# HE-65
# INTERBUS-S

## Technical Information

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This manual was edited using text formatting software on a DOS personal computer. The text was printed in *Arial*.

## Fonts

*Italics* and **bold** type are used for the title of a document or to emphasize text passages.

Passages written in `Courier` show text which is visible on the display as well as software menu selections.

"< >" refers to keys on your computer keyboard (e.g. <RETURN>).

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## Revision History

***Note***
The cover of this document shows the current revision status and the date of the last changes. Since each individual page has its own revision status and date in the footer, this means that there may be several different revision statuses in the same document.

Document created on: 16.11.1999

| Modification | Date |
|---|---|
| | |

# Table of Contents

## 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)<br>"0" < 8 V DC, "1" > 11 V DC, max. 30 V DC |

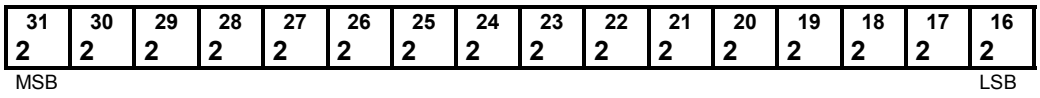
## 3 Mapping of Encoder Data in the Master (Controller)

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

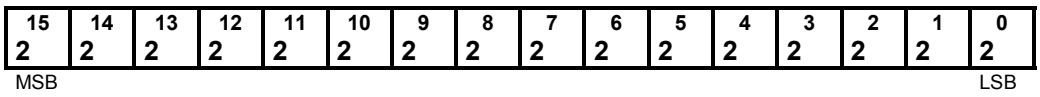
**OUT-data relative to the master:**

Relative word address “1“



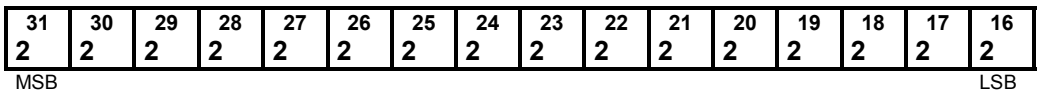

OUT-data relative to the master:

Relative word address “2“



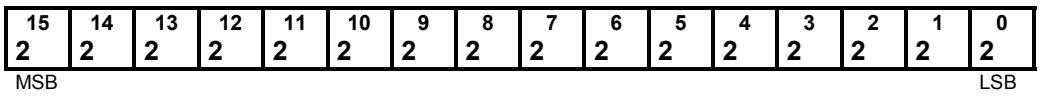

IN-data relative to the master:

Relative word address “1“




IN-data relative to the master:

Relative word address “2“



## 4 Pin assignments

**ROUT-Stecker**

Pin 5 und 6 brücken falls Teilnehmer folgt.

**ROUT-Connector**

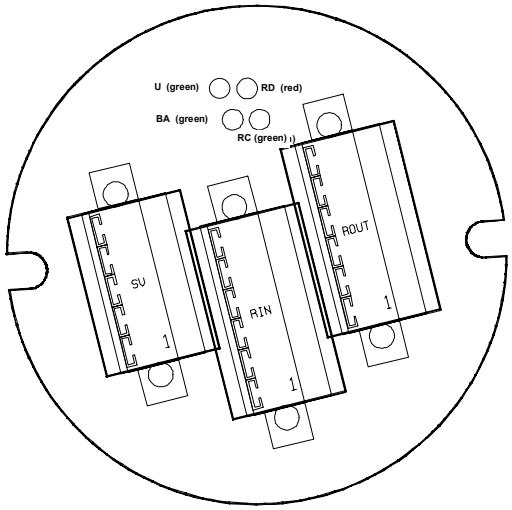
Link Pin 5 and 6 if another device is following.

Ground ist nicht mit Gehäuse verbunden.

Ground not connected to case.

Die max. Spannung zwischen Ground und Gehäuse darf 85V nicht überschreiten.

Max. voltage ground-case 85V.




LED RD (rot) Weiterführende IBS-Schnittstelle ist abgeschaltet

LED RD (red) Following IBS-Interface is disconnected

LED RC (grün) Fernbuskontrolle

LED RC (green) Remote-Control

LED U (grün) SUPI Betriebsspg.

LED U (green) SUPI Supply-Voltage

LED BA (grün) Interbus-S aktiv

LED BA (green) Interbus-S active

| **SV - Connector<br>SV - Stecker** | | | **Power Supply<br>Versorgung** | |
|---|---|---|---|---|
| Stift-Nr.<br>*Pin-Nr.* | Bezeichnung<br>*Name* | Ansteuersignal<br>*Signal level* | Funktion mit offenem Eingang<br>*Function with open input* | Funktion mit Ansteuersignal "High"<br>*Function with signal level "High"* |
| 1 | NC | - | - | - |
| 2 | Direction_IN | 11-27 VDC | Zählrichtung rechtsdrehend<br>*counting clockwise* | Zählrichtung linksdrehend<br>*counting conter clockwise* |
| 3 | Supply_Voltage_IN | 11-27 VDC | - | - |
| 4 | Supply_Voltage_IN | 11-27 VDC | - | - |
| 5 | Ground_IN | 0 V | - | - |

| **RIN - Connector<br>RIN - Stecker** | | | **Remote in** | | |
|---|---|---|---|---|---|
| Stift-Nr.<br>*Pin-Nr.* | Bezeichnung<br>*Name* | Ansteuersignal<br>*Signal level* | Treiber<br>*Driver* | Funktion | *Function* |
| 1 | IBS_/D01_OUT | TTL | Push Pull | Datenausgang 1 invertiert | *Data 1 OUT invers* |
| 2 | IBS_D01_OUT | TTL | Push Pull | Datenausgang 1 | *Data 1 OUT* |
| 3 | IBS_/DI1_IN | TTL | - | Dateneingang 1 invertiert | *Data 1 IN invers* |
| 4 | IBS_DI1_IN | TTL | - | Dateneingang 1 | *Data 1 IN* |
| 5 | IBS_Ground1 | 0 V | - | Masse | *Ground* |
| 6 | NC | - | - | ohne Anschluß | *no connection* |

| **ROUT - Connector<br>ROUT - Stecker** | | | **Remote out** | | |
|---|---|---|---|---|---|
| Stift-Nr.<br>*Pin-Nr.* | Bezeichnung<br>*Name* | Ansteuersignal<br>*Signal level* | Treiber<br>*Driver* | Funktion | *Function* |
| 1 | IBS_/D02_OUT | TTL | Push Pull | Datenausgang 2 invertiert | *Data 2 OUT invers* |
| 2 | IBS_D02_OUT | TTL | Push Pull | Datenausgang 2 | *Data 2 OUT* |
| 3 | IBS_/DI2_IN | TTL | - | Dateneingang 2 invertiert | *Data 2 IN invers* |
| 4 | IBS_DI2_IN | TTL | - | Dateneingang 2 | *Data 2 IN* |
| 5 | IBS_Ground2 | 0 V | - | Masse | *Ground* |
| 6 | IBS_/RBST_IN | TTL | - | Remote Bus Stecker invertiert | *Remote Bus Connector invers* |