Expert Power Control NET 24x

The 24-fold Remote Power Switch for TCP/IP networks

Manual

Manual **Expert Power Control NET 24x**
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Rev. 1.G

Content

Security Advise

The device must be installed only by qualified personnel according to the following installation and operating instructions. The manufacturer does not accept responsibility in case of improper use of the device and particularly any use of equipment that may cause personal injury or material damage.

The device contains no user-serviceable parts. All repairs must be performed by factorytrained service personnel.

Check that the power cords, plugs and sockets are in proper condition.

The device can be connected only to 230V AC (50 or 60 Hz) sockets (if 16A CEE, 16A Schuko, 32 A Version).

The device can be connected only to three phase current AC (50 or 60 Hz) sockets (if 3 x 16 A Version).

Always plug the device into properly earthed power sockets.

The device is intended for indoor use only. Do NOT install them in an area where excessive moisture or heat is present.

Because of safety and approval issues it is not allowed to modify the device without our permission.

Please note the safety advises and manuals of connected devices, too.

The device is NOT a toy. It has to be used or stored out or range of children.

Packaging material is NOT a toy. Plastics has to be stored out of range of children. Please recycle the packaging materials.

In case of further questions, about installation, operation or usage of the device, which are not clear after reading the manual, please do not hesitate to ask our support team.

1. Description

With **Expert Power Control NET 24x** (**EPC NET 24x**) electrical devices can be switched via a TCP/IP network. There are only two steps necessary for installation: The connection to an electric circuit and a TCP/IP network and the configuration of the IP settings. Afterwards **EPC NET 24x** can be switched by all PCs of the network.

2. Hardware

2.1 Extend of Delivery

Included in delivery are:
* **Expert Power Control NET 24x**
* CD-ROM including Software and Manual
* Short manual

2.2 Installation

1.) Connect the power supply cable (A) with the power socket. **EPC NET 24x** now is booting and shortly after ready for usage.

2.) Plug the Ethernet cable into the connector (C) on the front side of **EPC NET 24x** and connect it to your Ethernet.

3.) Connect the clients to the active outlets at the **EPC NET 24x** (F).

2.3 Status LED

The Status LED (B) shows different states of the device:

* Status LED red: Device is not connected to the ethernet
* Status LED orange: Device is connected to the ethernet, TCP/IP settings are not allocated
* Status LED green: Device is connected to the ethernet, TCP/IP settings allocated, device is ready to use
* Status LED blinks alternately red and green: Device is in Bootloader mode.
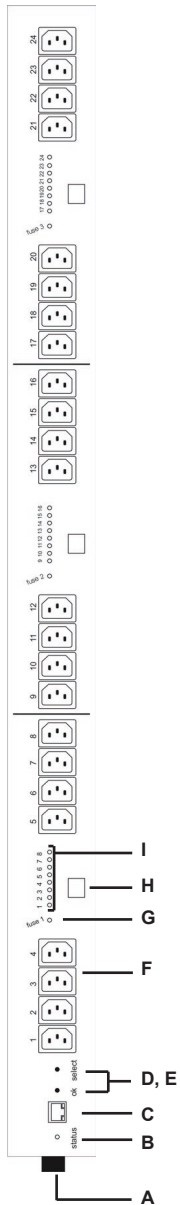
A) Power Supply Cable (1 Plug CEE, 32 A, 1,80m (32A Version)
                         1 Plug CEE 3-phase, 16 A, 1,80m (3 x 16 A Version)
                         1 Plug CEE, 16 A, 1,80m (16A CEE Version)
                         1 Plug Schuko, 16A, 1,80m (16A Schuko Version))
B) Status LED
C) Ethernet connector (RJ45)
D) Button „ok"
E) Button „select"
F) 24 Power Ports (IEC, max. 10 A)
G) 3 Fuse LEDs
H) 3 Fuses (16 A)
I) 24 Power Port LEDs

I
H
G
F
D, E
C
B
A

Figure 1 Frontside of EPC NET 24x

Expert Power Control NET 24x

3. Configuration

3.1 Automatic configuration by DHCP

After switch-on **EPC NET 24x** looks for a DHCP server and requests an available IP address (*for deactivation of that feature see 2.2*).

Please check the IP adress allocated to **EPC NET 24x** in the DHCP server settings to make sure that the same address is used at every reboot.

3.2 Network configuration by *GBL_Conf.exe*

For changing the network properties manually, the program *GBL_Conf.exe* is required. This tool is available for free on our website **www.gude.info**.

Furthermore *GBL_Conf.exe* enables you to install firmware updates and to reset **EPC NET 24x** to its factory settings (*see 5.2)*.

Activate bootloader mode of **EPC NET 24x** and run *GBL_Conf.exe* (*see 5.1*). The program will look automatically for connected devices and will display their network configuration.

If the displayed IP address accords with the factory settings (192.168.0.2), there is either no DHCP server available in the network or no free IP address could be allocated.

Enter a free IP address and the according netmask in the entry mask, then save these changes by clicking on *Program Device →SaveConfig*.

Restart **EPC NET 24x** by switching it off and on again, so that the changes will take effect. Now click on *Search* in order to have the new network configuration displayed.
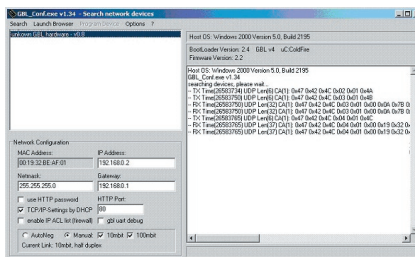

Figure 2 GBL_Conf.exe

3.3 Configuration by Webinterface

Go to the website of **EPC NET 24x**. Enter the IP address of **EPC NET 24x** into the address line of your internet browser:

*http://IP address of **EPC NET 24x**/*

Figure 3 Login

and press LOGIN.

To enter the configuration menu, click on „Configuration" on the upper left side of the screen.

Configuration - Power Ports

Label
A name with a maximum of 15 characters can be entered here for each Power Port.

After power-up switch
The Power Port's switching state after a power-on of **EPC NET 24x** can be defined here (*on, off, remember last state*).
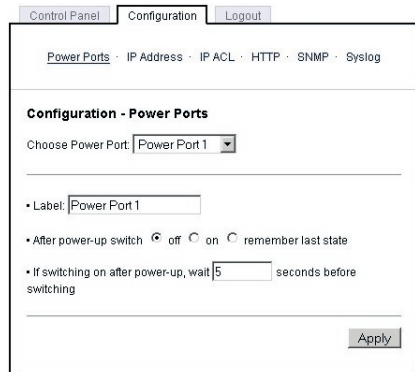
Figure 4 Config - Power Ports

If switching on after power-up, wait ...
A switching delay of a Power Port can be defined here that is applied after switch on of **EPC NET 24x**. The delay can last up to 8191 seconds.

Configuration - IP Address

Hostname
Enter the host name of **EPC NET 24x**. **EPC NET 24x** uses this name to connect with DHCP server.
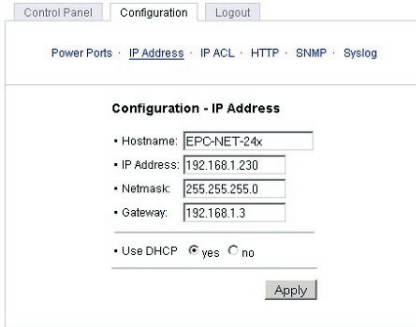
Special signs may destabilize your network.

Figure 5 Config - IP Address

IP Address
Here you can change the IP address of **EPC NET 24x**.

Netmask
Here you can change the netmask of **EPC NET 24x**.

Gateway
Here you can change the standard gateway of **EPC NET 24x**.

Use DHCP
Here you can set, if **EPC NET 24x** shall get its TCP/IP settings directly from your DHCP server. If DHCP is activated, **EPC NET 24x** proves if a DHCP server is active inside of your LAN. Then **EPC NET 24x** requests TCP/IP settings from this server. If there is no DHCP server inside of your network, we recommend to deactivate this function.

Configuration IP ACL

Reply ICMP-Ping requests
Here you can set, if **EPC NET 24x** shell react on pings.

Enable IP Filter
Here you can activate the IP Access Control List (IP ACL) of **EPC NET 24x**.

If IP ACL is active, DHCP and SNMP only work, if all necessary servers and clients are registered in this List.

Figure 6 Config - IP ACL

Configuration - HTTP

HTTP Port
Here you can enter hte HTTP port number, if necessary. Possible numbers are 1 ... 65534 (standard: 80). To get access to **EPC NET 24x**, you have to enter the port number behind the IP address of **EPC NET 24x**: *http://192.168.0.2:1720*

Require HTTP Password
Password protected access can be activated here. In this case, a user and an admin password have to be defined. Passwords have a maximum lengths of 15 characters.

Administrators are authorized to switch all ports and to modify the settings of **EPC NET 24x** and of all ports. The username of the admin is *"admin"*.

Users are authorized to switch all ports but are not allowed to modify the settings of neither **EPC NET 24x** nor the ports. The username of the user is *"user"*.

If you have forgotten your password, activate the bootloader mode of **EPC NET 24x**, start *GBL_Conf.exe* and deactivate the password request.

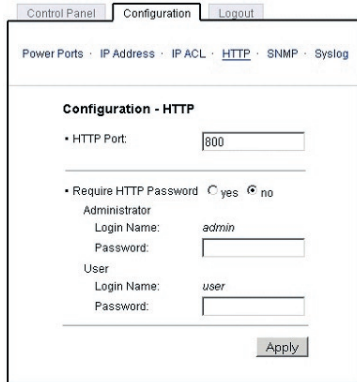**All changes need a restart of the firmware to get valid.**

Figure 7 Config - HTTP

Configuration - SNMP

Enable SNMP-get
Here you can activate SNMP-get protocol of **EPC NET 24x**.

SNMP public community
Here you can enter the SNMP public community.
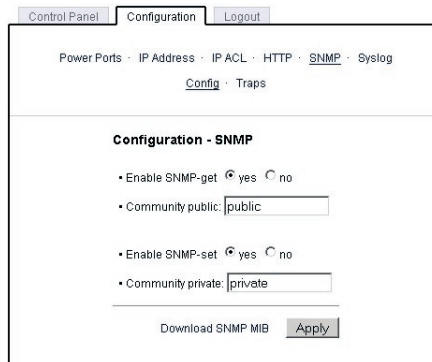
Enable SNMP-set
Here you can activate SNMP-set protocol of **EPC NET 24x**.

SNMP private community
Here you can enter the SNMP private community.

Download SNMP-MIB
Here you can download the MIBs of **EPC NET 24x**.

Figure 8 Config - SNMP

Configuration - SNMP Trap Receiver List

Enable Traps
Here you can activate SNMP-traps. if enabled, **EPC NET 24x** will dispatch SNMP-traps to all receivers listed. Receivers have to be listed as follows: IP address (and, if necessary the HTTP port) e.g.: *192.168.0.223:8000*

Trap Version
Here you can choose between SNMP-traps standard 1 and 2c.

Figure 9 Config - SNMP Traps

Use SNMP only if your network is fitted for.

More information about the SNMP functions of **EPC NET 24x**, you can find in chapter 3.5, on *http://www.gude.info/wiki* or ask our support team.
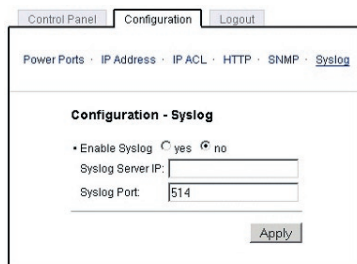
Configuration - Syslog

Use Syslog
Here you can activate Syslog of **EPC NET 24x**.

Syslog Server IP
If syslog is active enter here the IP address of you Syslog server.

Figure 10 Config - Syslog

Syslog Port
If syslog is active enter here the port number, that your Syslog server uses to receive syslog information.

More information about Syslog you can find in chapter 3.6, on *http://www.gude.info/wiki* or ask our support team.

3.4 IP Access Control List

IP Access Control List (IP ACL) acts as an IP filter for your **EPC**

NET 24x. Wether it is active hosts and subnets only can contact **EPC NET 24x**, if their IP adresses are stated in this IP ACL.
e.g.: *http://192.168.0.1* or *http://192.168.0.1/24*

If you locked yourself out by mistake, please activate the bootloader mode of **EPC NET 24x**, start *Gbl_Conf.exe* and deactivate IP ACL.

You can find more information about configuration of IP ACL in chapter 3.3 or have a look at *http://www.gude.info/wiki*.

3.5 SNMP

To get detailed status information of **EPC NET 24x** SNMP can be used. SNMP communicates via UDP (port 161) with **EPC NET 24x**: You can use SNMP to switch the power ports as well.

Supported SNMP commands:
- SNMPGET: request status information
- SNMPGETNEXT: request the next status information
- SNMPSET: **EPC NET 24x** request change of status

You will need a Network Management System, e.g. HP-Open View, OpenNMS, Nagios etc., or the command line tools of NET-SNMP to request information of **EPC NET 24x** via SNMP.

SNMP Communities

SNMP authentifies requests by so called communities.
The public community has to be added to SNMP-read-requests and the private community to SNMP write requests. You can see the SNMP communites like read/write passwords. SNMP v1 and v2 transmit the communities without encryption. Therefore it is simple to spy out these communities. We recommend to use a DMZ or IP ACL.

MIBs

All information, that can be requested or changed, the so called „Managed Objects", are described in „Management Information Bases" (MIBs).

There are three MIBs, which can be requested from **EPC NET 24x**: „system", „interface" and „powerports"
„system" and „interface" are standardised MIBs (MIB-II).
„powerports" (GUDEADS-EPC-MIB::gadsEPC) was created especially for **EPC NET 24x**.
At least, there are so called Object Identifiers (OID) subordinated to those three structures. An OID describes the location of an information inside a MIB.

SNMP-Traps

SNMP-Traps are system messages, sent via SNMP-protocol to different clients. On following events, **EPC NET 24x** will dispatch a SNMP-Trap:

- Switching of the Power Ports
- Changes of the fuses

You can find more information about configuration of SNMP in Chapter 3.3 or have a look at *http://www.gude.info/wiki*.

3.6 Syslog

Syslog messages are simple text messages transmitted to a syslog server using UDP. Linux OS regularly have a syslog daemon installed, e.g. syslog-ng. For Windows there are some freeware tools available.

On following events, **EPC NET 24x** will send a syslog

message:
- Booting up
- Activation/deactivation of syslog
- Switching of Power Ports
- Changes of the fuses

You can find more information about configuration of Syslog in chapter 3.3 or have a look at *http://www.gude.info/wiki*.

4. Switching

4.1 Switching at the device

EPC NET 24x disposes of two buttons: *"select"* and *"ok"*. By pushing *"select"*, the LED of Power Port 1 starts blinking which means that it is selected. By pushing the button again, the next Power Port is selected. If you want to change the switching state of the selected Power Port, push the *"ok"* button for two seconds.
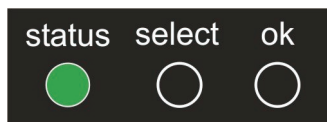
Figure 11 Buttons

You can check the status of the Power Ports by the color of the Power Port status LED (green=enabled/red=disabled).

4.2 Switching by Webinterface

Go to the website of **EPC NET 24x**. Enter the IP address of **EPC NET 24x** into the address line of your internet browser:

*http://IP address of **EPC NET 24x**/*
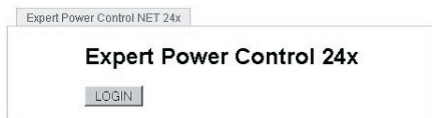
Figure 12 Login

You can check the status of the Power Ports by the color of the Power Port status LED (green=enabled/red=disabled).

Bank A / B / C

Here you are able to switch the ports directly. Each Bank shows 8 Power Ports (which are secured by one fuse per 8 Power Ports (Fuse 1-3).

Optionally the device can be accessed by using the the command line (e.g. for automatic or time-triggered switching).

For more information please refer to our website: *www.gude.info/wiki*
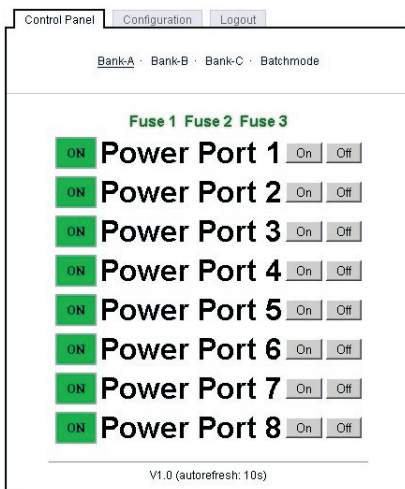
Figure 13 Control Panel

Batchmode

Each Power Port of **EPC NET 24x** can be switched on or off for a selectable delay (1-30 sec. or 1-30 min.). After the chosen delay the selected port will be switched off or switched on again automatically.

Figure 14 Batchmode

4.3 Fuses

You can see the status of the fuses by the colour of the fuse LEDs Fuse 1, Fuse 2, Fuse 3).
Green = enabled
Red = disabled
While using the webinterface you can see the states of the fuses, too. It is listed in the Control Panel.

Fuse 1 Fuse 2 Fuse 3

Figure 15 Fuses

If one, or more than one of the fuses is shown as disabled, check the fuses, the connections and the connected devices.

Each fuse secures 8 Power Ports for a power of 16A.
Fuse 1: Power Port 1-8
Fuse 2: Power Port 9-16
Fuse 3: Power Port 17-24

If there is one fuse disabled, it can easily be enabled again. Simply press it back into the case of **EPC NET 24x**.

5. Features

5.1 Bootloader mode

To activate the bootloader mode of **EPC NET 24x** the buttons *"select"* and *"ok"* at the front must be pushed for three seconds. In bootloader mode it is possible to disable the password protection, to update the firmware and to restore the default settings by running the program *GBL_Conf.exe*.

The bootloader mode of **EPC NET 24x** is indicated by *"BOOT-LDR"* appended to the device name in the program window of *GBL_Conf.exe* and by the alternately red and green blinking status led.

During bootloader mode an alteration of the switching state of a Power Port is not possible.

5.2 Firmware update

In order to update the firmware the program *GBL_Conf.exe* and the latest firmware are needed.

Activate bootlaoder mode of **EPC NET 24x** (*see 5.1*) and run the program *GBL_Conf.exe*. On the left side of the program window all **EPC NET 24x** that are in the network are listed. Select the one, that should be updated, click on *Program Device→Firmware Update* and determine the location of the new firmware.
To activate the new firmware, you have to disable the bootloader mode of **EPC NET 24x**.

5.3 Default settings

In order to restore the default settings **EPC NET 24x** must be started in bootloader mode (*see 5.1*). Besides that the program *GBL_Conf.exe* is required.

Run *GBL_Conf.exe* and select the **EPC NET 24x** whose settings should be restored. Then click on *Program Device→Reset to Fab default*.

Please notice that all current settings will be deleted. The default settings will be loaded when **EPC NET 24x** is restarted the next time.

Factory Settings EPC NET 24x

Name:	EPC-NET-24x
IP adress:	192.168.0.2
Netmask:	255.255.255.0
Gateway:	192.168.0.0
DHCP:	enabled
Password	disabled
HTTP Port:	80
IP ACL:	disabled

Power Port 1-24

Name:	Power Port 1 - 24
After Reboot:	disabled

5.4 Technical Information

32 A Version:

Dimensions:	155 cm x 6 cm x 6 cm (LxBxT)
Weight:	6 kg
Interface:	Ethernet RJ45
Connections:	1 x Power supply cable (CEE plug, max. 32A), 24 (8x3) Power Ports (IEC-60320-C13, max. 10A)
Load:	32A
Load (per Port):	10A
Voltage:	230V
Ethernet:	10/100 Mbit 10baseT Ethernet
Protocols:	HTTP 1.1, DHCP, SNMPv1, SNMPv2c, SNMP-Traps (v1 und v2c), Syslog
Operating Temperature:	0ºC - 50ºC
OS:	Independent from OS (Ethernet)

3 x 16 A Version:

Dimensions:	155 cm x 6 cm x 6 cm (LxBxT)
Weight:	6 kg
Interface:	Ethernet RJ45
Connections:	1 x Power supply cable (CEE plug, three-phase current line 16A), 24 (8x3) Power Ports (IEC-60320-C13, max. 10 A)
Load:	3 x 16 A, neutral wire max. 16 A
Load (per Port):	10A
Voltage:	230V
Ethernet:	10/100 Mbit 10baseT Ethernet
Protocols:	HTTP 1.1, DHCP, SNMPv1, SNMPv2c, SNMP-Traps (v1 und v2c), Syslog
Operating Temperature:	0ºC - 50ºC
OS:	Independent from OS (Ethernet)

16 A CEE Version:

Dimensions:	155 cm x 6 cm x 6 cm (LxBxT)
Weight:	6 kg
Interface:	Ethernet RJ45

Connections:	1 x Power supply cable (CEE plug, max. 16A), 24 (8x3) Power Ports (IEC-60320-C13, max. 10A)
Load:	32A
Load (per Port):	10A
Voltage:	230V
Ethernet:	10/100 Mbit 10baseT Ethernet
Protocols:	HTTP 1.1, DHCP, SNMPv1, SNMPv2c, SNMP-Traps (v1 und v2c), Syslog
Operating Temperature:	0ºC - 50ºC
OS:	Independent from OS (Ethernet)

16 A Schuko Version:

Dimensions:	155 cm x 6 cm x 6 cm (LxBxT)
Weight:	6 kg
Interface:	Ethernet RJ45
Connections:	1 x Power supply cable (Schuko plug, max. 16A), 24 (8x3) Power Ports (IEC-60320-C13, max. 10A)
Load:	32A
Load (per Port):	10A
Voltage:	230V
Ethernet:	10/100 Mbit 10baseT Ethernet
Protocols:	HTTP 1.1, DHCP, SNMPv1, SNMPv2c, SNMP-Traps (v1 und v2c), Syslog
Operating Temperature:	0ºC - 50ºC
OS:	Independent from OS (Ethernet)

6. Support

More information and current driver software can be found on *http://www.gude.info*.

In case of further questions, about installation or operation of **EPC NET 24x**, please have look at *www.gude.info/wiki* or do not hesitate to contact our support (*mail@gude.info*).

Konformitätserklärung / Declaration of Conformity

CE

Die Firma / The manufacturer

Gude Analog- und Digitalsysteme GmbH	

Anschrift/Address:	Eintrachtstr. 113, 50668 Köln		
Telefon/Phone:	0221 – 912 90 97	**Fax:**	0221 – 912 90 98
Web:	www.gude.info	**Mail:**	mail@gude.info

erklärt hiermit, dass die Produkte / hereby declares that the following products

Produktkennzeichnung / Product name

Expert Power Control NET und/and **Expert Power Control NET IEC** und/and **Expert Power Control NET 4x** und/and **Expert Power Control NET 8x** und/and **Expert Power Control NET 2x6** und/and **Expert Power Control NET 24x**

Schaltbare Ein- bzw. Mehrfach-Steckdose für TCP/IP Netzwerke / Switchable single and multiple socket for TCP/IP networks

mit den Bestimmungen der nachstehenden EU-Richtlinien übereinstimmen /
are in accordance with the following european directives

Referenz-Nummer / Reference no.	Titel / Title
89/336/EWG / 89/336/EEC	Elektromagnetische Verträglichkeit / Electromagnetic Compatibility
2006/95/EWG / 2006/95/EEC	Niederspannungsrichtlinie / Low Voltage Electrical Equipment
93/68/EWG / 93/68/EEC	CE Kennzeichnung / CE marking

und dass die nachstehenden Europäischen Normen zur Anwendung gelangt sind. /
and comply with the following european standards.

Norm / Standard	Titel / Title
EN 55022:2006 + A1, A2	Einrichtungen der Informationstechnik: Funkstöreigenschaften – Grenzwerte und Messverfahren
EN 55022:2006 + A1, A2	Information technology equipment: Radio disturbance characteristics - Limits and methods of measurement
EN 55024:1998 + A1, A2	Einrichtungen der Informationstechnik: Störfestigkeitseigenschaften – Grenzwerte und Prüfverfahren
EN 55024:1998 + A1, A2	Information technology equipment: Immunity characteristics - Limits and methods of measurement
EN 61000-3-2:2006	Elektromagnetische Verträglichkeit Teil 3-2: Grenzwerte - Grenzwerte für Oberschwingungsströme
EN 61000-3-2:2006	Electromagnetic compatibility Part 3-2 : Limits – Limits for harmonic current emissions
EN 60950-1:2006	Sicherheit von Einrichtungen der Informationstechnik
EN 60950-1:2006	Safety for Industrial Control Equipment

Köln, 23.10.2007

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