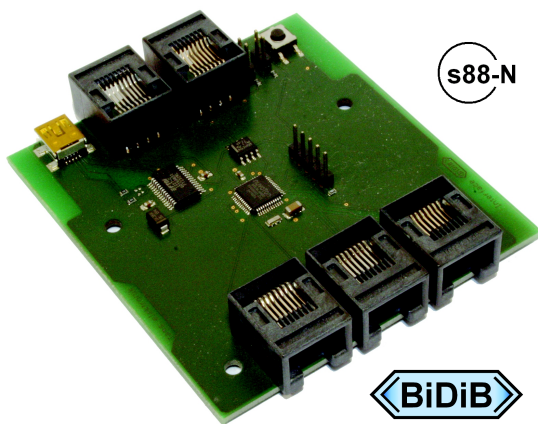Manual

s88-BiDiB-Link

Item no. 44-05106 | 44-05107

s88-N

BiDiB

PC-Interface for the s88 bus
and/or BiDiB interface

tams elektronik

Contents

1. Definitions

S88, HSI-88 and BiDiB are protocols for the data transfer between model railroad layouts and PC.

S88

s88 is the most simple bus system to feedback PC conform data. At the s88 modules´ inputs is determined whether they are connected to earth or not (or in other words are closed or open). These feedback data are transferred from the s88 modules via an s88 interface into the PC where they are used as a basis for the PC control.

HSI-88

HSI-88 was developed to transfer s88 feedback data from a PC interface with the possibiliy to connect three s88 bus lines into the PC.

BiDiB

BiDiB is a protocol which allows bidirectional communication

- among different components of a model railroad control (e.g. digital control units, boosters, accessory decoders and feedback modules) and
- between the components and the PC.

With BiDiB it is both possible to transfer feedback date via an interface to the PC, and to send switching and control commands from the PC to the components of the model railroad control.

2. Getting started

How to use this manual

This manual gives step-by-step instructions for safe and correct connecting of the device, and operation. Before you start, we advise you to read the whole manual, particularly the chapter on safety instructions and the checklist for trouble shooting. You will then know where to take care and how to prevent mistakes which take a lot of effort to correct.

Keep this manual safely so that you can solve problems in the future. If you pass the device on to another person, please pass on the manual with it.

Intended use

The s88-BiDiB-Link is designed to be operated according to the instructions in this manual in model building, especially in digital model railroad layouts. Any other use is inappropriate and invalidates any guarantees.

The s88-BiDiB-Link should not be mounted by children under the age of 14.

Reading, understanding and following the instructions in this manual are mandatory for the user.

Checking the contents

Please make sure that your package contains:

- s88-BiDiB-Link;
- one USB cable 2.0, 4-core, plug connector A <> plug connector Mini-B;
- 3 short-circuit jumpers;
- a CD (containing the manual and further information).

Required materials

In order to connect the s88 feedback modules and/or the BiDiB-knots to the s88-BiDiB-Link you need Ethernet patch cables (RJ-45). In order to provide a clear arrangement it is recommended to use cables of different colours, e.g.:

- blue for the s88 bus lines,
- green for the BiDiBus lines.

In order to connect s88 feedback modules not providing a connection according to the standard s88-N but only a 6-pole connector, you need a suitable adapter, e.g. an adapter S88-A. These are available in different versions for various mounting situations (item no. 44-09100, 44-09110, 44-09200, 44-09210).

3. Safety instructions

Risk of electric shock

- Touching powered, live components,
- touching conducting components which are live due to malfunction,
- short circuits and connecting the circuit to another voltage than specified,
- impermissibly high humidity and condensation build up

can cause serious injury due to electrical shock. Take the following precautions to prevent this danger:

- Only operate indoors in a dry environment.
- Never perform wiring on a powered module.
- Only use low power for this device as described in this manual and only use certified transformers.
- Only connect the transformer in an authorised manner to the house power supply.
- Use adequetly thick cable for all wiring. Too thin a cable can overheat.
- If the layout is exposed to condensation, allow at least two hours for drying out.

4. Your s88-BiDiB-Link

The s88-BiDiB-Link can be used as

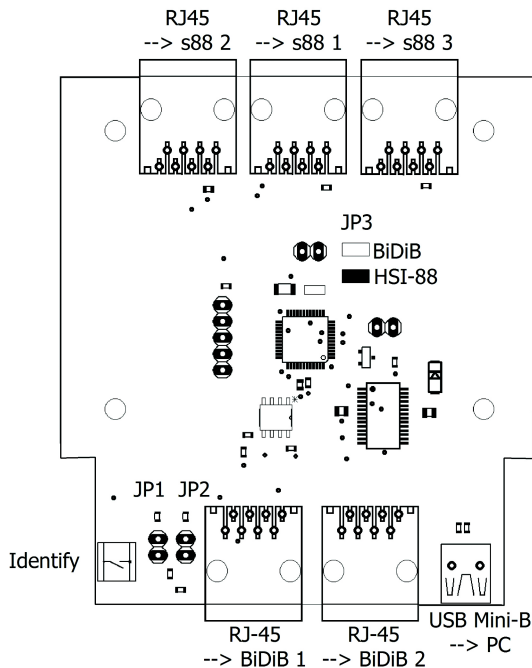- a PC interface for the s88 bus and/or as
- a BiDiB interface.

Fig.: BiDiB-Link

Use as a PC interface for the s88 bus

The s88-BiDiB-Link has three RJ-45 sockets according to S88-N for the connection of three s88 bus lines.

s88-N The standard s88-N regulates the assignment of commercial Ethernet patch-cables for use in s88 feedback systems. Unlike the 6-conductor connecting cables frequently used, the patch-cables used in computer networks are screened against outside electric signals. Thus using patch-cables reduces the liability to interference considerably.

You can connect to each of the three RJ-45 sockets 512 earth contacts or

- 32 x 16-fold feedback modules or
- 64 x 8-fold feedback modules,

which corresponds to 1536 feedback sections in total.

For the data transfer to the PC you can choose between:

- HSI-88-mode. Hint: It is used the HSI-88 protocol for **serial** interfaces, not the HSI-88-USB protocol.
- BiDiB-protocol. The connected s88 modules are administered as BiDiB knots by the interface.

Use as a BiDiB interface

You can connect a maximum of 32 BiDiB knots to one s88-BiDiB-Link via two RJ-45 sockets. The assignment of the BiDiB knots to the two RJ-45 sockets is optional.

Simulaneous use as a s88 and a BiDiB interface

It is possible to use the interface simultaneously as a s88 interface and a BiDiB interface, there are no restrictions according to the number of s88 modules or BiDiB knots to be connected. In this case data transfer to the PC according to the BiDiB protocol is mandatory.

5. Technical specifications

Supply voltage	via the USB connection
Current consumption (without connected devices)	max. 40 mA
Data protocols	S88 (HSI-88) BiDiB
Interfaces for s88 bus	3 RJ-45 sockets according to S88-N for 512 earth contacts each
Interfaces for BiDiBus	2 RJ-45 sockets for max. 32 BiDiB knots
PC interface	USB 2.0 (connector: Mini-B)
Protected to	IP 00
Ambient temperature in use	0 ... +60 °C
Ambient temperature in storage	-10 ... +80 °C
Comparative humidity allowed	max. 85 %
Dimensions of the PCB Dimensions including housing	approx. 72 x 82 mm approx. 100 x 90 x 35 mm
Weight of the assembled board Weight including housing	approx. 27 g approx. 75 g

6. Connecting the s88-BiDiB-Link

Connect the s88-BiDiB-Link via RJ-45 patch cables to the s88 modules or the BiDiB knots. For the sake of clarity, we recommend to use different coloured patch cables for different types of bus lines, e.g.

- green for the BiDiBus,
- blue for the s88 bus.

6.1. Use as a s88 interface

Connecting the s88 bus lines

You can connect a maximum of 512 earth contacts to each of the three s88 connections, or worded differently:

- 32 x 16-fold feedback modules or
- 64 x 8- fold feedback modules.

When connecting s88 feedback modules not providing a RJ-45 connection according to S88-N but only a 6-pole plug connector, you need an additional adapter S88-A. These are available in different versions for various mounting situations.

Settings

In order to transfer feedback data from the inverface to the PC in HSI-88 mode, you have to insert a short circuit jumper on JP3. As long as the connection is open, data are transferred according to the BiDiB protocol.

Please note: When using the s88-BiDiB-Link simultaneously as a s88 and a BiDiB interface, you have to choose the BiDiB protocol for the data transfer (to keep the connection JP3 open).

6.2. Use as a BiDiB interface

Connecting the BiDiB knots

You can connect a maximum of 32 BiDiB knots to the s88-BiDiB-Link. The assignment to the two BiDiB connections is optional.

Setting the protocol

When using the s88-BiDiB-Link as a BiDiB interface, you have to choose the BiDiB protocol for the data transfer from the interface to the PC. For that purpose the connection JP3 has to be open.

Mounting the terminating jumpers

When the s88-BiDiB-Link is installed at one end of the BiDiBus-line (i.e. with only one branching RJ 45 cable), you have to mount the terminating jumpers JP1 and JP2. In state of delivery the terminating jumpers JP1 and JP2 are not inserted.

Please note: When not mounting terminating jumpers with the BiDiB-Link at one end of a bus line, interferences in data transfer due to distortion of the electrical signals possibly occur.

When subsequently connecting one ore more additional devices to a BiDiBus-line you have to dismount the terminating jumpers with the s88-BiDiB-Link.

Please note: With a device with mounted terminating jumpers but not installed at one end of bus line data transfer possibly collapses.

Faulty mounted or missing terminating jumpers cannot cause damages at the s88-BiDiB-Link.

6.3. Connecting the PC

Connect the s88-BiDiB-Link via the USB cable included in the package to you PC. In case the USB interface has not been installed on your PC, you will receive an appropriate indication. You have to download the driver from the internet then.

Settings in the software for HSI mode

When transferring data from the interface to the PC in HSI-88-mode, you have to make the following settings in your software:

- data transfer according to the HSI-88-protocol for **serial** interfaces,
- number of s88 modules connected to the three bus lines. Hint: Observe the numbers of the bus lines (see figure in section 4).

Settings in the software for BiDiB

BiDiB has been designed that way connected BiDiB-knots log in themselves at the software.

S88 modules are administered by the interface as BiDiB-knots when data transfer to the PC is effected via the BiDiB-protocol.

7. Updates

In order to adapt the s88-BiDiB-Link to new developments, you can perform a software update via BiDiB. For that purpose start the suitable PC software. As an alternative (e.g. when the software does not provide an update function) you can perform the update with special tools (e.g. BiDiB-Monitor or BiDiB-Wizard). Start the suitable part of the program and follow the instructions.

For starting the update mode, you must keep the identify button pushed while making contact to the PC (via the USB cable).

When not having integrated the s88-BiDiB-Link in a BiDiB-control, you can send in the module for updating.

8. Check list for troubleshooting

Data are not transferred properly.

Possible cause: The connection(s) between the s88-BiDiB-Link and the feedback modules / the BiDiB knots are interrupted. → Check the connections.

Possible cause: The terminating jumper has not been inserted although the s88-BiDiB-Link is installed at the end of a BiDiBus line or the terminating jumper has been inserted although the s88-BiDiB-Link is not installed at the end of a BiDiBus line → Check the terminating jumpers.

Hotline: If problems with your device occur, our hotline is pleased to help you (mail address on the last page).

Repairs: You can send in a defective device for repair (address on the last page). In case of guarantee the repair is free of charge for you. With damages not covered by guarantee, the maximum fee for the repair is 50 % of the sales price according to our valid price list. We reserve the right to reject the repairing of a device when the repair is impossible for technical or economic reasons.

Please do not send in devices for repair charged to us. In case of warranty we will reimburse the forwarding expenses up to the flat rate we charge according to our valid price list for the delivery of the product. With repairs not covered by guarantee you have to bear the expenses for sending back and forth.

9. Guarantee bond

For this product we issue voluntarily a guarantee of 2 years from the date of purchase by the first customer, but in maximum 3 years after the end of series production. The first customer is the consumer first purchasing the product from us, a dealer or another natural or juristic person reselling or mounting the product on the basis of self-employment. The guarantee exists supplementary to the legal warranty of merchantability due to the consumer by the seller.

The warranty includes the free correction of faults which can be proved to be due to material failure or factory flaw. With kits we guarantee the completeness and quality of the components as well as the function of the parts according to the parameters in not mounted state. We guarantee the adherence to the technical specifications when the kit has been assembled and the ready-built circuit connected according to the manual and when start and mode of operation follow the instructions.

We retain the right to repair, make improvements, to deliver spares or to return the purchase price. Other claims are excluded. Claims for secondary damages or product liability consist only according to legal requirements.

Condition for this guarantee to be valid, is the adherence to the manual. In addition, the guarantee claim is excluded in the following cases:

- if arbitrary changes in the circuit are made,
- if repair attempts have failed with a ready-built module or device,
- if damaged by other persons,
- if damaged by faulty operation or by careless use or abuse.

10. EU declaration of conformity

$C \in$ This product conforms with the EC-directives mentioned below and is therefore CE certified.

2004/108/EG on electromagnetic. Underlying standards: EN 55014-1 and EN 61000-6-3. To guarantee the electromagnetic tolerance in operation you must take the following precautions:

- Connect the transformer only to an approved mains socket installed by an authorised electrician.
- Make no changes to the original parts and accurately follow the instructions, connection diagrams and PCB layout included with this manual.
- Use only original spare parts for repairs.

2011/65/EG on the restriction of the use of certain hazardous substances in electrical and electronic equipment (ROHS). Underlying standard: EN 50581.

11. Declarations conforming to the WEEE directive

This product conforms with the EC-directive 2012/19/EG on waste electrical and electronic equipment (WEEE).

Don´t dispose of this product in the house refuse, bring it to the next recycling bay.

Information and tips:

http://www.tams-online.de

Warranty and service:

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