



## Operating instructions Technical Parameters

**multisys**

**KBR eBus-Modulbus (ESBS)  
Modulbus-KBR eBus (BSES)**

**3D2-ESBS  
3D2-BSES**



**Your Partner for  
Network Analyse**



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## Dear Customer

We would like to thank you for choosing a KBR GmbH quality product.

In order to familiarize yourself with the operation and programming of the device and always be able to use the whole functionality of this high-quality product, we recommend that you read this manual thoroughly. The individual chapters serve to explain the technical details of the device and show how to avoid damage by means of proper installation and commissioning.

The manual is included in the scope of delivery of the device and must be accessible for the user at all times (e.g. in the switchgear cabinet). Even when the device is resold to third parties, the manual remains part of the device.

Although we used the utmost care in assembling this manual, we would like to thank you in advance for notifying us about any errors or ambiguous descriptions that might be in it. You will find a form for corrections in the appendix.

Sincerely,

KBR GmbH Schwabach

### Safety Precautions

This manual contains notes that must be observed for your personal safety and to avoid damage to equipment. Notes are identified by a warning sign or an info symbol according to the degree of hazard they represent.



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#### **Danger**

means that death, major injuries or damage **will** occur in case the appropriate safety measures are not performed.

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#### **Warning**

means that death, major injuries or damage **may** occur in case the appropriate safety measures are not performed.

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#### **Caution**

means that minor injuries or damage may occur in case the appropriate safety measures are not performed.

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#### **Note**

is an important information on the product, product handling or the respective part of the user manual to which special reference is made.

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#### **Disclaimer**

The contents of this manual has been checked with the described hardware and software components. Certain deviations, however, cannot be excluded, so the manufacturer is not liable for complete conformity. The specifications made in this manual are checked on a regular basis, necessary corrections are included in the next revision.

We appreciate your corrections and comments.

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Subject to change

### General Safety Precautions

In order to prevent operating errors, handling of the device is kept as simple as possible. This way, you will be able to use the device very soon.

In your own interest, however, you should read the following safety precautions carefully.



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### Warning

During installation, the applicable DIN / VDE regulations must be observed!

Mains connection, setup and operation of the device must only be performed by qualified personnel. Qualified personnel as understood in the safety precautions of this manual are persons authorized to setup, ground and mark equipment, systems and wiring systems in accordance with applicable standards.

To avoid the hazard of fire and electrical shock, the device must not be subjected to rain or other humidity!

Before the device is connected to the mains, you will have to check whether the local mains conditions comply with the specifications on the manufacturer's label. A wrong connection may destroy the device!

When connecting the device, the connection chart must be observed (see chapter "Connection chart") and the connection lines must be powerless. Only use proper line material and watch the correct polarity when wiring!

In order to ensure proper and safe operation of the product, it must be transported, stored, installed and mounted in accordance with the specifications and operated and maintained carefully.

A device showing visible damage must by all means be considered as unfit for operation and must be disconnected from the mains!

Error detection, repairs and maintenance work may only be carried out in our facilities or after contacting our service team. Every warranty obligation of the manufacturer expires if the device is opened without written consent from our service team. Proper operation can no longer be guaranteed!

Opening the device may expose parts under voltage. Capacitors in the device may still be loaded even if the device was disconnected from all voltage sources. It is generally not allowed to operate the open device!

In facilities subject to hazard of lightning, lightning protection must be provided for all input and output lines (recommendations see chapter "Protective measures")!

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### Product Liability

**With these product, you have acquired a quality product.**

In its manufacture, only components of the highest reliability and quality were used. Each device is subject to long-term testing before it is delivered.

For information on product liability, please refer to our General Terms and Conditions for electronic devices.

**The warranted properties of the device apply only if it is operated in accordance with its intended use!**

### Disposal

Please dispose of defective, outdated or no longer used devices properly.  
At your request, we will be pleased to dispose of the devices for you.

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# 1 multisys 3D2-ESBS / multisys 3D2-BSES

The **multisys 3D2-ESBS / multisys 3D2-BSES** connects the KBR eBus to the KBR **multisys** modules.

The two interfaces (RS-485 on the KBR eBus side and RJ-12/RS-485 on the module bus side) are galvanically separated from each other.

The voltage supply for the KBR **multisys** modules is via **multisys 3D2-ESBS**.

The **multisys 3D2-ESBS / multisys 3D2-BSES** is equipped with a power LED for supply voltage monitoring, a power supply (85 to 265V AC/DC; 2VA) and is suitable for wall mounting on a 7.5 mm deep DIN rail, in accordance with DIN EN50022 (for distribution board mounting).

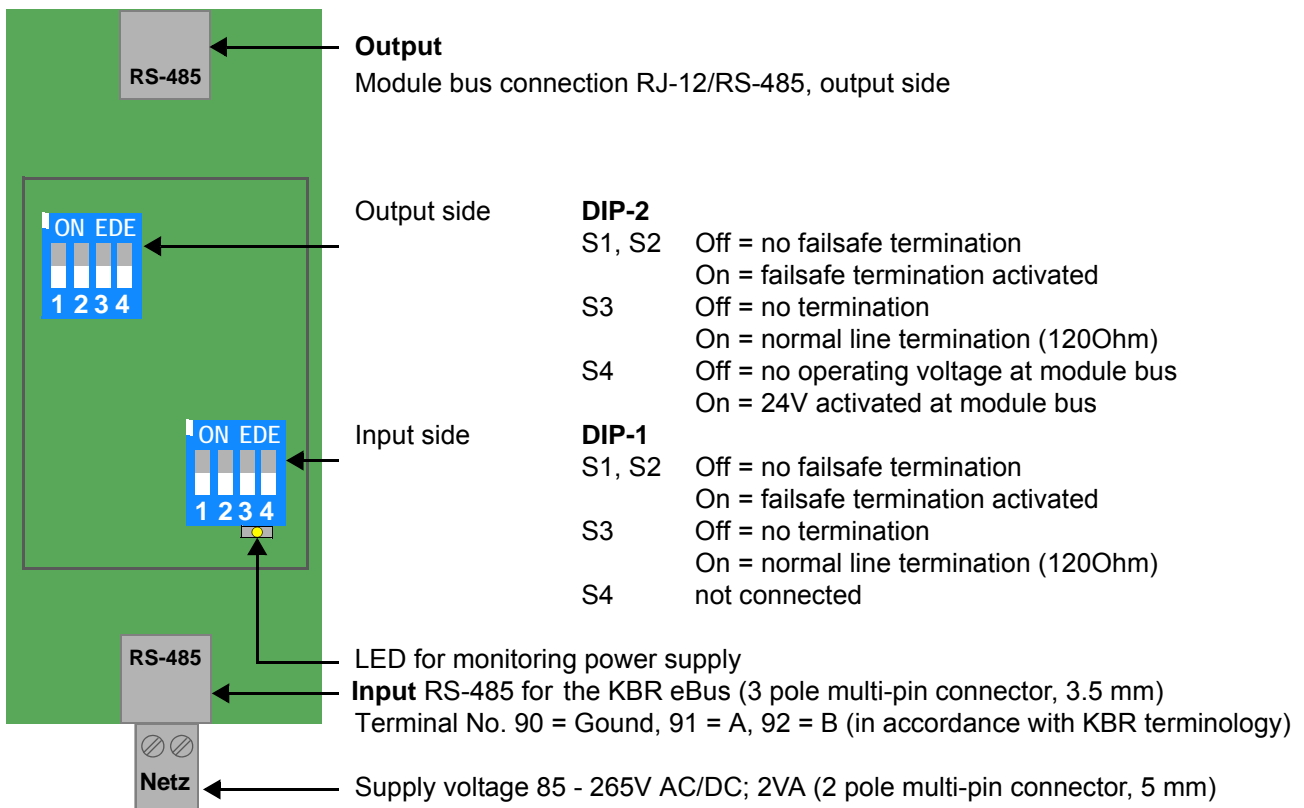


## Note

If two gateways are used (**multisys 3D2-BSES** and **multisys 3D2-ESBS**), the module bus distance can be extended to 1,000m maximum (RS-485 standard).

### 1.1 Interfaces KBR eBus RS-485 and module bus multisys 3D2-ESBS

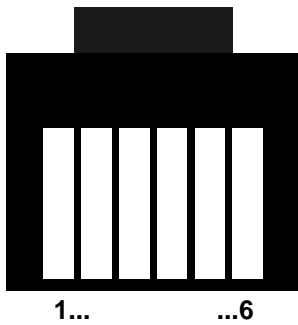
The RS-485 interfaces are set to the **KBR eBus** parameters 38400 baud, 8 data bits, parity even, 1 stop bit. They can be terminated using two 4-fold DIL switches (terminating resistors are integrated into the multisys).





### 1.1.1 Module bus connections RJ-12/RS-485

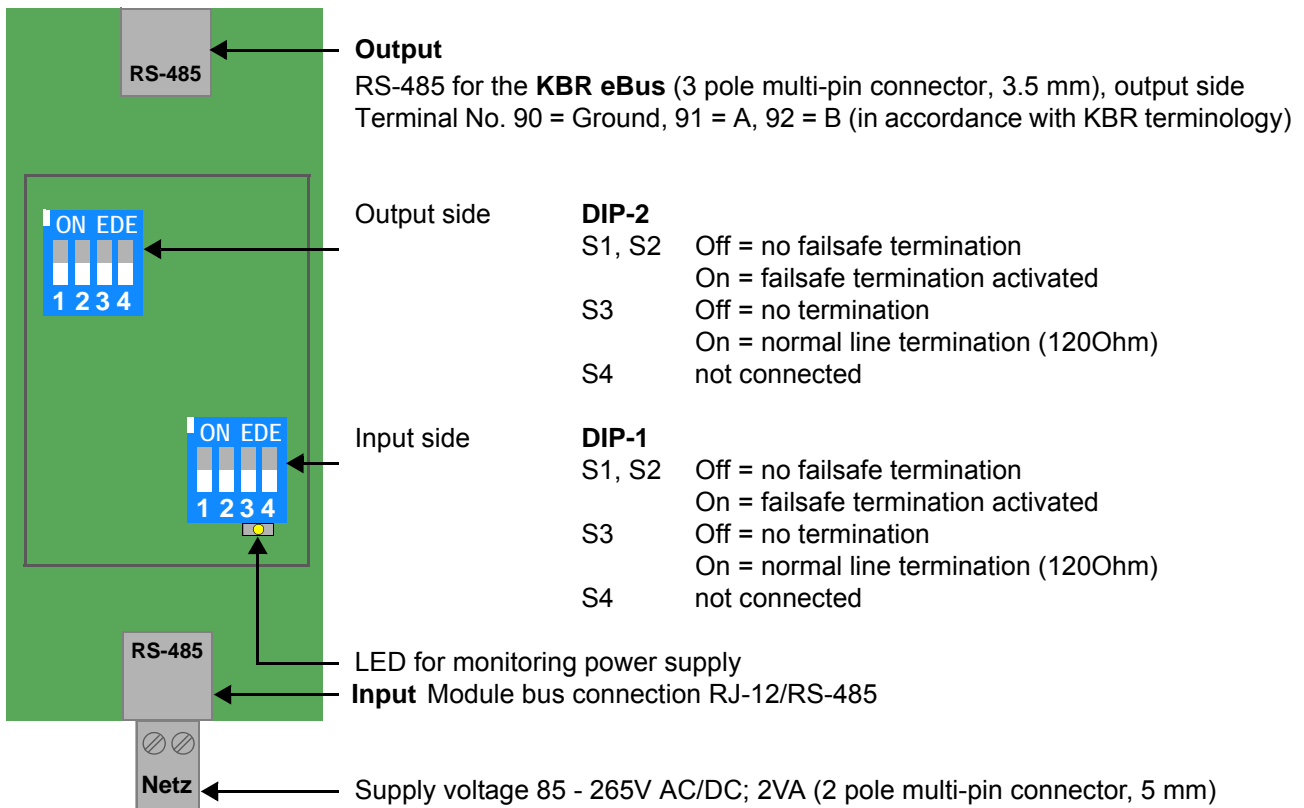
Terminal assignment:



- Pin 1: Ground
- Pin 2: Ground
- Pin 3: RT+ (A (Bus RS-485))
- Pin 4: RT- (B (Bus RS-485))
- Pin 5: + 24 V
- Pin 6: + 24 V

### 1.2 KBR eBus RS-485 and module bus multisys 3D2-BSES interfaces

The RS-485 interfaces are set to the **KBR eBus** parameters 38400 baud, 8 data bits, parity even, 1 stop bit. They can be terminated using two 4-fold DIL switches (terminating resistors are integrated into the multisys).



#### Note

The failsafe termination can only be activated once per bus segment!

### 1.3 Operating modes

The **multisys 3D2-ESBS / multisys 3D2-BSES** can be used as a bus amplifier for line expansions or as a star coupler for stubs.

#### 1.3.1 Bus amplifier

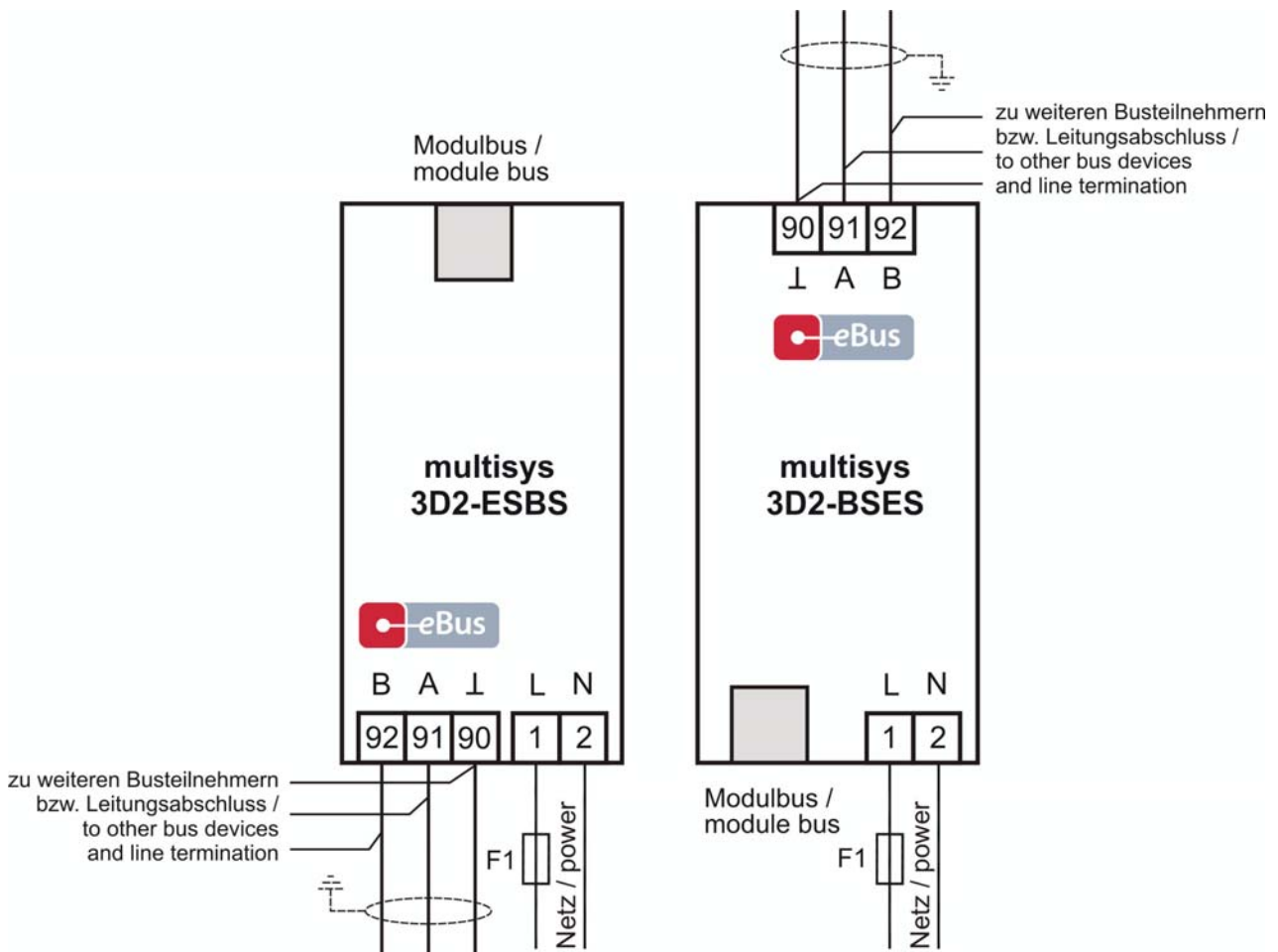
When used as a bus amplifier, the terminating resistors at the input and output side have to be activated.

#### 1.3.2 Star coupler

Usually, star networks are not permitted in RS-485 networks. The **multisys 3D2-ESBS** enables you to create a branch.

When used as a star coupler, the terminating resistor at the input side has to be deactivated, and the one at the output side activated.

### 1.4 Connection chart



\* For voltage supply, see nameplate.

## 2 Technical data

### 2.1 Power supply

Power supply	85 - 265V AC/DC ; 2VA; 50/60Hz
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### 2.2 Electrical connection

Connection elements		Plug-in terminals
Permissible cross section of the connection lines		Voltage supply 2.5 mm <sup>2</sup> , bus connection 1.5mm <sup>2</sup>
Input control voltage	Fuse protection	max. 6 A
Module bus connection		RJ-12 modular connector : 6P6C
Module bus connection	Connection material	6-pole modular cable
EBUS connection	Connection material	For proper operation please only use shielded twisted-pair cables; e.g. I-Y(St)Y EIB 2x2x0,8
EBUS connection	Connectors for BUS connection via RS-485	Terminal 90 (⊥) Terminal 91 (A) Terminal 92 (B)

### 2.3 Mechanical data

Top hat rail device	Housing measures	90 x 36 x 61 mm (H x W x D),
	Mounting type	Wall mounting on DIN rail 7.5 mm deep, in accordance with DIN EN 50022
	Weight	approx. 120g

### 2.4 Standards and other

Environmental conditions	Standards	DIN EN 60721-3-3/A2: 1997-07; 3K5+3Z11; (IEC721-3-3; 3K5+3Z11)
	Operating temperature	- 5°C ....+60°C
	Humidity	5% .....95%
	Storage temperature	-25°C ....+70°C
Electrical safety	Standards	DIN EN 61010-1/A2: 1996-05; (IEC1010-1/A2)
	Protection class	I, acc. to DIN EN 61010-/A2: 1996-05
	Overvoltage category	CAT III: U <sub>PH-PH</sub> to 400V
	Degree of protection	IP20 acc. to DIN EN 40050 part 9: 1993-05
	Electromagnetic compatibility	DIN EN 61000-6-3: 2005-06; (IEC 61000-6-3) DIN EN 61000-6-2: 2006-03; (IEC 61000-6-2)

**ERKLÄRUNG DER KONFORMITÄT  
DECLARATION OF CONFORMITY  
DÉCLARATION DE CONFORMITÉ**

Wir **KBR GmbH Schwabach**

We/Nous (Name des Anbieters / supplier's name / nom du fournisseur)

**Am Kieferschlag 7  
D-91126 Schwabach**

(Anschrift / address / adresse)

erklären in alleiniger Verantwortung, dass das (die) Produkt(e) /  
declare under our sole responsibility that the product(s) / Déclarons sous notre seule responsabilité, que le(s) produit(s)

**multisys 3D2-ESBS  
multisys 3D2-BSES**

(Bezeichnung, Typ oder Modell oder Seriennummer / name, type or model or serial number / nom, type ou modèle, N° de lot ou de série)

mit folgenden Europäischen Richtlinien übereinstimmt (übereinstimmen)  
is (are) in conformity with the following directives / Répondet(ent) aux directives suivantes

**Niederspannungsrichtlinie Nr.**  
Low Voltage Directive No.  
Directive Basse Tension N°

**EMV-Richtlinie Nr.**  
EMV Directive No.  
EMV Directive N°

**2006/95/EG**  
2006/95/EC  
2006/95/CE

**2004/108/EG**  
2004/108/EC  
2004/108/CE

Dies wird nachgewiesen durch die Einhaltung folgender Norm(en)

This is documented by the accordance with the following standard(s) / Justifié par le respect de la (des) norme(s) suivante(s)

**DIN EN 61010-1-2001;**

**DIN EN 61010-1/B1:2002**

**DIN EN 61010-1/B2:2004**

**DIN EN 61000-6-1:2007**

**DIN EN 61000-6-2:2005**

**DIN EN 61000-6-3:2007**

**DIN EN 61000-6-4:2007**

(Titel und/oder Nr. sowie Ausgabedatum der Norm(en))

Title and/or number and date of issue of the standard(s)

Titre et/ou numéro et date d'édition de la (des) norme(s)



**Schwabach, 18.07.2011**

(Ort und Datum der Ausstellung)

Place and date of issue

Lieu et date de l'édition)



Geschäftsführer

General manager

