DCS2501 Gateway (Internet)

Application

The DCS2501 is an Ethernet gateway in System 3000. It allows you to connect to a remote BMS via the Internet.

The DCS2501 features a P90 interface for direct communication with a DDC3000, an HRP or an LRP.

The DCS2501 enables you to replace an existing modem connection with an Internet connection.

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Änderungen vorbehalten - Contents subject to change - Sous réserve de modifications - Reservado el derecho a modificación - Wijzigingen voorbehouden - Con riserva di modifiche - Innehåll som skall ändras - Změny vyhrazeny - Zmiany zastrzeżone - Возможны изменения - A változtatások jogát fenntartjuk - 保留未经通知而改动的权力

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Important Information Regarding Product Safety

Safety Instructions

This data sheet contains information on installing and commissioning the product "DCS2501". Each person who carries out work on this product must have read and understood this data sheet. If you have any questions that are not resolved by this data sheet, you can obtain further information from the supplier or manufacturer.

If the product is not used in accordance with this data sheet, the protection provided will be impaired.

Applicable regulations must be observed when installing and using the device. Within the EU, these include regulations regarding occupational safety and accident prevention as well as those from the VDE (Association for Electrical, Electronic & Information Technologies). If the device is used in other countries, it is the responsibility of the system installer or operator to comply with local regulations.

Mounting, installation and commissioning work on the devices may only be carried out by qualified technicians. Qualified technicians are persons who are familiar with the described product and who can assess given tasks and recognize possible dangers due to technical training, knowledge and experience as well as knowledge of the appropriate regulations.

Legend

WARNING

Indicates a hazard of medium risk which can result in death or severe bodily injury if it is not avoided.

CAUTION

Indicates a hazard of low risk which can result in minor or medium bodily injury if it is not avoided.

NOTICE

Indicates a hazard of medium risk which can result in material damage or malfunctions if it is not avoided.

NOTE

Indicates additional information that can simplify the work with the product for you.

Notes on Disposal

For disposal, the product is considered waste from electrical and electronic equipment (electronic waste) and must not be disposed of as household waste. Special treatment for specific components may be legally binding or ecologically sensible. The local and currently applicable legislation must be observed.

Item

DCS2501	Gateway (Internet)

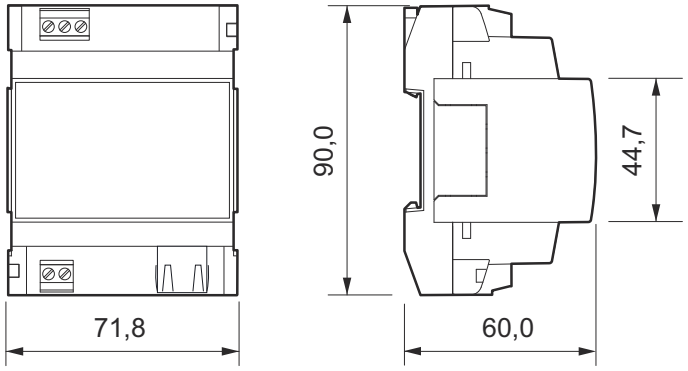
Technical Data

Nominal voltage	12 V DC ± 10 %; 1.6 W Or 24 V DC ± 10 %; 1.6 W Or 24 V AC ± 20 %; 50..60 Hz; 3.6 VA
Indicators and Controls	LEDs for bus operation and indicating errors ■ 1 LED for supply voltage ■ 2 LEDs Ethernet ■ 2 LEDs for P90 Reset button
Interfaces	P90: Screw terminal, RS232 Ethernet: RJ45 sokket, 100BASE-T / 10BASE-T
Housing	Base: Plastic (PC); black Hood: Plastic (PBT); orange (RAL 2009)
Overvoltage category	III
Rated impulse voltage	800 V
Level of contamination	2
How It Works	Type 1
Protection class	III
Degree of protection	IP20
Ambient temperature	0..50 °C
Ambient humidity	During operation: 20% to 80% r.h.; non-condensing Out of operation: 5% to 90% r.h.; non-condensing
Installation	Standard rail TH 35-7.5 in closed housing
CE conformity	89/336/EWG electromagnetic compatibility 73/23/EWG Low Voltage Directive
Weight	130 g
Dimensions	WxHxD mm 71.8 x 90 x 60, 4 horizontal pitches

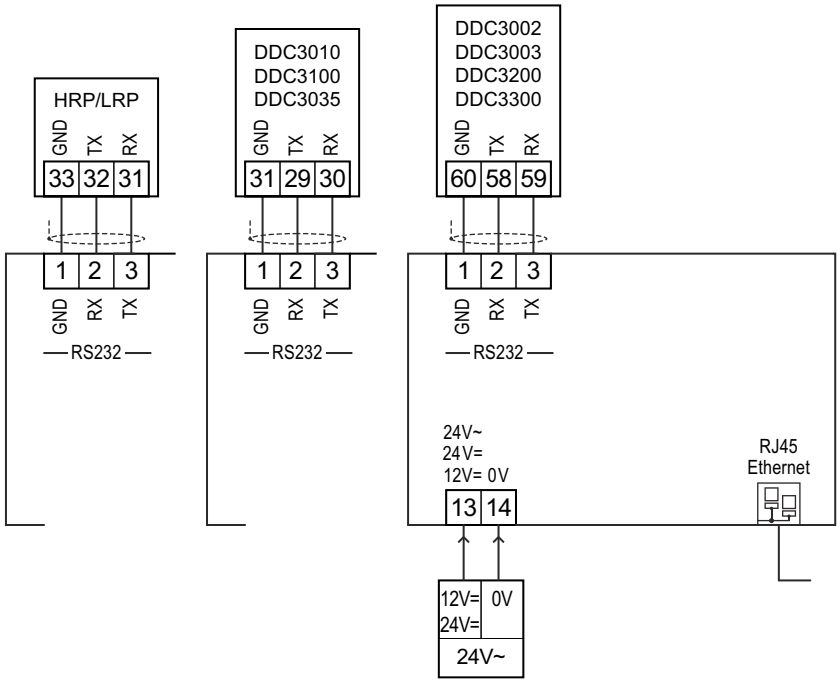
Compatibility

The DCS2501 is compatible with BMS version 9.13 or higher. Lower BMS versions are not supported.

Dimensions



Connection



P90

P90 uses RS232 as its bus. RS232 is specified in ANSI EIA/TIA-232-F.

To connect the RS232 bus, use a shielded pair of wires for the data lines (RX and TX) and an additional wire for signal ground (GND).

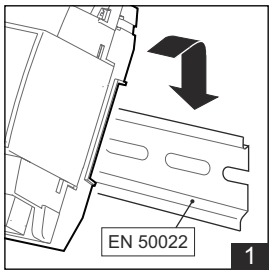
The maximum cable length for RS232 is 15 m for standard cables, e.g. JY(ST)Y cables with 100 pF/m. If you need to cover larger distances, use a cable with a low capacity. A cable with half the capacity has twice the maximum length.

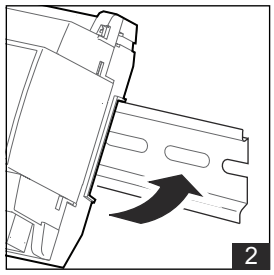
Example calculation: A Cat7 cable with 40 pF/m allows a length of 15 m • 100 pF / 40 pF = 37.5 m

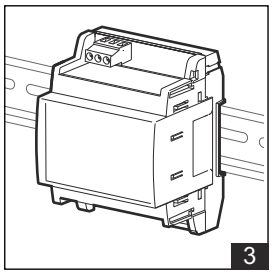
Mounting

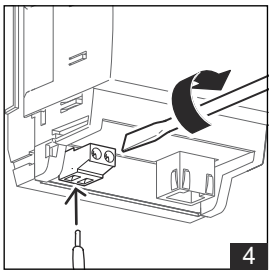
NOTICE

Mount or remove only when power is switched off.





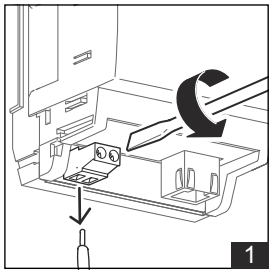


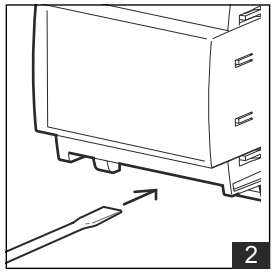


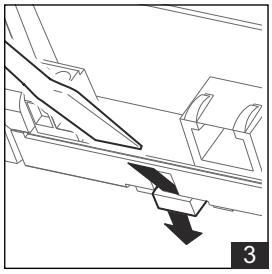
Removal

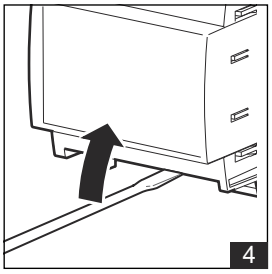
NOTICE

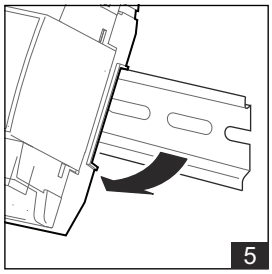
Mount or remove only when power is switched off.

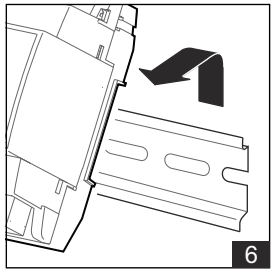












Indicators and Controls

LEDs

1 LED RS232: Error
2 LED RS232: Data
3 LED Power
4 LED Ethernet Data
5 LED Ethernet Link

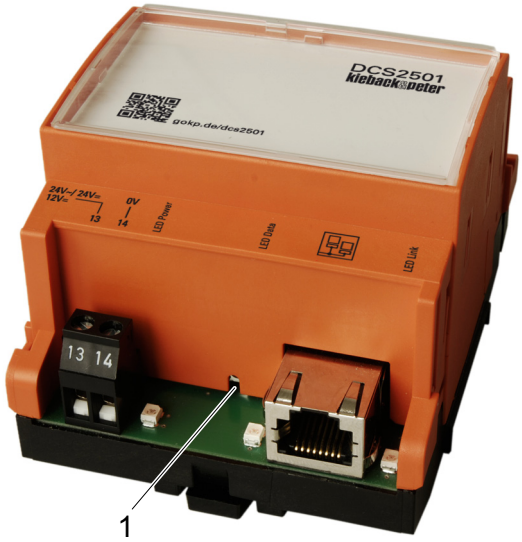
LED	Color	Signal	Meaning
"LED RS232: Error" (1)	Red	Remain lit	No P90 connection
"LED RS232: Data" (2)	Green	Flickering	Data being transferred
"LED Power" (3)	Green	Flashing	Device is starting/running a firmware update
		Remain lit	Device is ready
"LED Ethernet Data" (4)	Yellow	Flickering	Data being transferred
"LED Ethernet Link" (5)	Green	Remain lit	Connection OK

Reset button

Pressing the reset button can either restore the device to its initial state or restart the DCS2501.

Briefly pressing the reset button restarts the DCS2501. The settings of the DCS2501 are maintained.

Pressing the reset button for at least 3 seconds performs a reset. All settings are deleted and the initial state is restored.



1 Reset button

Restart

- ► Ziehen Sie den Ethernet-Stecker vom Gerät ab.
  Dadurch werden Störungen des Netzwerks vermieden.
- ► Drücken Sie kurzzeitig den Reset-Taster im Loch (z. B. mit einer Büroklammer).
  Es wird ein Neustart durchgeführt.

Reset

NOTICE

Pressing the reset button for longer deletes all the DCS2501’s settings and restores it to its initial state.

- ► Disconnect the Ethernet connector from the device.
  This prevents the network from being disrupted.
- ► Press the recessed reset button for at least 3 seconds (e.g. with a paper clip).
  The device is reset. The device is restored to its initial state.

Commissioning

Information for the network administrator

If the DCS2501 and the BMS communicate via the Internet, the DCS2501 requires a public IP address at which it can be reached by the BMS.

The DCS2501and the BMS can also communicate via NAT if port forwarding is activated for all ports. VPN can also be used, e.g. via the Kieback&Peter technoWay.

The bandwidth required for DCS2501 is less than 200 kbit/s.

The network's "ping" response time must be less than 200 ms.

The network's maximum downtime must be less than 20 ms.

The standard Ethernet MTU should be 1500 bytes. DSL routers often use a smaller MTU. If this is the case, the Ethernet packets from the DCS2501 and the BMS are sent in fragmented form. Adjusting the router's MTU improves the performance.

If the IP address is assigned via DHCP, the BMS must have a fixed IP address. This fixed IP address will be provided to the Kieback&Peter representative setting up the BMS.

The following ports on the DCS2501 must be accessible from the BMS:

- Port 22 (SSH):
  For encrypted data communication with the BMS.
- Port 23 (SSH/Telnet):
  For low-level analysis of the device by Kieback&Peter Support (optional).
- Port 80 (HTTP):
  For configuring the DCS2501 via the implemented web server (optional).
- Port 19280 (DDC/IPC):
  For configuring the IP address. The IP address can be configured using an XML frame sent as a broadcast (optional).

Configuring the DCS2501

- Connect the DCS2501 to your computer with an Ethernet cable. It doesn't matter whether you use a crossover or a non-crossover cable; the DCS2501 automatically identifies the cable.
- Ensure that the DCS2501 and your computer are connected to the power supply and turned on.
- Open a web browser on the computer and call up the IP address of the DCS2501. In the default settings:
  http://192.168.1.1
- Select a language by clicking on a flag below the menus in the web interface.

The configuration is available in German and English.

Log on to the DCS2501

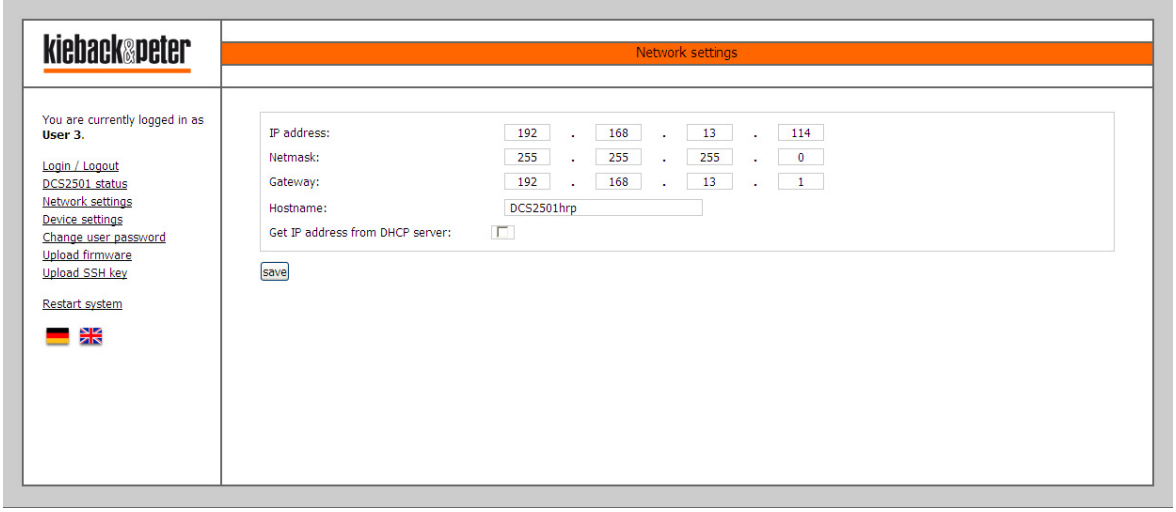
- Select the **Logon/Logoff** menu.
- Select **User 3**.
- Enter the password.

Rights concept

- User 1
  - Users are automatically User 1 when the DCS2501's web server is called up.
    Or
    After every logoff through the **Logon/Logoff** menu.
  - User 1 can only view the settings on the DCS2501, not change them.
- User 3
  - Password: "2460"
  - User 3 can: Change IP and DCS settings, run updates.
- User 4 (all rights)
  - Only available for developers from Kieback&Peter.

Enter the settings

- Enter the information from the table "Planning template DCS2501", on page 13.
- Enter the network setting information:



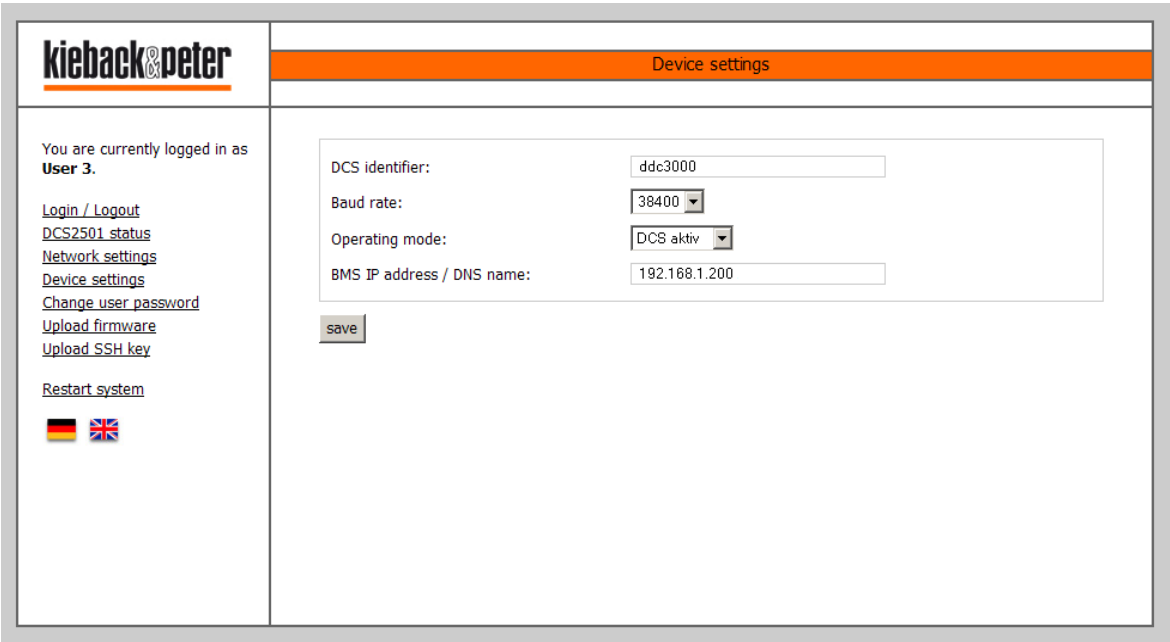
- Click the “Save” button.

  A message appears saying the settings will not be applied until the next time the device is restarted.
- Enter the device setting information:

NOTE

For configuration via NAT, the WAN IP address of the BMS’s router must be used in the device settings of the DCS2501.

For configuration via NAT, the WAN IP address of the DCS2501’s router must be used in the device settings of the BMS.



Operating mode

The following settings can be chosen as the operating mode:

- **BMS active**
  - BMS active means that the BMS establishes the connection to the DCS2501.
  - The DCS2501requires a fixed IP address.
- **DCS aktive**
  - DCS active means that the DCS2501 establishes the connection to the BMS.
  - The BMS requires a fixed IP address.
- **Deactivated**
  - The DCS2501 is not integrated into the network (not active).

► Click the “Save” button.

A message appears saying the settings will not be applied until the next time the device is restarted.

► Restart the device.

► To do so, click on “System restart” in the menu bar.

Configuring the controller

► Configure the following parameters in the DDC3000:

Parameter	Value
4599/01 =	ON
4600/01 =	Baud rate See table "Planning template DCS2501", on page 13
2051/01 =	DST mode
2031/01 =	P90
The modem menu must be deactivated.	

NOTE

The parameter 2055/01 allows you to check the communication of the DDC3000 to the BMS via the DCS2501.

Configuring the BMS

- Open the “Device configuration” menu on the BMS.
- Add a new device or change the existing device DCS2501.
- Enter the settings.
  - See table "Planning template DCS2501", on page 13

Type:	P90
Subtype:	□ LRP-HRP □ DDC3000
Connection:	□ DCS2501 - BMS active □ DCS2501 - DCS active
DCS identification:	Example: “DDC3000”
Host:	IP address of the DCS

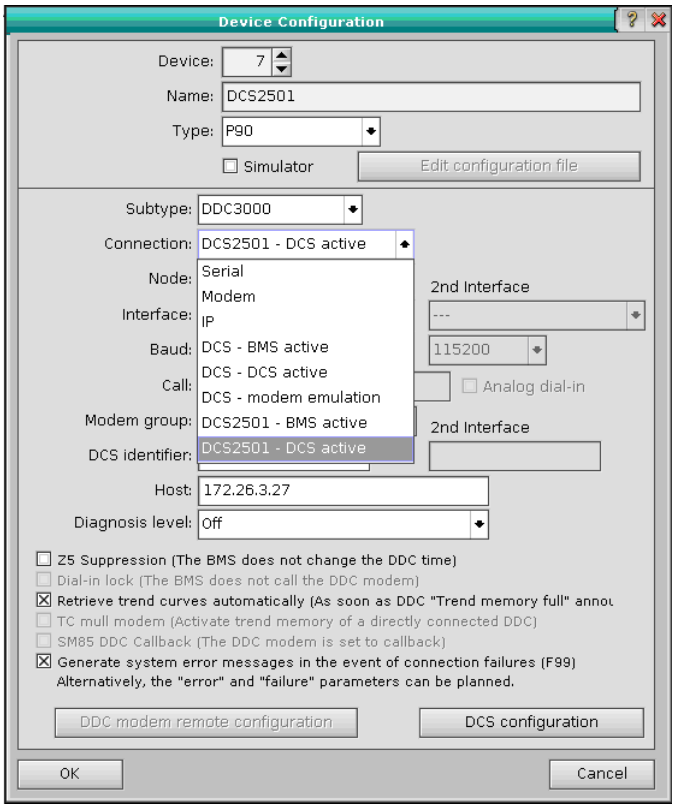
NOTE

If multiple DCS2501s are used on one BMS, a unique DCS identification must be assigned to each DCS2501.

A valid identification consists of max. 10 characters. Valid characters are A-Z, a-z or 0-9.

NOTE

For configuration via NAT, the routers’ IP address must be used.



Preparation

You need the following information from the network administrator. Protocol the information in this table:

DCS2501	DCS ID See chapter “Configuring the BMS”, page 12.	
	Operating mode (connection): See: Section Operating mode on page11	□ BMS aktive □ DCS aktive □ Deactivated
	IP configuration	□ Manual □ DHCP
- Manual	IP address:	
	Network mask:	
	Gateway:	
	Host name:	

DDC3000 / HRP / LRP	Baud rate:	

BMS	IP address of the BMS:	

Tab. 1: Planning template DCS2501