INTERBUS-S

Absolute Encoder HE-65-M

Technical Information

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Font styles

Italic or **bold** font styles are used for the title of a document or are used for highlighting.

`Courier` font displays text, which is visible on the display or screen and software menu selections.

″ < > ″ indicates keys on your computer keyboard (such as <RETURN>).

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Revision	Date	Index
First release	11/16/99	00
General modifications	04/04/16	01

1 Introduction

The HE-65-M absolute encoder with INTERBUS-S interface is designed as a remote bus module with 32 I/O data. This makes it easy to integrate in the bus ring in the same way as a PHOENIX-CONTACT bus terminal. To ensure that the protocol meets INTERBUS-S requirements, an SYPI (serial microprocessor interface) is integrated between the HE-65-M absolute encoder and the INTERBUS-S. The SYPI is an INTERBUS-S protocol chip developed by PHOENIX-CONTACT which carries out the following functions:

- BUS interfacing: Directions of reception and transmission
- CRC check
- Transfer protocol

  etc.

2 Encoder Characteristics

Type of encoder	:	HE-65-M Interbus-S
Resolution per revolution	:	max. 8192 steps (13 bit)
Number of revolutions	:	max. 4096
Output capacity	:	max. 25 bit
Power supply	:	11-27 V DC (+/- 5% residual ripple)
Output code	:	Binary
Transmission rate	:	300 kbps net, 500 kbps gross (including control and status bytes)
Interface	:	Two-wire remote bus for INTERBUS-S, RS422 with galvanic isolation
Ident number	:	51 dec. (33 hex)
Telegram length	:	2 word addresses
Inputs	:	V/R (direction of rotation) "0" < 8 V DC, "1" > 11 V DC, max. 30 V DC

3 Mapping of Encoder Data in the Master (Controller)

In the master, the encoder data occupies two-word addresses for IN-data and two-word addresses for OUT-data. The position of the data in the controller depends on the physical or logical position of the encoder within the ring. For detailed information, refer to the manual of the master (controller) used. The encoder should be considered to be a PHOENIX I/O bus terminal and the system processes it as such.

3.1 Position of the Encoder Data Within the Two-Word Addresses

OUT-data relative to the master:

Relative word address “1“

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

MSB LSB

OUT-data relative to the master:

Relative word address “2“

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

MSB LSB

IN-data relative to the master:

Relative word address “1“

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

MSB LSB

IN-data relative to the master:

Relative word address “2“

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

MSB LSB

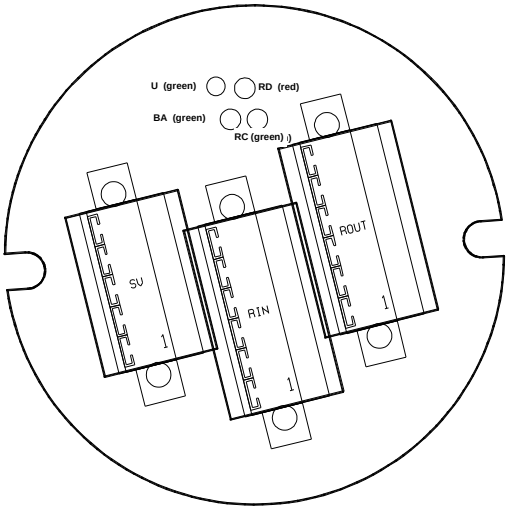
4 Pin assignments

ROUT-Connector

Link Pin 5 and 6 if another device is following.

Ground not connected to case.

Max. voltage ground-case 85 V.



LED RD (red) Following IBS-Interface is disconnected

LED RC (green) Remote-Control

LED U (green) SUPI Supply-Voltage

LED BA (green) Interbus-S active

SV - Connector			Power Supply	
Pin-Nr.	Name	Signal level	Function with open input	Function with signal level "High"
1	NC	-	-	-
2	Direction_IN	11-27 VDC	counting clockwise	counting counter clockwise
3	Supply_Voltage_IN	11-27 VDC	-	-
4	Supply_Voltage_IN	11-27 VDC	-	-
5	Ground_IN	0 V	-	-

RIN - Connector			Remote in	
Pin-Nr.	Name	Signal level	Driver	Function
1	IBS_/D01_OUT	TTL	Push Pull	Data 1 OUT invers
2	IBS_D01_OUT	TTL	Push Pull	Data 1 OUT
3	IBS_/DI1_IN	TTL	-	Data 1 IN invers
4	IBS_DI1_IN	TTL	-	Data 1 IN
5	IBS_Ground1	0 V	-	Ground
6	NC	-	-	no connection

ROUT - Connector			Remote out	
Pin-Nr.	Name	Signal level	Driver	Function
1	IBS_/D02_OUT	TTL	Push Pull	Data 2 OUT invers
2	IBS_D02_OUT	TTL	Push Pull	Data 2 OUT
3	IBS_/DI2_IN	TTL	-	Data 2 IN invers
4	IBS_DI2_IN	TTL	-	Data 2 IN
5	IBS_Ground2	0 V	-	Ground
6	IBS_/RBST_IN	TTL	-	Remote Bus Connector invers