} < t_1 < t_3 \quad t_3 = 2, 5, 10 \text{ or } 20 \mu\text{s}$$

The monoflop-time is programmable. (Default 20 μs). Please keep the condition $t_3 \geq 1,4 * T$.

commands to encoder and parameter settings

When using the asynchronous protocol with 19'200 baud, the asynchronous word is interpreted as a command. This is due to the lengths of the LOW and HIGH periods which are longer than the max. monoflop time (t_3).



parameter settings

It is always possible to set parameters over the SSI interface, even if the encoder is in operation.

For example:

- direction of rotation
- monoflop time
- compensation of propagation time

Version of commands:

The version of commands was created for commands which offer a special support of function during operation. The trigger of command will be started as mentioned above over the SSI interface. Therefore i.e. it would be able to set the zero point in real time within the whole working range.

Possible commands:

- zero set permanent/ temporarily
- read offset value
- read/write parameter

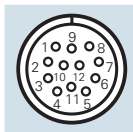
The response on commands has to be read out at the SSI interface before reading the next position value.

Readout of position values and programming of the *Dignalizer* is also possible by PCI-board. See chapter accessories.



assignment connector M23 male

for connection reference **-A**



pin-number	signals
1	NSSICLOCK
2	SSICLOCK
3	SSIDATA
4	NSSIDATA
5	n.c.
6	n.c.
7	n.c.
8	n.c.
9	n.c.
10	n.c.
11	+Vs
12	0 V

order designation

BOSD 58S1 **05C** / **00**

<p>connection</p> <p>5 cable 2 m radial</p> <p>A connector radial M23</p> <p>shaft</p> <p>B2 hollow shaft 12 mm IP 42 with clamping ring</p> <p>E2 hollow shaft 12 mm IP 65 with clamping ring</p> <p>I2 hollow shaft 12 mm IP 42 with clamping ring and spring plate</p> <p>M2 hollow shaft 12 mm IP 65 with clamping ring and spring plate</p> <p>resolution</p> <p>17 17 bit</p> <p>signal code</p> <p>N binary code</p> <p>G Gray code</p>	<p>connection</p> <p>shaft</p> <p>resolution</p>
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Other versions on request.

assignment cable

for connection reference **-5**

cable color	signals
brown	+Vs (5 VDC)
green	SSICLOCK
yellow	NSSICLOCK
pink	SSIDATA
grey	NSSIDATA
white	0 V
cable data	6 x 0,14 mm ² , PVC, screened, L = 2 m

accessories

connector 12-pin	part nr. 116717
clamp set	part nr. 110616
spring plate set	part nr. 136635
PCI-board with galvanic isolation	part nr. 139338 see chapter accessories