Expert PDU energy 8001

The Energy Meter for IT environments
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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 factory trained 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.

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 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.
1. Description

**Expert PDU energy 8001** is a 19" device, that makes it possible to measure energy consumption for two channels.

It operates as an energy consumption meter and measures current, voltage and active/apparent power. All of these information can be requested by Ethernet or directly at the device.

The energy consumption meter measures the spent energy on two counters, one shows the total energy consumption since starting-up **Expert PDU energy 8001**, the other counter is resettable.
2. Hardware

2.1 Extent of delivery

Included in delivery are:
- **Expert PDU energy 8001**
- Power supply cable (IEC)
- CD-ROM containing Software and Manual

2.2 Starting up the device

1.) Connect the power supply cable to the **Expert PDU energy 8001** Power Connector on the back side of **Expert PDU energy 8001**.

Your **Expert PDU energy 8001** is now booting and shortly after ready for being connected to consumers and the Ethernet.

2.) Plug the Ethernet cable into the connector on the front side of **Expert PDU energy 8001**.

3.) Connect the power cable of one or both consumers to the power-out connectors on the back side of **Expert PDU energy 8001**.

If a consumer is active, **Expert PDU energy 8001** will automatically start to count the energy consumption.

![Figure 1 Front side](image1.png)

![Figure 2 Back side](image2.png)

1. 2-line LCD-Display
2. Channel 1 LED
3. Channel 2 LED
4. Alarm LED
5. Ethernet Connector
6. Button „select“
7. Button „ok“
8. Status LED
9. Expert PDU energy 8001 Power Connector (10A)
10. 2 x Consumer Power Connector (10 A)
2.3 LCD-Panel

While booting up the device, the product name, the version of the firmware and the IP address of Expert PDU energy 8001 are visible:

- Product name (A) and version of the firmware (B)
- IP address (B) of Expert PDU energy 8001

![Powermeter V1.2 192.168.0.2](image)

After booting up energy consumption counters for both client channels are displayed:

- Channel 1 counter (D)
- Channel 2 counter (E)

![kWh1 000,000 kWh2 000,000](image)

2.4 Status LED

The Status LED (8) 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.
3. Configuration

3.1 Automatic configuration by using DHCP

After power-up, **Expert PDU energy 8001** looks for a DHCP server in the network and requests a free IP address from this server.

Please check at your DHCP server, which IP address was provided to **Expert PDU energy 8001** and make sure, that this IP address will be reserved.

3.2 Configuration by using **Gbl_Conf.exe**

To change the TCP/IP settings of your **Expert PDU energy 8001** you need the tool **Gbl_Conf.exe**. This tool can be found on the CD-ROM or is free to download from our website www.gude.info.

Additionally you can update the firmware, deactivate passwords and IP ACL and set **Expert PDU energy 8001** back to default settings, when you use this tool (see more in chapter 5).

To check the current configuration, please choose your **Expert PDU energy 8001** from the list in the left window.

If the displayed IP address is the default IP address (192.168.0.2) no DHCP server is located in your network or it was not possible to provide a free IP address to **Expert PDU energy 8001**.

In this case, activate the bootloader mode of **Expert PDU energy 8001** and enter a valid IP address and the network mask. Save your configuration: *Program Device→Save Config.*

Deactivate the bootloader mode of **Expert PDU energy 8001**. Then choose *Search→All Devices* to refresh the status of **Gbl_Conf.exe**.

![Figure 3 Gbl_Conf.exe](image)
3.3 Configuration by using the Webinterface

Open your Browser. Enter the IP address of Expert PDU energy 8001, to connect with it:

http://"IP-Address of Expert PDU energy 8001"/

and Login.

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

Configuration - Channels

Channel 1/Channel 2
Shows the energy consumption (kWh) since the last counter-reset for this channel.

Channel 1 total/Channel 2 total
Shows the energy consumption (kWh) since power up for this channel.

Reset Channel 1/Reset Channel 2
Click on the button to reset the counter of this channel.
Configuration - IP Address

Hostname
Enter the host name of **Expert PDU energy 8001**. **Expert PDU energy 8001** uses this name to connect with DHCP server.

Special signs may destabilize your network.

IP Address
Here you can change the IP address of **Expert PDU energy 8001**.

Netmask
Here you can change the netmask of **Expert PDU energy 8001**.

Gateway
Here you can change the standard gateway of **Expert PDU energy 8001**.

Use DHCP
Here you can set, if **Expert PDU energy 8001** shall get its TCP/IP settings directly from your DHCP server. If DHCP is activated, **Expert PDU energy 8001** proves if a DHCP server is active inside of your LAN. Then **Expert PDU energy 8001** 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 Expert PDU energy 8001 shell react on pings.

Enable IP Filter
Here you can activate the IP Access Control List (IP ACL) of Expert PDU energy 8001.

If you locked yourself out by mistake, please activate the bootloader mode of Expert PDU energy 8001, start Gbl_Conf.exe and deactivate IP ACL.

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

![Figure 7 Configuration IP ACL]
Configuration - HTTP

HTTP Port
Here you can enter the HTTP port number, if necessary. Possible numbers are 1 ... 65534 (standard: 80). To get access to Expert PDU energy 8001, you have to enter the port number behind the IP address of Expert PDU energy 8001:
http://192.168.0.2:1720/

Require HTTP Password
If it is required, you can activate a password request. Then you have to enter two passwords, one administrator password and one user password. Each password has a maximum length of 15 signs. If an administrator password is active you can log in to change settings only with this password. User are able to log in with the user password to see the monitor information.

If you have forgotten your password, activate the bootloader mode of Expert PDU energy 8001, start Gbl_Conf.exe and deactivate the password request.
Configuration - SNMP

Enable SNMP-get
Here you can activate SNMP of Expert PDU energy 8001

SNMP public community
Here you can enter the SNMP community public

Download SNMP-MIB
Here you can download the MIB of Expert PDU energy 8001.

Use SNMP only if your network is fitted for. More information about the SNMP functions of Expert PDU energy 8001, you can find in chapter 3.6, on http://www.gude.info/wiki or ask our support team.

Configuration - Syslog

Use Syslog
Here you can activate syslog of Expert PDU energy 8001.

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

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

IP Access Control List (IP ACL) acts as an IP filter for **Expert PDU energy 8001**. Whether it is active hosts and subnets only can contact **Expert PDU energy 8001**, 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 PDU energy 8001**, 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 [www.gude.info/wiki](http://www.gude.info/wiki).

3.5 SNMP

To get detailed status information of **Expert PDU energy 8001** SNMP can be used. SNMP communicates via UDP (port 161) with **Expert PDU energy 8001**.

Supported SNMP commands:
- SNMPGET: request status information
- SNMPGETNEXT: request the next status information

You will need a Network Management System, e.g. HP-Open View, OpenNMS, Nagios etc., or the command line tools of NETSNMP to request information of **Expert PDU energy 8001** 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 communitites 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 Expert PDU energy 8001:

„system“, „interface“ and „gadsExpert PDU energy 8001“
„system“ and „interface“ are standardised MIBs (MIB-II).
„gadsExpert PDU energy 8001“ (GUDEADS-Expert PDU energy 8001-MIB=“gadsExpert PDU energy 8001“) was created especially for Expert PDU energy 8001.

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.

You can find more information about configuration of SNMP in chapter 3.3 or have a look at 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, Expert PDU energy 8001 will send a syslog message:
- Booting up
- Switching off
- Activation/deactivation of syslog
- Load more than 10 A, load again less than 10 A

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

4.1 Operating at the device

To switch the device directly you can use the buttons „select“ and „ok“ on the front side. With „select“ you are able to switch between several menu items, to select one of them press the button „ok“. (see Figure 11)

![Figure 11 Menu](image-url)
4.2 Controlling Expert PDU energy 8001 by webinterface

Open your Browser. Enter the IP address of Expert PDU energy 8001, to connect with it:

http://"IP-Address of Expert PDU energy 8001"/

Figure 12 Login

and Login.

Expert PDU energy 8001 - Status

Channel
Shows the energy consumption (kWh) since the last counter reset for this channel.

Channel total
Shows the energy consumption (kWh) since power-up for this channel.

Active Power
Shows the current active power (W) of the consumer connected to this channel.

Apparent Power
Shows the current apparent power (VA) of the consumer connected to this channel.

Current
Shows the current (A) of this channel.

Figure 13 Status

Expert Power Meter - Status

<table>
<thead>
<tr>
<th>Channel 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel 1 total</td>
</tr>
<tr>
<td>Active Power</td>
</tr>
<tr>
<td>Apparent Power</td>
</tr>
<tr>
<td>Current</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Channel 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel 2 total</td>
</tr>
<tr>
<td>Active Power</td>
</tr>
<tr>
<td>Apparent Power</td>
</tr>
<tr>
<td>Current</td>
</tr>
</tbody>
</table>

Voltage: 221 V
(autorefresh: 3s)
5. Product Features

5.1 Bootloader mode

To activate the Bootloader mode of your **Expert PDU energy 8001** press the buttons „select“ and „ok“ simultaneously for three seconds.

Whether **Expert PDU energy 8001** is in Bootloader mode, you can see by using the **Gbl_Conf.exe**: „BOOT-LDR“ is added to the host name of your **Expert PDU energy 8001**. Moreover the status LED blinks regularly and the following information is shown on the LCD-Panel:

While your **Expert PDU energy 8001** is in Bootloader mode you can update the firmware, deactivate IP ACL and passwords and reset the device to fab settings.

To deactivate the Bootloader mode, press the buttons „select“ and „ok“ again simultaneously for three seconds.

5.2 Firmware update

To update the firmware of **Expert PDU energy 8001**, you need the software tool **Gbl_Conf.exe** and an up-to-date version of the firmware.

Activate the Bootloader mode of **Expert PDU energy 8001** and choose it in **Gbl_Conf.exe**. Now execute **Program Device→Firmware Update**, choose the location of the new firmware and confirm.

The up-to-date versions of the firmware and **Gbl_Conf.exe** can be downloaded from our website **www.gude.info**.
5.3 Technical information

Connections: Ethernet (RJ45)
- 2 IEC C19
- 8 IEC C13
- 1 IEC C20

Network: 10/100 MBit 10baseT Ethernet

Protocols: TCP/IP, HTTP, SNMP, Syslog

Power: 230 V, 10A

Temperature: 0°C-50°C

Dimensions: 19", 1 ru

5.4. Default Settings

In order to restore the default settings bootloader mode of Expert PDU energy 8001 must be activated (see 5.1). Besides that the program Gbl_Conf.exe is required.

Run Gbl_Conf.exe and select the Expert PDU energy 8001 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 Expert PDU energy 8001’s bootloader mode is deactivated.

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### Default Settings Expert PDU energy 8001

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Expert PDU energy</td>
</tr>
<tr>
<td>IP address</td>
<td>192.168.0.2</td>
</tr>
<tr>
<td>Netmask</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>Gateway</td>
<td>192.168.0.0</td>
</tr>
<tr>
<td>DHCP</td>
<td>enabled</td>
</tr>
<tr>
<td>Password</td>
<td>disabled</td>
</tr>
<tr>
<td>IP ACL</td>
<td>disabled</td>
</tr>
<tr>
<td>HTTP Port</td>
<td>80</td>
</tr>
</tbody>
</table>
6. Support

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

In case of further questions, about installation or operation of Expert PDU energy 8001, please have a look at www.gude.info/wiki and do not hesitate to contact our support
Die Firma / The manufacturer

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Mail: mail@gude.info

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

Produktkennzeichnung / Product name

Expert Power Meter
Energieverbrauchszähler für 2 Kanäle im 19" Gehäuse mit Ethernetschnittstelle

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

Referenz-Nummer / Reference no. Titel / Title

73/23/EWG / 73/23/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 55022:1998 + A1, A2 Information technology equipment: Radio disturbance characteristics - Limits and methods of measurement
EN 55024:1998 + A1, A2 Information technology equipment: Immunity characteristics - Limits and methods of measurement
EN 61000-3-2:2000 Elektromagnetische Verträglichkeit Teil 3-2: Grenzwerte - Grenzwerte für Oberschwingungsströme
EN 61000-3-2:2000 Electromagnetic compatibility Part 3-2 : Limits – Limits for harmonic current emissions
EN 60950:2000 Sicherheit von Einrichtungen der Informationstechnik
EN 60950:2000 Safety for Industrial Control Equipment

Köln, 21.09.2007

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