

Operating instructions Technical parameters

Interfaces for
KBR eBus, Modbus
and Modulbus



multisys D2-ESET/MSMT-4
multisys D2-BSET-4



In our download centre you will find the appropriate instructions for KBR devices.
<https://www.kbr.de/en/download/operating-instructions/>

Thank you for choosing a KBR quality product.

To familiarise yourself with the operation and programming of the appliance and to ensure that you can always use the full range of functions of this high-quality product, you should read these operating instructions carefully.

The individual chapters explain the technical details of the appliance and show how damage can be avoided through proper installation and commissioning.

Operating instructions

The operating instructions must be kept within easy reach of the user of the device (e.g. in the switch cabinet). Even if the device is resold to third parties, the operating instructions remain part of the device.

Should we have made any errors in the operating instructions despite taking the greatest care, or should something not be described clearly enough, we would like to thank you in advance for your suggestions.

The company **KBR GmbH** accepts no liability for damages or losses of any kind resulting from printing errors or changes in this operating manual.

Similarly, **KBR GmbH** accepts no liability for damage or losses of any kind resulting from faulty devices or devices that have been modified by the user.

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Table of contents

1	multisys D2-ESET/MSMT-4 and multisys D2-BSET-4 general.....	4
1.1	Wiring diagram	5
2	Hardware configuration	6
2.1	RS485 interface and LAN	6
2.2	LAN and KBR module bus interfaces (multisys D2-BSET-4)	7
3	Software configuration multisys D2-ESET / MSMT-4.....	8
3.1	Status.....	9
3.2	Setting options	10
3.3	Serial Port Settings	11
3.4	Communication Settings	12
3.4.1	Box2Box Communication Settings.....	13
3.5	Apply changes.....	14
3.6	Reset to factory settings.....	14
3.7	IP address to a device, whose address is not in the address range of the network.....	15
4	Software configuration multisys D2-BSET-4.....	16
4.1	Procedure for IP address 192.168.0.1 or unknown	16
4.1.1	Settings with a web browser	17
4.1.2	Box-to-box operation	19
4.1.3	Settings of the multisys D2-BSET-4 in server mode.....	19
4.1.4	Settings of the multisys D2-BSET-4 in client mode.....	20
5	Technical data.....	22
5.1	Power supply	22
5.2	Electrical connection	22
5.3	Mechanical data	22
5.4	Standards and other	23

1 multisys D2-ESET/MSMT-4 and multisys D2-BSET-4 general

The multisys D2-ESET/MSMT-4 connects the KBR eBus to the PC via an Ethernet connection.

The transmission protocols are:

- KBR eBus
- Modbus

The two interfaces (RS-485 on the KBR eBus side and Ethernet on the network side) are electrically isolated.

The multisys D2-BSET-4 connects the KBR module bus to the PC via an Ethernet connection.

The two interfaces (RS-485 on the module bus side and Ethernet on the network side) are electrically isolated.

If necessary, the RS-485 interface on the KBR eBus or module bus side can be terminated using four DIP switches (terminating resistors are built into the multisys). The device has a power LED to check the supply voltage).

The multisys D2-ESET/MSMT-4 and the multisys D2-BSET-4 have their own power supply (<10 VA; 100 VA).

power supply (<10 VA; 100 - 240 V \pm 10% DC/50/60 Hz) and is suitable for wall mounting on a standard rail 7.5 mm deep in accordance with DIN EN50022 (for distribution board installation) suitable.

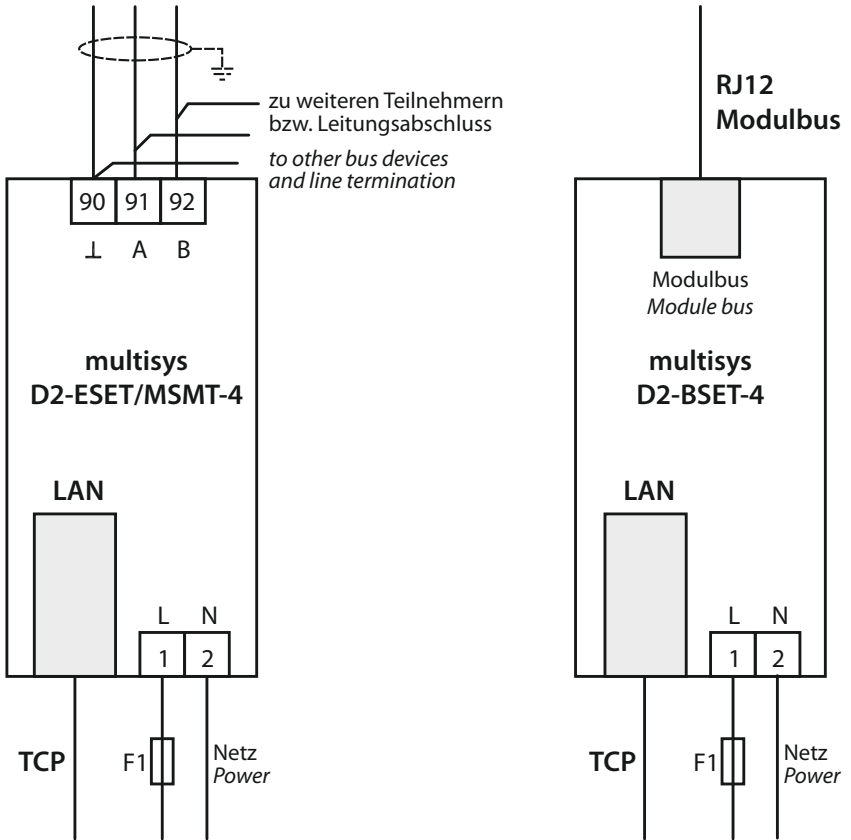


NOTE

The Ethernet interface settings are identical for multisys D2-ESET/MSMT-4 and multisys D2-BSET-4 are identical.

Both versions are described below.

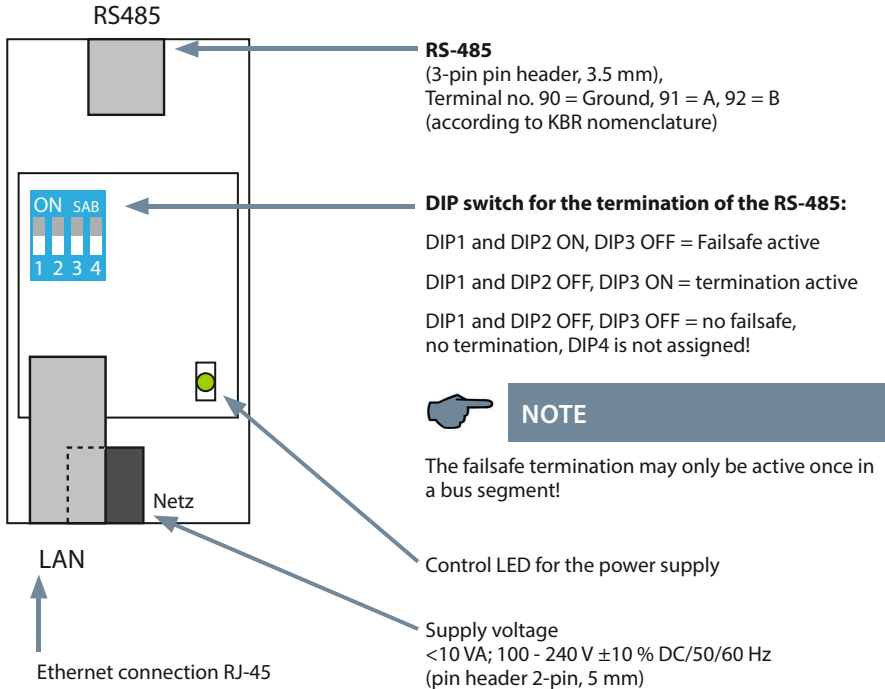
1.1 Wiring diagram



2 Hardware configuration

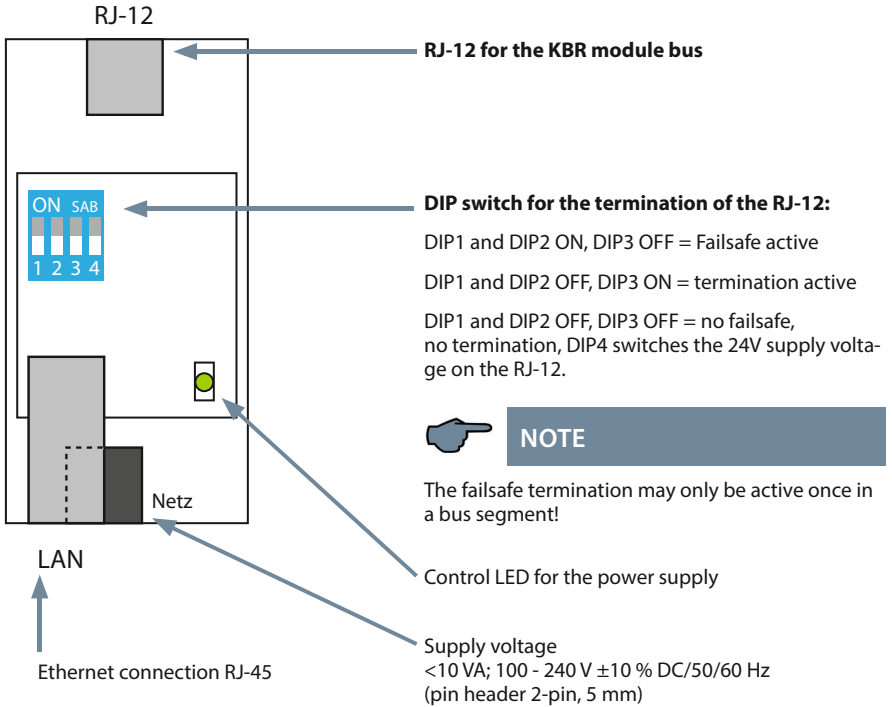
2.1 RS485 interface and LAN

The RS-485 interface is permanently set to the KBR eBus parameters 38400 baud, 8 data bits, parity even, 1 stop bit. If necessary, it can be terminated using four DIP switches.

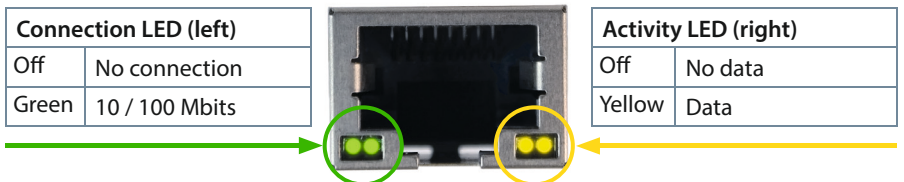


2.2 LAN and KBR module bus interfaces (multisys D2-BSET-4)

The module bus interface is permanently set to the module bus parameters 38400 baud, 8 data bits, parity even, 1 stop bit. If required, it can be terminated using four DIP switches.



The operating status of the LAN interface (E-Port) is indicated by two LEDs:



3 Software configuration multisys D2-ESET / MSMT-4

The LAN port is parameterised using a web browser and the web interface in the LAN port.

The connected device is accessible at the factory-set IP address 192.168.0.1

Alternatively, parameterisation can also be carried out using a software tool.

It can also be used to search the network for devices (see chapter 3.7).

<https://www.kbr.de/en/download/apps-software-gsd-dateien/>



NOTE

After installing the tool, it is recommended to check for updates via, Setting' ->,Software setting.

If the device is parameterised to DHCP and no DHCP server is available, the device falls back to the IP address 169.254.173.207.



NOTE

For security reasons, the IP address of the device should be changed immediately to prevent unauthorised access to the device from outside.

The device should also be password-protected.

User name/password

http://192.168.121.138 requires a user name and a password. Output of the website: „USER LOGIN“







User name

Password

Further settings can then be made on the following pages.

3.1 Status

Here you will find information on the status of your system.

 STATUS
 SYSTEM SETTINGS
 SERIAL PORT SETTINGS
 COMMUNICATION SETTINGS
 CUSTOM SETTINGS
 OTHERS

Status

System running status overview

System state	
Product Name E20	MAC 289C6E8CFDC1
DHCP Disable	IP 192.168.121.60
Subnet Mask 255.255.255.0	Gateway 127.0.0.1
DNS 127.0.0.1	Firmware Version 1.34.13
System Zime NTP Disabled	Total Running Time 25 Day 2:15:46
Remaining RAM 25076	Max Block Size 21284
Configuration Protected Disable	

Serial Port State	
Received Bytes 792225	Received Frames 72024
Sent Bytes 875628	Sent Frames 72969
Failed Bytes 0	Failed Frames 0
Config 19200,8,1,EVEN	

Communication State - 'netp'	
Received Bytes 875628	Received Frames 72969
Sent Bytes 792225	Sent Frames 72024
Failed Bytes 0	Failed Frames 0
Protocol TCP-SERVER	State Server Created

3.2 Setting options

- STATUS
- SYSTEM SETTINGS**
- SERIAL PORT SETTINGS
- COMMUNICATION SETTINGS
- CUSTOM SETTINGS
- OTHERS

System Settings

Change the device system settings

Authentication

User Name

Password

Basic Settings

Host Name

Customisation of the device name

WAN Settings

DHCP OFF

WAN P

Subnet Mask

Gateway

DNS

Setting the network parameters

Telnet Settings

Enable ON

Telnet Port

Echo ON

Web Settings

Enable ON

Web Port

NTP Settings

Enable OFF

With „Submit“ settings save

3.3 Serial Port Settings

- STATUS
- SYSTEM SETTINGS
- SERIAL PORT SETTINGS**
- COMMUNICATION SETTINGS
- CUSTOM SETTINGS
- OTHERS

Serial Port Settings

Change the device serial port settings

Basic Settings		Werks-einstellungen für eBus	Optionale Einstellungen für Modbus TCP	Parameters of the Modbus segments
Baud Rate	38400			
Data Bit	8			
Stop Bit	1			
Parity	Even			
Buffer Settings				
Buffer Size	512			
Gap time	10			
Flow Control Settings				
Flow Control	Half Duplex			
Cli Settings				
Cli	Serial String			
Serial String	+++			
Waiting Time	15			
Protocol Settings				Switching to Modbus
Protocol	None		Modbus	

Submit **Reset**

With „Submit“ settings save

3.4 Communication Settings

- STATUS
- SYSTEM SETTINGS
- SERIAL PORT SETTINGS
- COMMUNICATION SETTINGS**
- CUSTOM SETTINGS
- OTHERS

Communication Settings

Change the device socket settings

Basic Settings

Name

Protocol

Socket Settings

Local Port

Buffer Size

Keep Alive(s)

Timeouts(s)

Protocol Settings

Max Accept

More Settings

Security

Route

Local Port:
für Modbus TCP:
502 eingeben

With „Submit“ settings save

3.4.1 Box2Box Communication Settings

- STATUS
- SYSTEM SETTINGS
- SERIAL PORT SETTINGS
- COMMUNICATION SETTINGS**
- CUSTOM SETTINGS
- OTHERS

Communication Settings

Change the device socket settings

	Server-Gerät	Client-Gerät
Basic Settings		
Name	netp	netp
Buffer Size	512	512
Keep Alive(s)	60	60
Time out(s)	0	0
Protocol Settings		
Protocol	TCP Server	TCP Client
Local Port	8000	8000
Max Accept	5	IP des Gegengerätes 8000
		<small>The Server point field must contain a number greater than 0.</small>
		Always
		OFF
Security Settings		
Security	Disable	Disable
Route Settings		
Route	Uart	Uart

Local port and server port must match for client device and server device. (Here in the example 8000)

Submit Delete

With „Submit“ settings save

3.5 Apply changes

- STATUS
- SYSTEM SETTINGS
- SERIAL PORT SETTINGS
- COMMUNICATION SETTINGS
- CUSTOM SETTINGS
- OTHERS

Costum Settings

Change the device or settings

Authentication

Backup	Backup
Restore	+ Choose File

Upgrade

Firmware	+ Choose File
----------	-------------------------------

Factory Settings

Set	Set
Clear	Clear

Reload/Restart

Reload Options	<input type="checkbox"/> SYS <input type="checkbox"/> UART <input type="checkbox"/> SOCK
Restart	Restart

To apply the changes in the settings, click on „Restart“.

3.6 Reset to factory settings

- STATUS
- SYSTEM SETTINGS
- SERIAL PORT SETTINGS
- COMMUNICATION SETTINGS
- CUSTOM SETTINGS
- OTHERS

Others

Change the device or settings

Authentication

Backup	Backup
Restore	+ Choose File

Upgrade

Firmware	+ Choose File
----------	-------------------------------

Factory Settings

Set	Set
Clear	Clear

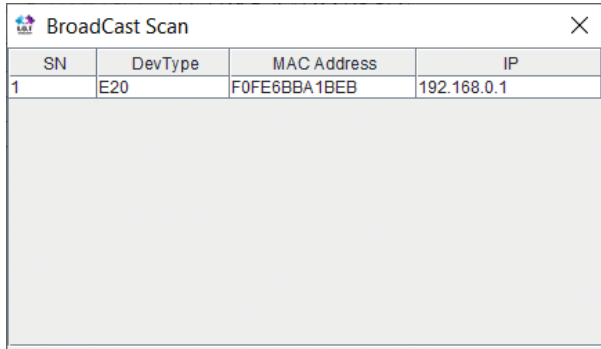
Reload/Restart

Reload Options	<input checked="" type="checkbox"/> SYS <input checked="" type="checkbox"/> UART <input checked="" type="checkbox"/> SOCK
Submit	Submit
Restart	Restart

For a factory reset tick the 3 boxes and save the settings with „Submit“, then click „Restart“.

3.7 IP address to a device, whose address is not in the address range of the network

The ‚BroadCast Scan‘ window can be opened in the main window of the IOTService tool via Setting (C) -> BroadCast.



SN	DevType	MAC Address	IP
1	E20	F0FE6BBA1BEB	192.168.0.1

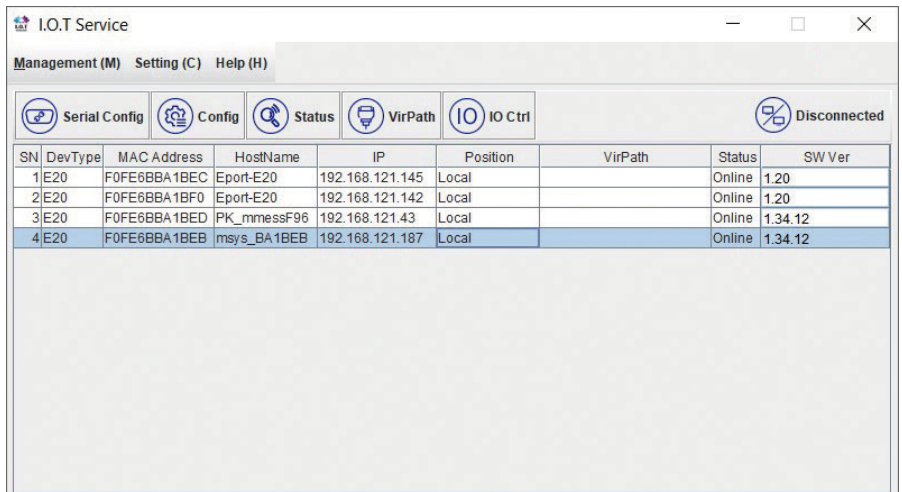
The devices that are found in the network without a valid network address are listed here.

Double-click on the line with the device to open the ‚Fast Setting‘ window:

A valid IP address and the subnet mask can be set here.

The settings are accepted with ‚Confirm‘.

The device should then appear in the list in the main window of ‚IOT Service‘.



SN	DevType	MAC Address	HostName	IP	Position	VirPath	Status	SW Ver
1	E20	F0FE6BBA1BEC	Eport-E20	192.168.121.145	Local		Online	1.20
2	E20	F0FE6BBA1BF0	Eport-E20	192.168.121.142	Local		Online	1.20
3	E20	F0FE6BBA1BED	PK_mmessF96	192.168.121.43	Local		Online	1.34.12
4	E20	F0FE6BBA1BEB	msys_BA1BEB	192.168.121.187	Local		Online	1.34.12

After selecting the device, click on „Config“ to proceed to parameterisation.

4 Software configuration multisys D2-BSET-4

The Ethernet interface of the multisys LAN eBus can be configured via the Ethernet interface via the Lantronix DeviceInstaller tool.



NOTE

The UART parameters must be adapted to the local bus parameters. The devices are assigned the IP address 192.168.0.1 before delivery. It is therefore advisable to check whether the device can be addressed via this IP address.

Depending on the IP address, the following procedures are available:

4.1 Procedure for IP address 192.168.0.1 or unknown

Das Gerät kann mit dem Lantronix-Tool „DeviceInstaller“ konfiguriert werden.

To do this, use the link


Browser <https://ltxdev.atlassian.net/wiki/spaces/LTRXTS/pages/106070471/Latest+version+of+DeviceInstaller> (as of 31/03/2022) to download and install the two programmes Microsoft NET Framework version 2.0 and Lantronix Device-Installer (first install Microsoft's .NET Framework version 2.0).

After starting the DeviceInstaller, the connected network is scanned and the Lantronix ports found are displayed and can be edited further.

4.1.1 Settings with a web browser

The settings that can be made using a web browser, are documented in the following images.

Enter the following IP address in your browser page: 192.168.0.1.



Firmware Version: **V6.5.0.7**
 MAC Address: **00-20-4A-AF-10-9B**

- [Home](#)
- [Network](#)
- [Server](#)
- [Serial Tunnel](#)
- [Hostlist](#)
- [Channel 1](#)
- [Serial Settings](#)
- [Connection](#)
- [Email](#)
- [Trigger 1](#)
- [Trigger 2](#)
- [Trigger 3](#)
- [Configurable Pins](#)
- [Apply Settings](#)
- [Apply Defaults](#)

Serial Settings

Channel 1

Disable Serial Port

Port Settings

Protocol: RS485 - 2 wire Flow Control: None

Baud Rate: 38400 Data Bits: 8 Parity: Even Stop Bits: 1

Pack Control

Enable Packing

Idle Gap Time: 12 msec

Match 2 Byte Sequence: Yes No Send Frame Immediate: Yes No

Match Bytes: 0x00 0x00 Send Trailing Bytes: None One Two

(Hex)

Flush Mode

<p>Flush Input Buffer</p> <p>With Active Connect: <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>With Passive Connect: <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>At Time of Disconnect: <input type="radio"/> Yes <input checked="" type="radio"/> No</p>	<p>Flush Output Buffer</p> <p>With Active Connect: <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>With Passive Connect: <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>At Time of Disconnect: <input type="radio"/> Yes <input checked="" type="radio"/> No</p>
---	--

OK

Settings Channel 1 / Connection.

LANTRONIX®

Firmware Version: **V6.5.0.7**
 MAC Address: **00-20-4A-AF-10-9B**

⌂

Network

Server

Serial Tunnel

Hostlist

Channel 1

Serial Settings

Connection

Email

Trigger 1

Trigger 2

Trigger 3

Configurable Pins

Apply Settings

Apply Defaults

Connection Settings

Channel 1

Connect Protocol

Protocol: TCP

Connect Mode

<p>Passive Connection:</p> <p>Accept Incoming: Yes</p> <p>Password Required: <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Password: </p> <p>Modem Escape Sequence Pass Through: <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>Active Connection:</p> <p>Active Connect: None</p> <p>Start Character: 0x02 (in Hex)</p> <p>Modem Mode: None</p> <p>Show IP Address After RING: <input checked="" type="radio"/> Yes <input type="radio"/> No</p>
---	---

Endpoint Configuration:

Local Port: 8000	<input type="checkbox"/> Auto increment for active connect
Remote Port: 0	Remote Host: 0.0.0.0

Common Options:

Telnet Com Port Cntrl: Disable	Connect Response: None
Terminal Name: 	Use Hostlist: <input type="radio"/> Yes <input checked="" type="radio"/> No
	LED: Blink

Disconnect Mode

On Mdm_Ctrl_In Drop: <input type="radio"/> Yes <input checked="" type="radio"/> No	Hard Disconnect: <input checked="" type="radio"/> Yes <input type="radio"/> No
Check EOT(Ctrl-D): <input type="radio"/> Yes <input checked="" type="radio"/> No	Inactivity Timeout: 0 : 0 (mins : secs)

OK

4.1.2 Box-to-box operation

In Box-to-Box mode, any two serial ports of multisys D2-BSET-4 can be logically connected to each other via the network. The two connected serial end devices are in constant online contact in this operating mode. Any additional data traffic or other network protocols have no influence on the connection.

In this operating mode, a permanent TCP connection is established between the server port and the client port. The server port works as a TCP client and is therefore responsible for opening (after configuration or reset) and closing (after deactivating the „Box to Box“ operating mode).

On the network side, the multisys D2-ESET-4 of a box-to-box connection only exchanges data if serial user data is also available. There is no acknowledgement traffic beyond the TCP protocol.

4.1.3 Settings of the multisys D2-BSET-4 in server mode




NOTE

For the settings in server mode, see chapter 4.1.1

4.1.4 Settings of the multisys D2-BSET-4 in client mode

The settings that can be made using a web browser are documented in the following images.

Settings Channel 1 / Serial Settings.



Firmware Version: **V6.6.0.2**

MAC Address: **00-20-4A-B0-46-63**

Serial Settings

Serial Settings

Disable Serial Port

Port Settings

Protocol: RS485 - 2 wire Flow Control: None

Baud Rate: 38400 Data Bits: 8 Parity: Even Stop Bits: 1

Pack Control

Enable Packing

Idle Gap Time: 12 msec

Match 2 Byte Sequence: Yes No Send Frame Immediate: Yes No

Match Bytes: 0x00 0x00 Send Trailing Bytes: None One Two

(Hex)

Flush Mode

Flush Input Buffer

With Active Connect: Yes No

With Passive Connect: Yes No

At Time of Disconnect: Yes No

Flush Output Buffer


With Active Connect: Yes No

With Passive Connect: Yes No

At Time of Disconnect: Yes No

OK

Settings Channel 1 / Connection.



Firmware Version: **V6.6.0.2**
 MAC Address: **00-20-4A-B0-46-63**

Home

Network

Server

Serial Tunnel

Hostlist

Channel 1

Serial Settings

Connection

Email

Trigger 1

Trigger 2

Trigger 3

Configurable Pins

Apply Settings

Apply Defaults

Connection Settings

Channel 1

Connect Protocol

Protocol:

Connect Mode

<p>Passive Connection:</p> <p>Accept Incoming: <input type="text" value="Yes"/></p> <p>Password Required: <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Password: <input type="text"/></p> <p>Modem Escape Sequence Pass Through: <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>Active Connection:</p> <p>Active Connect: <input type="text" value="With Start Character"/></p> <p>Start Character: 0x <input type="text" value="02"/> (in Hex)</p> <p>Modem Mode: <input type="text" value="None"/></p> <p>Show IP Address After RING: <input checked="" type="radio"/> Yes <input type="radio"/> No</p>
---	---

Endpoint Configuration:

Local Port: <input type="text" value="8000"/>	<input type="checkbox"/> Auto increment for active connect
Remote Port: <input type="text" value="8000"/>	Remote Host: <input type="text" value="192.168.120.191"/>

Common Options:

Telnet Com Port Cntrl: <input type="text" value="Disable"/>	Connect Response: <input type="text" value="None"/>	
Terminal Name: <input type="text"/>	Use Hostlist: <input type="radio"/> Yes <input checked="" type="radio"/> No	LED: <input type="text" value="Blink"/>

Disconnect Mode

On Mdm_Ctrl_In Drop: <input type="radio"/> Yes <input checked="" type="radio"/> No	Hard Disconnect: <input checked="" type="radio"/> Yes <input type="radio"/> No
Check EOT(Ctrl-D): <input type="radio"/> Yes <input checked="" type="radio"/> No	Inactivity Timeout: <input type="text" value="0"/> : <input type="text" value="20"/> (mins : secs)

5 Technical data

5.1 Power supply

Power supply	<10 VA; 100 - 240 V \pm 10 % DC/50/60 Hz
--------------	--

5.2 Electrical connection

Connection elements Plug-in terminals		Steckklemmen
Control voltage inputg	Fuse protection	max. 6 A
LAN connection		Modular socket 8P8C
BUS connection	Connection material	For correct operation Only use shielded and twisted-pair cables; e.g. I-Y(St)Y 2 x 2 x 0.8
BUS-connection multisys D2-ESET/MSMT-4	BUS connection via RS-485 device	Device Terminal 90 (L) Terminal 91 (A) Terminal 92 (B)
BUS-connection multisys D2-BSET-4		Modular cable 6-pin, RJ-12 plug: 6P6C Max. DC output power: 4 W

5.3 Mechanical data

Top-hat rail device	Housing dimensions	90 x 36 x 61 mm (H x W x T),
	Mounting type	Wall mounting on standard rail 7.5 mm deep, according to DIN EN 50022 Suitable for distribution board installation
	Weight	ca. 120 g

5.4 Standards and other

Environmental conditions	Standards	DIN EN 60721-3-3:1995-09 + DIN EN 60721-3-3/A2:1997-07; 3K5+3Z11; (IEC721-3-3;3K5+3Z11)	
	Operating temperature	K55 (-5 °C ... +55 °C)	
	Air humidity	5 % 95 %	
	Storage temperature	-25 °C ... +70 °C	
	Operating altitude	0 ... 2000 m über NN	
Electrical safety	Standards	DIN EN 61010-1:2011-07; DIN EN 61010-2-030:2011-07	
	Protection class	I	
	Overvoltage category	Power supply:	CAT III: 300 V
	Rated surge voltage	4 kV	
Protection class	Standards	DIN EN 60529:2014-09	
	Terminals	IP 20	

KBR GmbH

Am Kieferschlag 7
D-91126 Schwabach

T +49 (0) 9122 6373 -0
F +49 (0) 9122 6373 -83
E info@kbr.de

www.kbr.de