

Fully Digital absolute multi-turn hollow shaft encoders BOLH/BOMH – Digitalizer

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BOLH/BOMH
Digitalizer



features

- high-resolution multi-turn encoder to 36 Bit
- Synchronized serial interface (SSI)
- permanent self-test
- reference point programmable



BOLH

BOMH

general data

voltage supply encoder	Vs = 5V ±5%
supply current no load	typ. 150 mA
resolution max. Multiturn	18 Bit (262'144 revolutions)
Singleturn	18 Bit (1 measuring step corresponds 5")
max. revolutions	6000 r/min
measuring value rate	50'000 position values/sec with 20 m Cu-cable 0,14 mm ²
pulse tolerance	± 1/2 step
output circuit encoder	SSI, complementary RS 422
direction of rotation	programmable, standard rising position values at view on the floor and clockwise rotation of the shaft (CW)

mechanical data

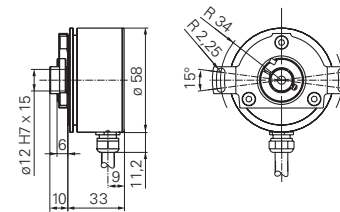
max. revolutions	mech. 12'000 r/min. elektr. 6'000 r/min.
rotor inertia	typ. 18,4 x 10 ⁻⁷ kgm ²
torque	typ. 1,75 cNm (3000 rev/min. 20 °C)
product life	depending on ambient conditions (typ. 10 ⁹ revolutions)
max. protection class	housing IP 64 shaft IP 64
material	aluminum
weight	BOLH approx. 300 g BOMH approx. 370 g

ambient conditions

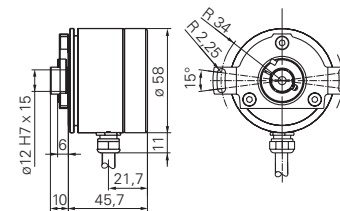
temperature range	-20...+85 °C
relative humidity	max. 95% non condensing
vibration	IEC 68 section 2-6 (≤ 100 m/s ² / 10-200 Hz)
shock	IEC 68 section 2-27 (≤ 500 m/s ² / 11 ms)
noise immunity	EN 50 082 - 2 EN 61000 - 4 - 2 to 4 severity grade 3
emitted interference	EN 50 081 - 2

dimensions

BOLH



BOMH

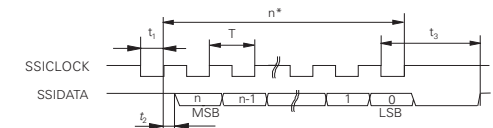


pin assignment cabel

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

selection of position-values

The position values are read out only via standard SSI protocol provided the clock-period T < monoflop-time (t3):



T = 0,9 to 14 μs
t1 > 0,45 μs
t2 ≤ 0,6 μs
t3 = 2, 5, 10 or 20 μs monoflop-time.
The monoflop-time can be parametered by keeping the condition t3 ≥ 1,4 * T

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commands to the encoder and setting of parameters

The multibyte protocol consists of several Bytes, asynchronous with selectable Baud rate via SSICLOCK line.

Replies to commands are given in SSI mode through standard SSI call. The reply must be collected before the next position value call is made.

In SSI asynchronous mode the encoder replies in an asynchronous way on the SSIDATA line with a Baud rate that is to be parametered.

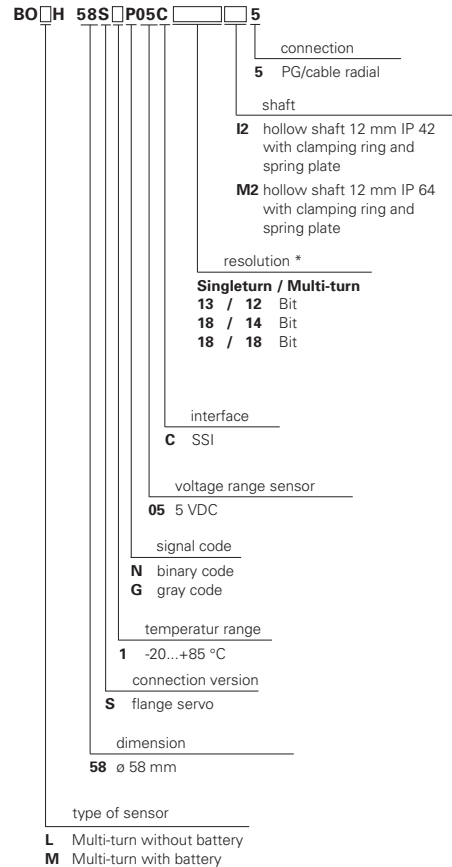
The following parameters can be set:

- SSI-Bit format (selectable resolution)
- sens of rotation CW/CCW
- monoflop-time
- interface mode
- trailing error compensation
- selectable Baud rate for parametering and programming

Further novelties are:

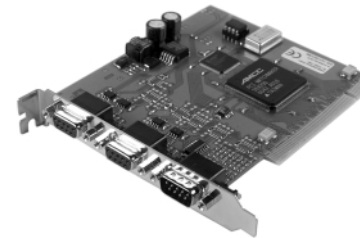
- electronic product label
- non-volatile user memory range up to 80 Bytes
- efficient error treatment
- operation hour counter
- incremental totalizer
- preset function

order designation



* other resolutions are programmable

Standard PCI plug-in card for analyzing and setting parameters of 2 Digitalizers



Description

The standard PCI plug-in card is used to analyze single-turn and multi-turn rotary encoders of **Digitalizer** type, and to set their parameters, using a personal computer.

For instance, if 10 Digitalizers are fitted in a machine, and because of the application they require different monoflop times, all their parameters can be set with one card which is fitted in your machine. After they are set, the encoder is controlled by an SPS with integrated SSI card. Of course the encoder can also be operated with the card. One card supports a maximum of two Digitalizers. Each Digitalizer can communicate with the card independently of the other

Properties

- PCI plug-in card for PC on Windows 95/98 and NT
- connection of 2 SSI rotary encoders of Digitalizer type
- driver and demo software for Windows 95/98/NT

Connections

for encoders 1/2

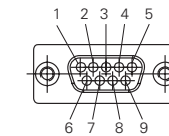
Pin number	Signals
1	UBat
2	0 V
3	SSIDATA
4	NSSITAKT
5	0 V
6	+Vs
7	NSSIDATA
8	+Vs
9	SSITAKT

External view of socket

Trigger and set-zero inputs

The trigger and set-zero signals for the two rotary encoders are implemented on the DSUB 9-pin plug.

Pin assignment of DSUB 9-pin plug



External view of plug

Pin-Nr.	Signals
1	TrigEncoder1
2	NTrigEncoder1
3	SetZeroEncoder1
4	NSetZeroEncoder1
5	0 V
6	TrigEncoder2
7	NTrigEncoder2
8	SetZeroEncoder2
9	NSetZeroEncoder2

PCI card technical data

encoder connection	1 EIA RS 422 SSI interface each
SSICLOCK frequency	max. 5 MHz, selectable
SSI measurement rate	variable from 6 µs - 200 ms, or can be triggered externally
number of bits	max. 40 bits (5 bytes)
trigger inputs	RS 422
set-zero inputs	RS 422
baud rate for setting encoder parameters	19,208,000 ± 2%
battery voltage	3,6 V nominal voltage lithium battery to secure encoder values, if not implemented in multiturn encoder (optional)
special	The encoders are supplied with 5 V directly from the card. Electrical separation of the rotary encoder power supply line is available as an option

Order codes

without electrical separation, without battery	part nr. 139336
without electrical separation, with battery	part nr. 139337
with electrical separation, without battery	part nr. 139338
with electrical separation, with battery	part nr. 139339