Expert Power Control NET 4x DIN

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1 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-maintenable parts. All maintenance has to be performed by factory trained service personnel.

Check if the power cord, the plug and the socket are in proper condition.

The device can be connected only to 230V AC (50 or 60 Hz) or 12/24V DC power supply sockets.

Always connect the device to properly grounded 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 of 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.
2 Description

With Expert Power Control NET 4x DIN 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 Expert Power Control NET 4x DIN can be controlled by all PCs of the network.
3 Hardware

3.1 Connections

1) Power Port LEDs
2) Power supply 24 V DC (Pins 1 and 2)
3) Button "select"
4) Button "ok"
5) status LED
6) Relais 1 (Pins 12 and 13)
7) Relais 2 (Pins 16 and 17)
8) Connector serial Interface (RS232)
9) Connector Ethernet (RJ45)
10) Relais 4 (Pins 34 and 35)
11) Relais 3 (Pins 30 and 31)
12) Emergency stop (Pins 24 and 25)
13) Power supply 230V AC (Pins 18 and 19)
3.2 Content of delivery

Included in delivery are:

- Expert Power 4x DIN
- Short manual

3.3 Installation

1.) Connect the power supply cable to the power supply pins of Expert Power Control NET and a socket. Expert Power Control NET now is booting and shortly after ready for usage.

2.) Plug the Ethernet cable into the connector on the front side of Expert Power Control NET 4x DIN and connect it to your Ethernet.

3.) Connect the clients to the Power Ports of Expert Power Control NET.

3.4 Status LED

The Status LED 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.

4  Configuration

4.1  DHCP

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

Please check the IP address allocated to Expert Power Control NET in the DHCP server settings to make sure that the same address is used at every reboot.

4.2  Network settings with GBL_Conf

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](http://www.gude.info).

Furthermore GBL_Conf.exe enables you to install firmware updates and to reset Expert Power Control NET to its factory settings.

Activate bootloader mode of Expert Power Control NET and run GBL_Conf.exe. 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 the firmware of Expert Power Control NET, so that the changes will take effect. Now click on Search in order to have the new network configuration displayed.
4.3 Configuration via webinterface

4.3.1 Login

Go to the website of Expert Power Control NET. Enter the IP address of Expert Power Control NET into the address line of your internet browser:
http://"IP address of Expert Power Control NET"/
and press LOGIN.

To enter the configuration menu, click on „Configuration“ on the upper left side of the screen.
4.3.2 Configuration - Power Ports

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

4.3.2.2 After power-up switch
The Power Port’s switching state after a power-on of the device can be defined here (on, off, remember last state).

4.3.2.3 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 the device. The delay can last up to 8191 seconds.

4.3.2.4 After turning off, wait ...
While this function is enabled, the Power Port will reactive after the stated time, when it got switched off.
4.3.3 Configuration - IP address

4.3.3.1 Hostname
Enter the host name of Expert Power Control NET. Expert Power Control NET uses this name to connect with DHCP server.

Special signs may destabilize your network.

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

4.3.3.2 IP Address
Here you can change the IP address of Expert Power Control NET.

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

4.3.3.3 Netmask
Here you can change the netmask of Expert Power Control NET.
All changes need a restart of the firmware to get valid.

4.3.3.4 Gateway
Here you can change the standard gateway of Expert Power Control NET.

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

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

All changes need a restart of the firmware to get valid.
4.3.4 Configuration - IP ACL

4.3.4.1 Reply ICMP-Ping requests
Here you can set, if **Expert Power Control NET** shell react on pings.

4.3.4.2 Enable IP Filter
Here you can activate the IP Access Control List (IP ACL) of **Expert Power Control NET**.

If IP ACL is active, DHCP and SNMP only work, if all necessary servers and clients are registered in this list.
4.3.5 Configuration - HTTP

Here you can enter the HTTP port number, if necessary. Possible numbers are 1 ... 65534 (standard: 80). To get access to Expert Power Control NET, you have to enter the port number behind the IP address of Expert Power Control NET, e.g.: http://192.168.0.2:1720

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

4.3.5.1 HTTP Port

4.3.5.2 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 Expert Power Control NET 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 **Expert Power Control NET** nor the ports. The username of the user is “user”.
If you have forgotten your password, activate the bootloader mode of **Expert Power Control NET**, start GBL-Conf.exe and deactivate the password request.

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

### 4.3.5.3 Check Password on start page
If activated, the user has to enter his password, before logging in to the webinterface.

### 4.3.6 Configuration - SNMP

**4.3.6.1 Enable SNMP-get**
Here you can activate SNMP-get protocol of **Expert Power Control NET**.
Use SNMP only if your network is fitted for.

4.3.6.2 Community public
Here you can enter the SNMP public community.

Use SNMP only if your network is fitted for.

4.3.6.3 Enable SNMP-set
Here you can activate SNMP-set protocol of Expert Power Control NET.

Use SNMP only if your network is fitted for.

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

Use SNMP only if your network is fitted for.

4.3.6.5 Download SNMP MIB
Here you can download the MIBs of Expert Power Control NET.

Use SNMP only if your network is fitted for.
4.3.7 Configuration - SNMP Trap Receiver List

4.3.7.1 Enable Traps
Here you can activate SNMP-traps. If enabled, Expert Power Control NET 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.: 192.168.0.2:8000

Use SNMP only if your network is fitted for.

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

Use SNMP only if your network is fitted for.
More information about the SNMP functions of Expert Power Control NET, you can find in chapter SNMP, on http://www.gude.info/wiki or ask our support team.

4.3.8 Configuration - Syslog

4.3.8.1 Enable Syslog
Here you can activate Syslog of Expert Power Control NET.

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

4.3.8.3 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 Syslog, on http://www.gude.info/wiki or ask our support team.

4.4 IP Access Control List
IP Access Control List (IP ACL) acts as an IP filter for your Expert Power Control NET. Whether it is active hosts and subnets only
can contact **Expert Power Control NET**, if their IP addresses 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 **Expert Power Control NET**, 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](http://www.gude.info/wiki).

### 4.5 SNMP

To get detailed status information of **Expert Power Control NET** SNMP can be used. SNMP communicates via UDP (port 161) with **Expert Power Control NET**: 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**: **Expert Power Control NET** 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 **Expert Power Control NET** via SNMP.

#### 4.5.1 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.
4.5.2 MIB

SNMP-Traps

SNMP-Traps are system messages, sent via SNMP-protocol to different clients. On following events, Expert Power control NET will dispatch a SNMP-Trap:

- Switching of the Power Ports

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

4.5.3 SNMP-traps

SNMP-traps are system messages sent via SNMP. On following events a SNMP-trap will be sent

- Switching of a Power Port
4.6 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, **Expert Power Control NET** will send a syslog message:

- Booting up
- Activation/deactivation of syslog
- Switching of Power Ports

You can find more information about configuration of Syslog in chapter Configuration - Syslog or have a look at [http://www.gude.info/wiki](http://www.gude.info/wiki).
5 Operation

Enter topic text here.

5.1 Switching at the device

Expert Power Control NET 4x DIN 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.

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

5.2 Switching by Webinterface

Go to the website of Expert Power Control NET. Enter the IP address of Expert Power Control NET into the address line of your internet browser:

http://"IP address of Expert Power Control NET"/ and press LOGIN
5.2.1 Switching

Here you are able to switch the ports directly.

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

5.2.2 Batchmode

Each Power Port of **EPC NET 8x** can be switched on or switched 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.

Optionally the device can be accessed by using the perl script „**EPC_Control2.pl**” through the command line (e.g. for automatic or time-triggered switching).
For more information please refer to our website:
www.gude.info/wiki

5.3 Switching via serial interface

Alternatively to the Ethernet interface, the Power Ports of Expert Power Control NET 4x DIN can be switched through its serial interface. It only requires a terminal program like HyperTerminal, a program provided under Windows for free (to be found under Programs -> Accessories -> Communication).

Connect your PC with Expert Power Control NET 4x DIN by a 9-pole serial cable (RS232) and plug the device into a outlet. Now you can turn on Expert Power Control NET 4x DIN. The boot process lasts a few seconds longer than by Ethernet.

You can access Expert Power Control NET 4x DIN through the terminal program as soon as the status LED shines green. Choose the COM port that is connected to Expert Power Control NET 4x DIN and enter the following values for the serial interface:

<table>
<thead>
<tr>
<th>Bits per seconds</th>
<th>115200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data bits</td>
<td>8</td>
</tr>
<tr>
<td>Parity</td>
<td>none</td>
</tr>
<tr>
<td>Stop bits</td>
<td>1</td>
</tr>
<tr>
<td>Flow control</td>
<td>none</td>
</tr>
</tbody>
</table>

If you do not use HyperTerminal, please make sure that the terminal program supports VT100 commands.

After having it connected successfully, Expert Power Control NET 4x DIN answers as shown in figure below. Press Enter for login.
Now the Power Ports can be switched on and off per number keys. By pressing `c` you can check the network configuration and by pressing `Esc` you can log out.

### 6 Features

#### 6.1 Bootloader mode

To activate the bootloader mode of **Expert Power Control NET** the select button must be pushed while restarting the device. 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*.

If the device runs already, press the buttons select and ok for three seconds. The bootloader mode of **Expert Power Control NET** is indicated by “BOOT-LDR” appended to the device name in the program window of *GBL_Conf.exe*. 
During bootloader mode an alteration of the relais is not possible.

To restart the firmware, without toggle the Power Ports, press the buttons select and ok for three seconds again.

### 6.2 Firmware update

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

Start the device in bootloader mode and run the program GBL_Conf.exe. On the left side of the program window all Gude devices that are in the network are listed. Select the device, that should be updated, click on Program Device Firmware Update and determine the location of the new firmware.

Please note: The up-to-date firmware and GBL_Conf.exe can be found at www.gude.info, free to download.
6.3 Technical information

Connections: Ethernet (RJ45),
Sub-D Connector (9-pol.) for RS232
4 x Relais pin (potentialfree)
1 x AC power supply pins
1 x DC power supply pins
1 x Pins for Emergency-off

Network: 10/100 MBit/s 10baseT Ethernet

Protocols: TCP/IP, HTTP,
SNMP v1 and v2c, SNMP traps, Syslog

Switched voltage: 230 V AC
or 12/24V DC

Relais: High-inrush relais (loadable up to 60A), potential-free, 16 A / 230V AC or 5 A / 12/24V DC at resistive load

Operating temperature: 0°C-50°C

Dimensions: 104mm x 65mm x 90mm (L x H x W)

Total weight: ca.400g

Power consumption: <5W
6.4 **Fabrique settings**

In order to restore the default settings the device must be started in bootloader mode. Besides that the program *GBL_Conf.exe* is required.

Run *GBL_Conf.exe* and select the device 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 the firmware of the device is restarted the next time.
7 Support

Up-to-date software can be downloaded at www.gude.info.

In case of further questions about installation and operation of Expert Power Control NET please have a look at www.gude.info/wiki and do not hesitate to contact our support team at mail@gude.info.
8 Declarations of conformity

CERTIFICATE OF CONFORMITY

EU LVD DIRECTIVE 2006/95/EC

This certifies that the following designated product
Expert Power Control
Model No.: NET 8x

(Product identification)

complies with the essential protection requirements of the LVD Directive 2006/95/EC on the approximation of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits. Assessment of compliance of the product with the requirements relating to the Low Voltage Directive (LVD) was based on the following standards:

EN 60950-1:2006

(Identification of regulations / standards)

This certificate is issued for
Gude Analog- und Digitalisysteme GmbH
Eintrachtstr. 113
50668 Koeln, Germany

(Name / Address)

The certification is valid only in accordance with the test report No. GOM20803-1696-L and when the product is manufactured in accordance with the tested sample.

July 18, 2008

Dieter Gneip
Certification Body
Konformitätserklärung / Declaration of Conformity

Die Firma / The manufacturer
Gude Analog- und Digitalsysteme GmbH
Anschrift / Address: HAMBURGER 113, 58668 KOBE
Telefon / Phone: 0231-912 60 57, FAX: 0231-912 60 88
Web: www.gude.info, Mail: mail@gude.info

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

Produkte / Product name:
Expert Power Control NET und/and Expert Power Control NET IEC und/and Expert Power Control NET 8x 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-Nr. / Reference no. / Titel / Title
89/336/EWG / 92/31/EWG / Electromagnetic Compatibility
73/23/EWG / 93/68/EWG / Low Voltage Electrical Equipment
90/38/EWG / 93/68/EWG / CE-Kennzeichnung / CE marking

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

Norm / Standard / Titel
EN 55022:1993 + A1, A2 / Information technology equipment: Radio disturbance characteristics - Limits and methods of measurement
EN 55022:1993 + A1, A2 / Information technology equipment: Radio disturbance characteristics - Limits and methods of measurement
EN 61000-3-2:2000 / Elektromagnetische Verträglichkeit Teil 3-2: Grenzwerte - Grenzwerte für Übertragungssysteme
EN 61000-3-2:2000 / Electromagnetic compatibility Part 3-2: Limits – Limits for harmonic current emissions
EN 61558-2-000 / Sicherheit von Einrichtungen der Informationstechnik
EN 61550-2000 / Safety for Industrial Control Equipment

Köln, 23.10.2007

Dr. Michael Gude, Geschäftsführer / CEO
Der Hersteller/
The manufacturer

Gude Analog- und Digitalsysteme GmbH
Eintrachtstrasse 113
50668 Köln

erklärt hiermit, dass für folgende Produkte/
hereby declares that the following products:

Expert mouseClock (alle Varianten/all versions)
EMC Professional NET (alle Varianten/all versions)
Expert GPS Clock (alle Varianten/all versions)
Expert Power Control NET (alle Varianten/all versions)
Expert Power Meter (alle Varianten/all versions)
Expert OptoBridge
USB-RS232 OptoBridge
Expert ISDN Control (alle Varianten/all versions)
Aktive Antennen / Active Antennas

mit den Bestimmungen der nachstehenden Richtlinien übereinstimmen/
are in accordance with the following directives:

2002/95/EG (RoHS - Restriction of certain Hazardous Substances)
2002/96/EG (WEEE - Waste Electrical and Electronic Equipment)
ElektroG (Elektro- und Elektronikgerätegesetz)

Köln, 07.05.2009

Dr. Michael Gude, Geschäftsführer / CEO