Power Distribution
Monitoring
Radio Time Systems
Isolators

2017
Dear customer,

we are glad to present you our current product portfolio by providing you with this catalogue. GUDE is manufacturer of innovative appliances for professionally run ICT infrastructure as in enterprise networks and data centers. Customers can choose between the following product divisions:

- Power Distribution Units (PDU)
- Remote Monitoring Systems
- Time Receivers and
- Interface Isolators.

We are proud to introduce a completely new product line to ICT responsibles: **Expert Bypass Switch 8701** and **Expert Transfer Switch 8801** are manual and automatic transfer switches that enable customers to benefit from increased availability and redundancy in existing rack installations (p.28-29).

Our customers appreciate continuous product maintenance that is reflected in periodic firmware and software updates as well as in all-round refined hardware releases: **Expert Power Control 8221-1** and **8226-1** are already successful follow-ups of the well established PDU series (p.12-13) while monitoring systems **Expert Net Control 2111** and **2191** provide a considerably more enhanced feature set as their predecessors (p.32-33).

Moreover we are partner supplier when it comes to providing customized solutions: From cable assembly, connector versions and coded plugs up to OEM versions of our products, we look into a possible collaboration. Feel free to contact us!

Kind regards

Dr. Michael Gude
Director GUDE Analog- und Digitalsysteme GmbH
The control center for your device management

With Network Monitoring Software you get a quick rundown of your GUDE devices in your network (example here: PRTG Network Monitor).

Network Monitoring Software allows you to control your equipment with one central application: A clear and graphed program interface supports you in keeping an eye on your network performance. Hereby you have all relevant key data of your server and rack environment at hand. As a rule the software solutions available on the market offer a broad range of features being essential for a sustainable IT management: E.g. display of energy consumption and sensor values, status of inputs and outputs including watchdogs as well as notifications and automated reports for set thresholds.

Deployment of Network Monitoring Software makes it possible to monitor Power Distribution Units and Remote I/O Systems of GUDE in real-time. Due to the collected data, system failures are avoided and downtimes are minimized. Compatible solutions are for example GFI, HP-OpenView, Incinga, MRTG, Nagios, OpManager, Power IQ, PRTG, Tivoli or WhatsUpGold.

By using the energy management solution Om7Sense, you can implement a central monitoring platform for all GUDE PDUs without a complex and costly installation: Either as software-based virtual machine in the network or as hardware-based gateway, a professional and cost efficient energy management is possible. The dashboard of Om7Sense combines ease of use with a high degree of functional integration: The user interface is comfortable to operate and allows controlling and monitoring of detailed analysis data by web browser or app. The software automatically recognizes IP devices and provides them with an IP address in your private network. Due to dropped configuration efforts, the rack becomes a smart rack at ease.

The dashboard of Om7Sense allows an extensive and clear collection, management and control of vital energy and environmental data of data centers.
Legend of symbols

- **Switchable Power Port**
- **Current metering**
- **Power outlets IEC C13 (max. 10 A)**
- **Metering of electrical dimensions**
- **Power outlets IEC C13-Lock (max. 10 A)**
- **Energy meter**
- **Power outlets IEC C19 (max. 16 A)**
- **Energy meter per port**
- **Power outlets Schuko (max. 16 A)**
- **Residual current monitor**
- **Switching relay output**
- **Overvoltage protection**
- **Signal input**
- **Integrated GSM module**
- **Transfer Switch**
- **Interface for external sensors**
- **Network interface**
- **Temperature sensor**
- **RS232 interface**
- **Relative humidity sensor**
- **USB interface**
- **Smoke detector**
- **Dual Circuit**
- **Leakage sensor**
- **Operation with AC and DC power supply possible**
- **Air pressure sensor**
- **Power supply by Power-over-Ethernet**
- **Manageable by iOS/Android app Gude Control**
- **Programmable turn-on/turn-off sequence**

The number underneath the symbol reveals the feature quantity per device, e.g., 24 signal inputs:
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GUDE is supplier for customized and OEM products

With over 30 years of experience in the industry, GUDE considers oneself as a quality supplier of premium and innovative ICT products. From day one, the customer’s needs are being focused: What are typical issues of ICT experts in the field? Which intelligent products could contribute to their solution? GUDE understands product development as a dynamic and accessible procedure, in which customers’ know-how can serve as initiator. Because one thing we have learned is this: The competence and practical experience of responsibles in the ICT industry often contains the greatest potential for the development of smart solutions.

Against this background, GUDE has also become known as a supplier for customized solutions: Cable extensions, connector versions and OEM variants of our products enable our customers to meet their requirements. This can range from onetime project business to long-term partnership as technology supplier.

On these two pages, we would like to present examples of current project solutions being deployed in data centers: A switched and metered PDU with up to 30 ports (Expert Power Control 87 Series) as well as a 3-phase Inline Meter with up to six power outlets and hotswap drawer (Expert PDU Energy 8350/8351/8352 Series). The devices dispose of two sensor ports for environment monitoring, different connector types of outlets and inlets are available upon request.

### Expert Power Control 87 Series

**Switched and metered PDU with up to 30 load outlets and energy metering per bank**

**Features**

- Up to 30 Power Ports in 3 banks
- Power Ports individually switchable directly on the device, via HTTP or command line tool
- 2 energy meters per bank, one meter continuously, the other resettable
- Metering of energy, current, power factor, phase angle, frequency, voltage and active / apparent / reactive power per bank
- Status and Power-up delay (0...9999 seconds) adjustable individually for each Power Port after power blackout
- Latency time of 1 second prevents simultaneous power-up of multiple Power Ports
- Programmable turn-on/turn-off sequence
- 30-channel watchdog, an individual watchdog (ICMP/TCP) can be assigned for each Power Port
- A clearly visible LED display per bank for total current, IP address, sensor data and error reports
- Integrated overvoltage protection prevents damage of device and connected consumers (L-N 10 kA)
- 2 interfaces for optional sensors for environmental monitoring (temperature and humidity)
- Internal beeper for acoustic alarm for set sensor thresholds
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- HTTP 1.1, e-mail, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Access control via IP Access Control List
- Access control via optional HTTP password
- Low internal power consumption
- Android and iOS app Gude Control allows access from anywhere
- Developed and manufactured in Germany
- Also with residual and neutral current monitoring available

**Electrical Connections**

- 1 power supply: IEC C20 max. 16 A or CEE max. 3 x 16 A
- Up to 30 Power Ports (Schuko, IEC C13 or IEC C19)
- Ethernet connector RJ45 (10/100 Mbit/s)
- 2 sensor interfaces (RJ45) for optional sensors

**Technical Details**

- Case for vertical rack mounting (0 RU), LxHxD: 179 x 6 x 7 cm
- Weight: ca. 8.1 kg
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)
**Expert PDU Energy 8350-/8351-/8352-Serie**

3-phase Inline Meter with hotswap drawer and integrated current metering and monitoring

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**Features**

- Hotswap drawer allows replacement of processor/power supply unit at uninterrupted power supply of connected loads
- Metering of up to 2 separate 3-phase systems
- 1 or 2 external connector boxes for circuit monitoring (8350, 8351)
- For each metering of energy, current, power factor, phase angle, frequency, voltage and active/apparent/reactive power
- 2 energy meters per phase, one meter continuously, the other resettable
- Firmware update via Ethernet during operation
- Clearly visible LED display for total current per phase and phase status

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**Order code** | **Product** | **Feature** | **Max. Current**
--- | --- | --- | ---
87 Series | Expert Power Control 87 Series | Up to 30 load outlets (Schuko, IEC C13 or IEC C19), energy metering per bank | 3 x 16 A
8350 | Expert PDU Energy 8350 Series | 3-phase Inline Meter, hotswap drawer, external connector box | 3 x 16 A
8351 | Expert PDU Energy 8351 Series | 2-fold 3-phase Inline Meter, hotswap drawer, 2 external connector boxes | 2 x 3 x 16 A
8352-1 | Expert PDU Energy 8352-1 | 2-fold 3-phase Inline Meter, hotswap drawer, 6 load outlets, 2 measuring circuits | 2 x 3 x 16 A
8352-2 | Expert PDU Energy 8352-2 | 3-phase Inline Meter, hotswap drawer, 6 load outlets, 2 measuring circuits | 3 x 32 A
7101 | Temperature Sensor 7101 | -20°C to +80°C | 300-1100 hPa / -20°C to +80°C / 0-90% humidity
7102 | Temp./Humidity Sensor 7102 | -20°C to +80°C / 0-90% humidity | 300-1100 hPa / -20°C to +80°C / 0-90% humidity
7103 | Air pressure/Temp./Humidity Sensor 7103 | -20°C to +80°C | 300-1100 hPa / -20°C to +80°C / 0-90% humidity
7201 | Temperature Sensor 7201 | -20°C to +80°C | 300-1100 hPa / -20°C to +80°C / 0-90% humidity
7202 | Temp./Humidity Sensor 7202 | -20°C to +80°C / 0-90% humidity | 300-1100 hPa / -20°C to +80°C / 0-90% humidity
7203 | Air pressure/Temp./Humidity Sensor 7203 | -20°C to +80°C | 300-1100 hPa / -20°C to +80°C / 0-90% humidity

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IPv6, SSL, SNMPv3 & Telnet

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Expert PDU Energy 8350 / 8351

Enhanced failure safety due to external connector boxes

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Expert PDU Energy 8352-2

6 automatic cut-outs at 16 A for each load outlet
The devices of **Expert Power Control** family offer a broad range of features making them perfectly suitable for optimizing and enhancing your IT infrastructure. The Switched Power Distribution Units are tailored for mounting in server and switching cabinets (rack) and in more compact bodies for deployment in offices and conference rooms (desktop).

Besides single- or multi-phase power distribution, customers can choose between port granularities of up to 24 switchable outlets as well as different connector types. Metering of energy and consumption are integrated into most devices. Total current metering allows for load estimation and planning of appliance upgrades in cabinets. Users have the choice between unit- or outlet-metered devices depending on application requirements. A variety of electrical dimensions is covered, e.g. voltage, frequency, active/apparent/reactive power, power factor and phase angle.

Integrated sensor interfaces allow environment monitoring regarding temperature, relative humidity and air pressure. For this purpose, plug-and-play sensors are optionally available in order to enable a swift infrastructure upgrade.

Network connectivity, watchdog functionality and user-defined alarms for sensor and power consumption thresholds allow flexible and advanced remote monitoring and controlling. Many of the **Expert Power Control** devices make event-based switching procedures possible. System conditions are regulated through these digital control loops by triggering power-up or cutoff of connected consumers in realtime. No additional hardware or software is required.

All PDUs are designed for configuration and operation via network, just a plain web browser is sufficient. Web server, SNMP and Syslog are integrated in all devices. In addition, all new appliances of **Expert Power Control** family support IPv6, SSL, SNMPv3, Radius, Modbus TCP as well as Telnet and herewith comply to current security standards.

As a distinct feature, **Expert Power Control 1292** and **8090** dispose of an integrated GSM module, allowing remote control from locations without Internet access or in case of network failure.

The **Expert Power Control** line is characterized by sturdy housings and significant manufacture. 19 inch devices dispose of solid steel cases. Customers benefit from highly luminous LED lights, good readable displays and ease of operation – remote and on-site. Premium high-inrush relays assure continuity of operations: these relays can cope temporarily with very high start-up peaks while switching.

All products and their software (including firmware) are developed, manufactured and tested in Germany under high quality standards. Free software updates and technical support as well as continuous product development are integral part of all devices.
Application Scenario for Expert Power Control 8226-1

The following data center scenario serves as an application example for **Expert Power Control 8226-1**: A standard 19 inch rack with 12 servers is deployed with customer critical applications running on the servers. The user’s target: to implement a reliable power distribution as well as an intelligent device management regarding capacity and system monitoring - all at a reasonable cost-benefit ratio.

As for the extension of the IT infrastructure, typical objectives arising are e.g.:  
- Enhancement of energy efficiency  
- Metering of energy consumption on rack and server level in real time  
- Implementation of a reliable environment monitoring  
- Prevention of down-times and of system critical conditions  
- To ensure instant remote access in case of need  
- Support of commonly used authentication and encryption protocols

**Expert Power Control 8226-1** is mounted in a free RU space of a 19 inch rack. Both IEC C20 power supplies (max. 16 A, 230 V) allow a total switching power of 7500 W for the servers. Thanks to the integrated sensor interfaces, environment monitoring is easily realized by connecting plug-and-play sensors: **Sensor 7101** and **7102** make it possible to retrieve temperature and humidity data from different corners of the rack. Selectable threshold and reporting settings enable users to dispose of relevant monitoring data for their power supply infrastructure. Hence, appropriate actions can be taken before problems occur.

Moreover integrated energy meters allow precise measuring and logging of power consumption, both on unit and on outlet level.

Configuration and control of **Expert Power Control 8226-1** is possible by local access and remotely by web interface. This control panel implies a location-independent managing and monitoring of the PDU at ease of operation. Secure communication and authentication is assured by extensive protocol support. Besides, the power distribution unit can be integrated in customary monitoring software without efforts.
## Switched & Metered PDU for rack mounting

<table>
<thead>
<tr>
<th>Article Number</th>
<th>8012</th>
<th>8080 Series</th>
<th>8090</th>
<th>8210/8211</th>
<th>8212/8213</th>
<th>8221-1/8226-1</th>
<th>8316-1/8316-2</th>
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<tr>
<td><strong>Mounting Type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>19 inch, 1 RU</td>
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<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>Rack vertical, 0 RU</td>
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<td>●</td>
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<tr>
<td><strong>Power Connectors</strong></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Front connectors</td>
<td>●</td>
<td>●</td>
<td>- / ●</td>
<td>- / ●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear connectors</td>
<td>●</td>
<td>●</td>
<td>● / -</td>
<td>● / -</td>
<td>●</td>
<td></td>
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<tr>
<td><strong>Current</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total current (A)</td>
<td>16</td>
<td>16 / 32 / 3×16</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>2 × 16</td>
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<tr>
<td>Current per port (A)</td>
<td>10</td>
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<td>10</td>
<td>10</td>
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<td>16 / 10</td>
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<td>Integrated fuses (16 A)</td>
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<td>Overvoltage protection</td>
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<tr>
<td><strong>Power Inputs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Schuko (max. 16 A)</td>
<td>1 (8080)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>CEE 1-phase (max. 16 A)</td>
<td>1 (8081)</td>
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<td>●</td>
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<td>CEE 1-phase (max. 32 A)</td>
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<tr>
<td>CEE 3-phase (max. 3 × 16 A)</td>
<td>1 (8083)</td>
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<td>IEC C20 (max. 16 A)</td>
<td>1 (8084)</td>
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<td>●</td>
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<tr>
<td><strong>Power Outlets</strong></td>
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<td>IEC-Lock C13 (max. 10 A)</td>
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<td>IEC C13 (max. 10 A)</td>
<td>3 × 8</td>
<td>8</td>
<td>8</td>
<td>4</td>
<td>2 × 6</td>
<td>- / 8</td>
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<tr>
<td>Schuko (max. 16 A)</td>
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<td>●</td>
<td>●</td>
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<td><strong>Technical Features</strong></td>
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<tr>
<td>Metering of ... total current per bank/phase</td>
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<td>●</td>
<td>●</td>
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<td>diversified electrical dimensions*</td>
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<tr>
<td>Energy meters (kWh)</td>
<td>2 × 2 / 14 × 2</td>
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<td>Outlet-metered</td>
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<td>Event-based switching</td>
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<td>Sensor interfaces</td>
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<td>2</td>
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<tr>
<td>Digits display (number of digits)</td>
<td>1 (4)</td>
<td>1 (4)</td>
<td>2 (4)</td>
<td>1 (3)</td>
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<tr>
<td>Internal alarm beeper</td>
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<td>RS232</td>
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<td>●</td>
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<td>Integrated webserver</td>
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<td>E-mail</td>
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<td>●</td>
<td>●</td>
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<td>DHCP, SNMPv1/v2c, Syslog</td>
<td>●</td>
<td>●</td>
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<td>●</td>
<td>●</td>
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<tr>
<td>IPv6, SSL, SNMPv3, Telnet, Radius, Modbus TCP</td>
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<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>Manageable by Gude control app</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Voltage (V), phase angle (°), power factor, frequency (Hz), active power (W), apparent power (VA), reactive power (VAR)
Expert Power Control 8012

8-fold switched PDU with IEC Locks

Features
- 8 Power Ports individually switchable directly on the device, via HTTP, command line tool and RS232 serial interface
- Status and Power-up delay (0...9999 seconds) adjustable individually for each Power Port after power blackout
- Latency time of 1 second prevents simultaneous power-up of multiple Power Ports
- Programmable turn-on/turn-off sequence
- Interface for optional sensors for environmental monitoring
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- HTTP 1.1, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Access control via IP Access Control List
- Access control via optional HTTP password
- Low internal power consumption, typ. 5 W
- Developed and manufactured in Germany

Electrical Connections
- 1 power supply (IEC C20, max. 16 A)
- 8 Power Ports (IEC-lock C13, max. 10 A)
- Ethernet connector RJ45 (10/100 Mbit/s)
- Serial interface RS232 (Sub-D 9-pin)
- RJ11 connector for optional temperature sensor

Technical Details
- Dimensions: 19 inch, 1 rack unit
- LxHxD: 43.9 x 4.4 x 15.0 cm (without brackets)
- Weight: ca. 2.3 kg
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

Order code | Product | Feature | Operating Voltage | Maximum Current |
--- | --- | --- | --- | --- |
8012 | Expert Power Control 8012 | Power connectors on rear panel, IEC-lock sockets | 230 V | 16 A |
7000 | Temperature Sensor 7000 | -20°C to +80°C | | |
0807 | Cable Holder 0807 | 13 fixation bridges for load cables | | |
Expert Power Control 8080 Series

24-fold switched PDU with integrated current metering

Features

- 24 Power Ports individually switchable directly on the device, via HTTP and command line tool
- Status and Power-up delay (0...9999 seconds) adjustable individually for each Power Port after power blackout
- Latency time of 1 second prevents simultaneous power-up of multiple Power Ports
- Programmable turn-on/turn-off sequence
- Metering of total current per phase (8083) respectively per bank (single phase) with 8 Power Ports each
- Operation one-phase or three-phase dependent on power supply selection
- 16 A fuse per phase/bank (8 Power Ports each)
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- HTTP 1.1, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Access control via IP Access Control List
- Access control via optional HTTP password
- Low power consumption, typ. 8 W
- Developed and manufactured in Germany

Electrical Connections

- 1 power supply, cable length ca. 2 m:
  - Schuko, max. 16 A (8080)
  - CEE, max. 16 A (8081)
  - CEE, max. 32 A (8082)
  - CEE, max. 3 x 16 A (8083)
  - IEC C20, max. 16 A (8084)
- 24 Power Ports (IEC C13, max. 10 A)
- Ethernet connector RJ45 (10/100 Mbit/s)

Technical Details

- Case allows vertical mounting in 19 inch racks (0 RU)
  - LxHxD: 156.5 x 6 x 6 cm (length including brackets)
  - Weight: ca. 5.0 kg
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

Order code  Product Feature Operating Voltage Max. Current

<table>
<thead>
<tr>
<th>Order code</th>
<th>Product Feature</th>
<th>Operating Voltage</th>
<th>Max. Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>8080</td>
<td>Expert Power Control 8080</td>
<td>Power supply Schuko, current metering per bank</td>
<td>230 V</td>
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<tr>
<td>8081</td>
<td>Expert Power Control 8081</td>
<td>Power supply CEE, 16 A, current metering per bank</td>
<td>230 V</td>
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<tr>
<td>8082</td>
<td>Expert Power Control 8082</td>
<td>Power supply CEE, 32 A, current metering per bank</td>
<td>230 V</td>
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<tr>
<td>8083</td>
<td>Expert Power Control 8083</td>
<td>Power supply CEE, 3 x 16 A, current metering per phase</td>
<td>230 V</td>
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<td>8084</td>
<td>Expert Power Control 8084</td>
<td>Power supply IEC C20, current metering per bank</td>
<td>230 V</td>
</tr>
</tbody>
</table>
**Power Distribution**

### Expert Power Control 8090

8-fold switched PDU for GSM networks

![Power Distribution](image)

#### Features
- 8 Power Ports individually switchable directly on the device, via HTTP, command line tool and additionally via voicecall, SMS and Datacall
- Status and Power-up delay (0...9999 seconds) adjustable individually for each Power Port after power blackout
- Latency time of 1 second prevents simultaneous power-up of multiple Power Ports
- Programmable turn-on/turn-of sequence
- 8-channel watchdog, an individual watchdog (ICMP/TCP) can be assigned for each Power Port
- GSM admin and user access for all Power Ports definable
- For pre-paid and post-paid SIM cards (SIM card not included)
- Triband network
- FreeCall: Predefined action upon toll-free incoming call from a specific number
- Interface for optional sensors for environmental monitoring
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- HTTP 1.1, e-mail, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Access control via IP Access Control List
- Access control via optional HTTP password
- Low power consumption, typ. 5 W
- Developed and manufactured in Germany

#### Electrical Connections
- 1 power supply (IEC C20, max. 16 A)
- 8 Power Ports (IEC C13, max. 10 A)
- Ethernet connector RJ45 (10/100 Mbit/s)
- RJ11 connector for optional temperature sensor
- Connector for GSM antenna (antenna included in delivery)
- Slot for SIM card

#### Technical Details
- Dimensions: 19 inch, 1 rack unit
- LxHxD: 43.9 x 4.4 x 15.0 cm (without brackets)
- Weight: ca. 2.8 kg
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

---

**Order code** | **Product** | **Feature** | **Operating Voltage** | **Maximum Current**
--- | --- | --- | --- | ---
8090 | Expert Power Control 8090 | Power connectors on rear panel, integrated GSM module, GSM antenna incl. in delivery (cable length: 2 m) | 230 V | 16 A
7000 | Temperature Sensor 7000 | -20°C to +80°C |  |  
0807 | Cable Holder 0807 | 13 fixation bridges for load cables |  |  

---

Power connectors on rear panel

---
Expert Power Control 8210 / 8211

8-fold switched PDU with integrated current metering

**Features**

- 8 Power Ports individually switchable directly on the device, via HTTP, command line tool and RS232 serial interface
- Status and Power-up delay (0...9999 seconds) adjustable individually for each Power Port after power blackout
- Latency time of 1 second prevents simultaneous power-up of multiple Power Ports
- Programmable turn-on/turn-off sequence
- 8-channel watchdog, an individual watchdog (ICMP/TCP) can be assigned for each Power Port
- Clearly visible LED display for total current (actual, peak), IP address, sensor data and error reports
- 2 interfaces for optional sensors for environmental monitoring (temperature and humidity)
- Internal beeper for acoustic alarm for set sensor thresholds
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- HTTP 1.1, e-mail, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Access control via IP Access Control List
- Access control via optional HTTP password
- Android and iOS app Gude Control allows access from anywhere

**Low internal power consumption, typ. 5 W**

**Electrical Connections**

- 1 power supply (IEC C20, max. 16 A)
- 8 Power Ports (IEC C13, max. 10 A)
- Ethernet connector RJ45 (10/100 Mbit/s)
- 2 mini-DIN connectors for optional sensors or serial interface

**Technical Details**

- Dimensions: 19 inch, 1 rack unit
- LxHxD: 43.9 x 4.4 x 12.0 cm (without brackets)
- Weight: ca. 2.2 kg
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

---

**Order code** | **Product** | **Feature** | **Operating Voltage** | **Maximum Current**
---|---|---|---|---
8210 | Expert Power Control 8210 | Power connectors on rear panel | 230 V | 16 A
8211 | Expert Power Control 8211 | Power connectors on front panel | 230 V | 16 A
7001 | Temperature Sensor 7001 | -20°C to +80°C | | |
7002 | Temp./Humidity Sensor 7002 | -20°C to +80°C / 0-90% humidity | | |
7990 | RS232 Adapter Cable 7990 | Connector cable for RS232 to mini-DIN 6, cable length ca. 2.3 m | | |
Expert Power Control 8212 / 8213

4-fold switched PDU with integrated current metering

Features

- 4 Power Ports individually switchable directly on the device, via HTTP, command line tool and RS232 serial interface
- Status and Power-up delay (0...9999 seconds) adjustable individually for each Power Port after power blackout
- Latency time of 1 second prevents simultaneous power-up of multiple Power Ports
- Programmable turn-on(turn-off sequence
- 4-channel watchdog, an individual watchdog (ICMP/TCP) can be assigned for each Power Port
- Clearly visible LED display for total current (actual, peak), IP address, sensor data and error reports
- 2 interfaces for optional sensors for environmental monitoring (temperature and humidity)
- Internal beeper for acoustic alarm for set sensor thresholds
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- HTTP 1.1, e-mail, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Access control via IP Access Control List
- Access control via optional HTTP password
- Android and iOS app Gude Control allows access from anywhere
- Low internal power consumption, typ. 5 W
- Developed and manufactured in Germany

Electrical Connections

- 1 power supply (IEC C20, max. 16 A)
- 4 Power Ports (IEC C13, max. 10 A)
- Ethernet connector RJ45 (10/100 Mbit/s)
- 2 mini-DIN connectors for optional sensors or serial interface

Technical Details

- Dimensions: 19 inch, 1 rack unit
- LxHxD: 43.9 x 4.4 x 12.0 cm (without brackets)
- Weight: ca. 2.2 kg
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

Order code | Product | Feature | Operating Voltage | Maximum Current |
---|---|---|---|---|
8212 | Expert Power Control 8212 | Power connectors on rear panel | 230 V | 16 A |
8213 | Expert Power Control 8213 | Power connectors on front panel | 230 V | 16 A |
7001 | Temperature Sensor 7001 | -20°C to +80°C | | |
7002 | Temp./Humidity Sensor 7002 | -20°C to +80°C / 0-90% humidity | | |
7990 | RS232 Adapter Cable 7990 | Connector cable for RS232 to mini-DIN 6, cable length ca. 2.3 m | | |
Expert Power Control 8221-1 and Expert Power Control 8226-1

12-fold switched PDU with integrated current metering and monitoring

Highlights at a glance
- 2 independent banks of 6 load outlets
- Energy metering per bank (8221-1)
- Energy metering per bank and per load outlet (8226-1)
- Event-based switching
- Total switching power: 7500 W
- IPv6, SSL and SNMPv3
- Telnet, Radius and Modbus TCP supported
- Integrated overvoltage protection

1. Switched
Both PDUs are fed by two separate power supplies (IEC C20) and dispose of twelve load outlets on the rear panel (IEC C13). These power ports can be switched individually by webinterface, app, SNMP, serial interface or button on the device. To meet increasing power density in modern ICT infrastructures, a total switching power of 7500 W respectively 32 A can be realized through two separate power supplies.

2. Metered
Power ports are arranged in two separate groups at six power ports each. Integrated energy meters allow unit metering per group (8221-1 and 8226-1) as well as outlet metering per port (8226-1). Because of accurate metering electronic, a reliable consumption measurement and load estimation is possible by parameters such as current, voltage, phase angle, power factor and frequency.

3. Monitored
Two integrated sensor interfaces for optional available sensors enable customers to comfortably monitor environment temperature, humidity and air pressure. Due to real-time surveillance and early overload and threshold alarms, critical system conditions and down-times can be avoided. Thanks to plug-and-play sensors, startup operation is quickly done.

The completely refined PDUs are perfectly suitable for optimizing professional ICT environments. Both 19 inch appliances occupy one rack unit in the switching cabinet and contribute to enhanced energy efficiency and failure safety of existing network components. Besides energy distribution and metering, Expert Power Control 8221-1 and 8226-1 dispose of appropriate features for monitoring and switching of up to twelve connected loads. Furthermore the dual-circuit PDUs allow event-based switching due to configured thresholds for energy and sensor values. The devices support current security standards such as IPv6 addresses, SSL encryption, SNMPv3 as well as Telnet, Radius and Modbus TCP. Both integrated sensor ports enable real-time monitoring of temperature, humidity and air pressure in the rack. Thanks to webinterface, app and compatible network monitoring software (e.g. PRTG, Nagios or PowerIQ), both local and remote accesses can easily be realized.
Features

- 12 Power Ports individually switchable directly on the device, via HTTPS, SNMP, command line tool and RS232 serial interface
- Status and Power-up delay (0...9999 seconds) adjustable individually for each Power Port after power blackout
- Latency time of 1 second prevents simultaneous power-up of multiple Power Ports
- Paired switching of outlets possible, e.g. output 1 of bank 1 simultaneously with output 1 of bank 2
- Programmable turn-on/turn-off sequence
- 2 energy meters per bank and for 8226-1 also per load outlet; one meter continuously, the other resettable
- Metering of energy, current, power factor, phase angle, frequency, voltage and active / apparent / reactive power
- A clearly visible LED display per bank for total current, IP address, sensor data and error reports
- 12-channel watchdog, an individual watchdog (ICMP/TCP) can be assigned for each Power Port
- 2 independent power inputs of 230 V for the same or different phases
- Integrated overvoltage protection prevents damage of device and of connected consumers (L-N 10 kA), status retrievable over network
- 2 interfaces for optional sensors for environmental monitoring (temperature, humidity and air pressure)
- Event-based port switching possible by set sensor thresholds
- Internal beeper for acoustic alarm for set sensor thresholds
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- IPv6-ready
- HTTP/HTTPS, e-mail (SSL, STARTTLS), DHCP, Syslog
- SNMPv1, v2c, v3 (Get/Traps)
- TLS 1.0, 1.1, 1.2
- Telnet, Radius and Modbus TCP support
- Access control via IP Access Control List
- Android and iOS app Gude Control allows access from anywhere
- Low internal power consumption, typ. 5 W/ 7 W (8221-1 / 8226-1)
- Developed and manufactured in Germany

Electrical Connections

- 2 Power supplies (IEC C20, max. 16 A, 230 V)
- 2 x 6 Power Ports (IEC C13, max. 10 A)
- Ethernet connector RJ45 (10/100 Mbit/s)
- Serial interface RS232 (Sub-D 9-pin)
- 2 RJ45 interfaces for optional sensors

Technical Details

- Dimensions: 19 inch, 1 rack unit
- LxHxD: 45.9 x 4.4 x 19.5 cm (without brackets)
- Weight: ca. 2.9 kg
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

Order code | Product | Feature | Operating Voltage | Max. Current |
------------|---------|---------|------------------|--------------|
8221-1      | Expert Power Control 8221-1 | Energy metering per bank | 230 V | 2 x 16 A |
8226-1      | Expert Power Control 8226-1 | Energy metering per bank and per power port | 230 V | 2 x 16 A |
7101        | Temperature Sensor 7101     | -20°C to +80°C |  |  |
7102        | Temp./Humidity Sensor 7102 | -20°C to +80°C / 0-90% humidity |  |  |
7103        | Air pressure/Temp./Humidity Sensor 7103 | 300-1100 hPa / -20°C to +80°C / 0-90% humidity, cable ca. 2,3 m |  |  |
7201        | Temperature Sensor 7201     | -20°C to +80°C |  |  |
7202        | Temp./Humidity Sensor 7202 | -20°C to +80°C / 0-90% humidity |  |  |
7203        | Air pressure/Temp./Humidity Sensor 7203 | 300-1100 hPa / -20°C to +80°C / 0-90% humidity |  |  |
0807        | Cable Holder 0807           | 13 fixation bridges for load cables |  |  |
Power Distribution

Expert Power Control 8316 Series

8-fold switched PDU with integrated current metering per load outlet

Features

- 8 Power Ports individually switchable directly on the device, via HTTP, command line tool and RS232 serial interface
- Status and Power-up delay (0...9999 seconds) adjustable individually for each Power Port after power blackout
- Start-up peaks through simultaneous port switching prevented by latency time of 1 second
- Programmable turn-on(turn-off sequence
- 2 energy meters per power outlet, one meter continuously, the other resettable
- Metering of energy, current, power factor, phase angle, frequency, voltage and active / apparent / reactive power
- Clearly visible LED display for total current, IP address, sensor data and error reports
- 8-channel watchdog, an individual watchdog (ICMP/TCP) can be assigned for each Power Port
- 2 interfaces for optional sensors for environmental monitoring (temperature, humidity and air pressure)
- Event-based port switching possible by set sensor thresholds
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- IPv6-ready
- HTTP/HTTPS, e-mail (SSL, STARTTLS), DHCP, Syslog
- SNMPv1, v2c, v3 (Get/Traps)
- TLS 1.0, 1.1, 1.2
- Radius and Modbus TCP protocol supported
- Configuration and control over Telnet
- Access control via IP Access Control List
- Low power consumption
- Developed and manufactured in Germany

Electrical Connections

- 1 power supply (IEC C20, max. 16 A)
- 8 Power Ports (Schuko, max. 16 A or IEC C13, max. 10 A)
- Ethernet connector RJ45 (10/100 Mbit/s)
- Serial interface RS232 (Sub-D 9-pin)
- 2 sensor interfaces (RJ45) for optional sensors
- Event-based port switching possible by set sensor thresholds
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- IPv6-ready
- HTTP/HTTPS, e-mail (SSL, STARTTLS), DHCP, Syslog
- SNMPv1, v2c, v3 (Get/Traps)
- TLS 1.0, 1.1, 1.2
- Radius and Modbus TCP protocol supported

Order code Product Feature Operating Voltage Max. Current
8316-1 Expert Power Control 8316-1 8 Power Ports Schuko, energy metering per load outlet 230 V 16 A
8316-2 Expert Power Control 8316-2 8 Power Ports IEC C13, energy metering per load outlet 230 V 16 A
7101 Temperature Sensor 7101 -20°C to +80°C
7102 Temp./Humidity Sensor 7102 -20°C to +80°C / 0-90% humidity
7103 Air pressure/Temp./Humidity Sensor 7103 300-1100 hPa / -20°C to +80°C / 0-90% humidity, cable ca. 2,3 m
7201 Temperature Sensor 7201 -20°C to +80°C
7202 Temp./Humidity Sensor 7202 -20°C to +80°C / 0-90% humidity
7203 Air pressure/Temp./Humidity Sensor 7203 300-1100 hPa / -20°C to +80°C / 0-90% humidity

Highlights at a glance

- 8 Power Ports
- Outlet-metered
- Event-based switching
- Energy metering
- 2 connector types available
- Vertical mounting

Technical Details

- Case allows vertical mounting in 19 inch racks (0 RU), LxHxD: 69 x 6 x 7 cm (length including pivotable brackets)
- Weight: ca. 2.8 kg
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)
# Switched & Metered PDU for desktop installations

<table>
<thead>
<tr>
<th>Article Number</th>
<th>1100 / 1101</th>
<th>1102 / 1103</th>
<th>1202 Series</th>
<th>1292 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
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<tr>
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<td>Bar</td>
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<td>Overvoltage protection</td>
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<td><strong>Power Inputs</strong></td>
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<tr>
<td>IEC C14 (max. 10 A)</td>
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<td>Schuko plug type F (max. 16 A)</td>
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<td>1 (1292-1)</td>
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<tr>
<td>Schuko plug type E (max. 16 A)</td>
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<td>Schuko plug type J (max. 10 A)</td>
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<td>1 (1292-3)</td>
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<td><strong>Power Connectors</strong></td>
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<tr>
<td><strong>Technical Features</strong></td>
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<td>Metering of ... total current</td>
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<td>Event-based switching</td>
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<td>Sensor interface</td>
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<td>Internal alarm beeper</td>
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<td>Integrated webservice</td>
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<td>Watchdogs</td>
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<td>E-mail</td>
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<td>DHCP, SNMPv1/v2c, Syslog</td>
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<td>IPv6, SSL, SNMPv3, Telnet, Radius, Modbus TCP</td>
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<td>Manageable by Gude Control app</td>
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</tbody>
</table>

* Voltage (V), phase angle (°), power factor, frequency (Hz), active power (W), apparent power (VA), reactive power (VAR)
Expert Power Control 1100 / 1101

Switched PDU with integrated current metering and monitoring with Schuko or IEC port

**Features**
- 1 Power Port switchable directly on the device, via HTTP and command line tool
- Adjustable status and Power-up delay (0...9999 seconds) after power blackout
- Programmable turn-on/turn-off sequence
- Metering of energy, current, power factor, phase angle, frequency, voltage and active / apparent / reactive power
- 2 energy meters, one meter continuously, the other resettable
- 1-channel watchdog, a watchdog (ICMP/TCP) can be assigned for Power Port
- Interface for optional sensors for environmental monitoring (temperature and humidity)
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- HTTP 1.1, e-mail, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Access control via IP Access Control List
- Access control via optional HTTP password
- Android and iOS app Gude Control allows access from anywhere
- Low internal power consumption, typ. 5 W
- Developed and manufactured in Germany

**Electrical Connections**
- 1 power supply
  - Schuko, max. 16 A (1100)
  - IEC C14, max. 10 A (1101)
- 1 Power Port
  - Schuko, max. 16 A (1100)
  - IEC C13, max. 10 A (1101)
- Ethernet connector RJ45 (10/100 Mbit/s)
- Mini-DIN connector for optional sensor

**Technical Details**
- LxHxD: 12 x 6.5 x 9.5 cm
- Weight: ca. 0.3 kg
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

<table>
<thead>
<tr>
<th>Order code</th>
<th>Product</th>
<th>Feature</th>
<th>Operating Voltage</th>
<th>Maximum Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>1100</td>
<td>Expert Power Control 1100</td>
<td>Schuko connector, energy metering</td>
<td>230 V</td>
<td>16 A</td>
</tr>
<tr>
<td>1101</td>
<td>Expert Power Control 1101</td>
<td>IEC connector, energy metering</td>
<td>230 V</td>
<td>10 A</td>
</tr>
<tr>
<td>7001</td>
<td>Temperature Sensor 7001</td>
<td>-20°C to +80°C</td>
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<tr>
<td>7002</td>
<td>Temp./Humidity Sensor 7002</td>
<td>-20°C to +80°C / 0-90% humidity</td>
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<td></td>
</tr>
</tbody>
</table>
**Expert Power Control 1102 / 1103**

Switched PDU with Schuko or IEC port

---

**Features**

- 1 Power Port switchable directly on the device, via HTTP and command line tool
- Adjustable status and Power-up delay (0...9999 seconds) after power blackout
- Programmable turn-on/turn-off sequence
- 1-channel watchdog, a watchdog (ICMP/TCP) can be assigned for Power Port
- Interface for optional sensors for environmental monitoring (temperature and humidity)
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- HTTP 1.1, e-mail, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Access control via IP Access Control List
- Access control via optional HTTP password
- Android and iOS app Gude Control allows access from anywhere
- Low internal power consumption, typ. 5 W
- Developed and manufactured in Germany

**Electrical Connections**

- 1 power supply
  - Schuko, max. 16 A (1102)
  - IEC C14, max. 10 A (1103)
- 1 Power Port
  - Schuko, max. 16 A (1102)
  - IEC C13, max. 10 A (1103)
- Ethernet connector RJ45 (10/100 Mbit/s)
- Mini-DIN connector for optional sensor

**Technical Details**

- LxHxD: 12 x 6.5 x 9.5 cm
- Weight: ca. 0.3 kg
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

---

<table>
<thead>
<tr>
<th>Order code</th>
<th>Product</th>
<th>Feature</th>
<th>Operating Voltage</th>
<th>Maximum Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>1102</td>
<td>Expert Power Control 1102</td>
<td>Schuko connector</td>
<td>230 V</td>
<td>16 A</td>
</tr>
<tr>
<td>1103</td>
<td>Expert Power Control 1103</td>
<td>IEC connector</td>
<td>230 V</td>
<td>10 A</td>
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<td>7001</td>
<td>Temperature Sensor 7001</td>
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<td>-20°C to +80°C</td>
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<tr>
<td>7002</td>
<td>Temp./Humidity Sensor 7002</td>
<td></td>
<td>-20°C to +80°C / 0-90% humidity</td>
<td></td>
</tr>
</tbody>
</table>
Expert Power Control 1202 / 1292 Series

4-fold switched PDU with integrated current metering and monitoring and with GSM connectivity (1292)

Features
- 4 Power Ports individually switchable directly on the device, via HTTPS and SNMP
- Case allows mounting in 19 inch racks
- Status and Power-up delay (0...9999 seconds) adjustable individually for each Power Port after power blackout
- Simultaneous power-up of multiple Power Ports prevented by latency time of 1 second
- Programmable turn-on/turn-off sequence
- Metering of energy, current, power factor, phase angle, frequency, voltage and active/apparent/reactive power
- Two energy meters, one meters continuously, the other energy meter is resettable
- A clearly visible LED display on the device reveals total current, IP address, sensor data and error reports
- 4-channel watchdog, an individual watchdog (ICMP/TCP) can be assigned for each Power Port
- Interface for optional sensors for environmental monitoring (temperature, humidity and air pressure)
- Port switching possible by configured sensor thresholds
- Integrated overvoltage protection prevents damage of device and of connected consumers (L-N 10 kA), status retrievable over network
- Dedicated high-inrush relays avoid welding of relay contacts at start-up peaks
- Firmware update via Ethernet during operation
- Comfortable configuration by web browser, Windows or Linux tool
- IPv6 ready
- HTTP/HTTPS, e-mail (SSL, STARTTLS), DHCP, Syslog
- SNMPv1, v2c, v3 (Get/Traps)
- TLS 1.0, 1.1, 1.2

- Radius and Modbus TCP protocol supported
- Configuration and control via Telnet
- IP Access Control List
- Secure login over SSL
- Android and iOS app Gude Control allows access from anywhere (without SSL)
- Low internal power consumption, typ. 5 W
- Developed and manufactured in Germany

Electrical Connections
- 1 power supply (safety socket connector, max. 16 A), cable length: ca. 3 m
- 4 Power Ports (safety sockets Type F, max. 16 A)
- Alternative connections Type E for France/Belgium and Type J for Switzerland
- Ethernet connector RJ45 (10/100 Mbit/s)
- Mini-DIN connector for optional sensor
- Connector for GSM antenna, antenna included in delivery (1292)
- Slot for SIM card (1292)

Technical Details
- LxHxD: 48.4 x 4.6 x 7.4 cm
- Weight: ca. 1 kg
- Operating temperature: 0 - 50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)
### Order code | Product Description | Feature | Operating Voltage | Max. Current
--- | --- | --- | --- | ---
1202-1 | Expert Power Control 1202-1 | Schuko connector Type F (Germany) | 230 V | 16 A
1202-2 | Expert Power Control 1202-2 | Schuko connector Type E (France/Belgium) | 230 V | 16 A
1202-3 | Expert Power Control 1202-3 | Schuko connector Type J (Switzerland), automatic cut-out as per SEV1011:2009/A1:2012 | 230 V | 10 A
1292-1 | Expert Power Control 1292-1 | Schuko connector Type F (Germany), integrated GSM module, GSM antenna incl. in delivery (cable length: 2 m) | 230 V | 16 A
1292-2 | Expert Power Control 1292-2 | Schuko connector Type E (France/Belgium), integrated GSM module, GSM antenna incl. in delivery (cable length: 2 m) | 230 V | 16 A
1292-3 | Expert Power Control 1292-3 | Schuko connector Type J (Switzerland), integrated GSM module, GSM antenna incl. in delivery (cable length: 2 m) | 230 V | 10 A
7001 | Temperature Sensor 7001 | -20°C to +80°C | | |
7002 | Temp.-/Humidity Sensor 7002 | -20°C to +80°C / 0-90% humidity | | |
Expert PDU Energy – the Inline Meter and Metered Power Distribution Units

The Inline Meter and Metered Power Distribution Units from GUDE offer a broad range of features making them perfectly suitable for optimizing IT infrastructures especially in terms of energy efficiency. All devices are tailored for mounting in server and switching cabinets. Sturdy housings, luminous LED lights, good readable displays and ease of operation ensure high value of benefit on-site.

Besides single- or multi-phase power distribution with up to 30 load outlets, metering of energy and consumption are integrated. All products attest to a low internal power consumption. Integrated sensor interfaces allow environment monitoring regarding temperature, relative humidity and air pressure.

Devices of Expert PDU Energy family dispose of a wide range of metering functionality: total current metering enabling load estimation and planning of appliance upgrades in cabinets. Precision electronics facilitate metering of energy and other electrical dimensions (e.g. reactive/apparent/active power, power factor and phase angle).

Expert PDU Energy 8340 / 8341 and 86 Series are equipped with residual current monitoring: They enable real-time surveillance of potentially occurring leakage currents and hence contribute to an effective protection of your IT performance. Moreover Expert PDU Energy 8340 / 8341 dispose of hotswap drawers allowing the replacement of the processor/power supply unit at uninterrupted power supply of connected loads.

Network connectivity and user-defined alarms for sensor and power consumption thresholds allow flexible and advanced remote monitoring and controlling with Expert PDU Energy devices.

All Expert PDU Energy devices are designed for configuration and operation via network. No additional software is required, just a plain web browser is sufficient. Web server, SNMP, Syslog and e-mail functionality are integrated in all devices. Some devices support IPv6, SSL and SNMPv3 as well as Telnet, Radius and Modbus TCP.

All products and their software (including firmware) are developed, manufactured and tested in Germany under high quality standards. Free software updates and technical support as well as continuous product development are integral part of GUDE products.
## Inline Meter & Metered PDU for rack mounting

<table>
<thead>
<tr>
<th>Article Number</th>
<th>8301</th>
<th>8301-2</th>
<th>8301-3</th>
<th>8311-1/8311-2</th>
<th>8311-11/8311-12</th>
<th>8340-1/8340-2</th>
<th>8341-1/8341-2</th>
<th>86 Series</th>
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<tbody>
<tr>
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<td>IEC C13 (max. 10 A)</td>
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<td>IEC C19 (max. 16 A)</td>
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<tr>
<td><strong>Technical Features</strong></td>
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<tr>
<td>Total current metering per phase / per bank</td>
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<td>Metering of divers elec. dimensions *</td>
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<td>3 x 2</td>
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<td>Neutral current monitor</td>
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<tr>
<td>Hotswap drawer</td>
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<td>Sensor interfaces</td>
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<td>Digits display (number of digits)</td>
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<td>1 (4)</td>
<td>1 (LCD)</td>
<td>1 (LCD)</td>
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<tr>
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<td>DHCP, SNMPv1/v2c, Syslog</td>
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<tr>
<td>Manageable by Gude Control app</td>
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<td>●✓</td>
<td>●✓</td>
<td>●✓</td>
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</tr>
</tbody>
</table>

* Current (A), voltage (V), phase angle (°), power factor, frequency (Hz), active power (W), apparent power (VA), reactive power (VAR)
**Expert PDU Energy 8301 Series**

**3-phase or 1-phase Inline Meter for vertical rack mounting**

---

**Features**

- Metering of energy, current, power factor, phase angle, frequency, voltage and active / apparent / reactive power
- 2 energy meters per phase, one meter continuously, the other resettable
- Clearly visible LED display for total current (actual, peak), IP address, sensor data and error reports
- Case allows vertical mounting in 19 inch racks (0 RU)
- Interface for optional sensors for environmental monitoring (temperature and humidity)
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- HTTP 1.1, e-mail, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Android and iOS app Gude Control allows access from anywhere
- Low internal power consumption
- Developed and manufactured in Germany

**Electrical Connections**

- **Power supply**
  - CEE plug 3 x 16 A
  - CEE plug 1 x 32 A
  - CEE plug 3 x 32 A

- **Load outlet**
  - CEE socket 3 x 16 A
  - CEE socket 1 x 32 A
  - CEE socket 3 x 32 A

- Power supply for internal electronic either through metering phase or through separate power supply cable (Schuko plug)
- Ethernet connector RJ45 (10/100 Mbit/s)
- Mini-DIN connector for optional sensor

**Technical Details**

- Case for vertical rack mounting, LxHxD: 38 x 8 x 7 cm (length including brackets)
- Weight: ca. 2.0 kg
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

---

**Order code | Product | Feature | Operating Voltage | Maximum Current**

| 8301 | Expert PDU Energy 8301 | 3-phase Inline Meter | 230 V | 3 x 16 A |
| 8301-2 | Expert PDU Energy 8301-2 | 1-phase Inline Meter | 230 V | 1 x 32 A |
| 8301-3 | Expert PDU Energy 8301-3 | 3-phase Inline Meter | 230 V | 3 x 32 A |
| 7001 | Temperature Sensor 7001 | -20°C to +80°C | | |
| 7002 | Temp./Humidity Sensor 7002 | -20°C to +80°C / 0-90% humidity | | |
Expert PDU Energy 8311 Series

7- or 16-fold metered PDU with integrated current metering and monitoring

Features

- 7 or 16 load outlets on front panel (safety socket)
- Metering of energy, current, power factor, phase angle, frequency, voltage and active / apparent / reactive power
- 2 energy meters per phase, one meter continuously, the other resettable
- Residual current metering type A (8311-2 / 8311-12)
- Illuminated two-line LCD display
- Interface for optional sensors for environmental monitoring (temperature, humidity and air pressure)
- Easy configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- IPv6-ready
- HTTP/HTTPS, e-mail (SSL, STARTTLS), DHCP, Syslog
- SNMPv1, v2c, v3 (Get/Traps)
- TLS 1.0, 1.1, 1.2
- Radius and Modbus TCP protocol supported
- Configuration and control via Telnet
- Low internal power consumption
- Developed and manufactured in Germany

Electrical Connections

- 1 power supply (safety socket connector, max. 16 A)
- Load outlets
  - 7 x safety socket, max. 16 A / 16 x safety socket, max. 16 A
- Ethernet connector RJ45 (10/100 Mbit/s)
- Mini-DIN connector for optional sensor

Technical Details

- 19 inch, 1 rack unit
- LxHxD: 43.4 x 4.4 x 4.4 cm (without brackets) (8311-1 / 8311-2)
- LxHxD: 87 x 4.4 x 4.4 cm (without brackets) (8311-11 / 8311-12)
- Weight: 1.5 kg (8311-1 / 8311-2) / 2.5 kg (8311-11 / 8311-12)
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

<table>
<thead>
<tr>
<th>Order code</th>
<th>Product (Q3/2017)</th>
<th>Feature</th>
<th>Operating Voltage</th>
<th>Max. Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>8311-1</td>
<td>Expert PDU Energy 8311-1</td>
<td>Energy metering, 7 x safety socket</td>
<td>230 V</td>
<td>16 A</td>
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<td>8311-2</td>
<td>Expert PDU Energy 8311-2</td>
<td>Energy metering, 7 x safety socket, residual current metering type A</td>
<td>230 V</td>
<td>16 A</td>
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<td>Expert PDU Energy 8311-11</td>
<td>Energy metering, 16 x safety socket</td>
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<td>Expert PDU Energy 8311-12</td>
<td>Energy metering, 16 x safety socket, residual current metering type A</td>
<td>230 V</td>
<td>16 A</td>
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<td>Temperature Sensor 7101</td>
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<td>-20°C to +80°C / 0-90% humidity</td>
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<td>Air pressure/Temperature Sensor 7103</td>
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<td>300-1100 hPa / -20°C to +80°C / 0-90% humidity</td>
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</table>
Expert PDU Energy 8340 / 8341 Series

Inline Meter with hotswap drawer and integrated current metering and monitoring for 2 or 4 single-phase mains

Features
- Hotswap drawer allows replacement of processor/power supply unit at uninterrupted power supply of connected loads
- Metering of 4 separate phases
- For each metering of energy, current, power factor, phase angle, frequency, voltage and active/apparent/reactive power
- Metering of residual current type A per phase (8340-2 / 8341-2)
- 2 energy meters per phase, one meter continuously, the other resettable
- Clearly visible LED display for total current per phase and phase status
- 2 interfaces for optional sensors for environmental monitoring (temperature, humidity and air pressure)
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- IPv6-ready
- HTTP/HTTPS, E-Mail (SSL, STARTTLS), DHCP, Syslog
- SNMPv1, v2c, v3 (Get/Traps)
- TLS 1.0, 1.1, 1.2
- Radius and Modbus TCP protocol supported
- Configuration and control via Telnet
- Adjustable brackets allow different mounting depths
- Low internal power consumption
- Developed and manufactured in Germany

Electrical Connections
- Power supply
  2 x IEC C20, max. 16 A (8340)
  4 x IEC C20, max. 16 A (8341)
- Load outlet
  2 x IEC C19, max. 16 A (8340)
  4 x IEC C19, max. 16 A (8341)
- Ethernet connector RJ45 (10/100 Mbit/s)
- 1 power supply IEC C14 for separate supply of electronic
- 2 sensor interfaces (RI45) for optional sensors

Technical Details
- 19 inch, 1 rack unit
- Dimensions of device: LxHxD: 43.4 x 4.4 x 21.4 cm (without brackets)
- Dimensions of drawer: LxHxD: 21.7 x 3.3 x 10.9 cm (without handles)
- Weight including drawer: ca. 2.9 kg
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

Order code   Product        Feature                                                                                     Max. Current
8340-1       Expert PDU Energy 8340-1                                               2 phases IEC C20, 2 load outlets IEC C19, hotswap drawer                  2 x 16 A
8340-2       Expert PDU Energy 8340-2                                               2 phases IEC C20, 2 load outlets IEC C19, hotswap drawer, residual current monitoring type A and B 2 x 16 A
8341-1       Expert PDU Energy 8341-1                                               4 phases IEC C20, 4 load outlets IEC C19, hotswap drawer                 4 x 16 A
8341-2       Expert PDU Energy 8341-2                                               4 phases IEC C20, 4 load outlets IEC C19, hotswap drawer, residual current monitoring type A and B 4 x 16 A
7101         Temperature Sensor 7101                                               -20°C to +80°C
7102         Temp./Humidity Sensor 7102                                             -20°C to +80°C / 0-90% humidity
7103         Air pressure.Temp./Humidity Sensor 7103                              300-1100 hPa / -20°C to +80°C / 0-90% humidity
7201         Temperature Sensor 7201                                              -20°C to +80°C
7202         Temp./Humidity Sensor 7202                                             -20°C to +80°C / 0-90% humidity
7203         Air pressure.Temp./Humidity Sensor 7203                              300-1100 hPa / -20°C to +80°C / 0-90% humidity

Highlights at a glance
- Enhanced failure safety due to hotswap drawer
- Energy metering per phase
- Residual current monitor (8340-2 / 8341-2)
- 2- or 4-phase version
Expert PDU Energy 86 Series

Metered PDU with up to 30 load outlets and energy metering per bank

Highlights at a glance
- LED display per bank
- Energy metering per phase
- Residual current metering
- Alternative connector types upon request

Features
- Up to 30 load outlets in 3 banks
- 2 energy meters per bank, one meter continuously, the other resettable
- Metering of energy, current, power factor, phase angle, frequency, voltage and active / apparent / reactive power per bank
- Residual current metering type B
- Neutral current monitoring
- A clearly visible LED display per bank for total current, IP address, sensor data and error reports
- 2 interfaces for optional sensors for environmental monitoring (temperature and humidity)
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- IPv6-ready
- HTTP/HTTPS, e-mail (SSL, STARTTLS), DHCP, Syslog
- SNMPv1, v2c, v3 (Get/Traps)
- TLS 1.0, 1.1, 1.2
- Radius and Modbus TCP protocol supported
- Configuration and control over Telnet
- Access control via IP Access Control List

Electrical Connections
- 1 power supply: CEE max. 3 x 16 A or CEE max. 3 x 32 A
- Up to 30 load outlets (24 x IEC C13 and 6 x IEC C19)
- Ethernet connector RJ45 (10/100 Mbit/s)
- 2 RJ45 interfaces for optional sensors

Technical Details
- Case for vertical rack mounting (0 RU), LxHxD: 179 x 6 x 7 cm (length including pivotable brackets)
- Weight: ca. 7.8 kg
- Operating temperature: 0–50 °C
- Storage temperature: -20 – 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

<table>
<thead>
<tr>
<th>Order code</th>
<th>Product</th>
<th>Feature</th>
<th>Maximum Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>86 Series</td>
<td>Expert PDU Energy 86</td>
<td>Up to 30 load outlets (IEC C13 or IEC C19), energy metering per bank</td>
<td>3 x 32 A</td>
</tr>
<tr>
<td>7101</td>
<td>Temperature Sensor 7101</td>
<td>-20°C to +80°C</td>
<td></td>
</tr>
<tr>
<td>7102</td>
<td>Temp./Humidity Sensor 7102</td>
<td>-20°C to +80°C / 0-90% humidity</td>
<td></td>
</tr>
<tr>
<td>7201</td>
<td>Temperature Sensor 7201</td>
<td>Box case with RJ45 socket, -20°C to +80°C</td>
<td></td>
</tr>
<tr>
<td>7202</td>
<td>Temp./Humidity Sensor 7202</td>
<td>Box case with RJ45 socket, -20°C to +80°C / 0-90% humidity</td>
<td></td>
</tr>
</tbody>
</table>
Expert Bypass Switch and Expert Transfer Switch - the Safety Switches

With **Expert Bypass Switch** and **Expert Transfer Switch** GUDE offers manual and automatic transfer switches that enable customers to benefit from increased availability and redundancy in existing rack installations. The devices are tailored for mounting in server and switching cabinets. Sturdy housings, luminous LED lights, good readable displays and ease of operation ensure high value of benefit on-site.

**Expert Transfer Switch 8801-1** is a Automatic Transfer Switch (ATS) for switching to an alternate power supply. Little transfer times, also in phase-shift condition, allow a reliable prevention of downtimes for connected IT equipment. Automatic shift-in back to the recurred power supply is seamlessly possible. It has a height of one rack unit and is powered by two IEC C20 power supplies. **Expert Transfer Switch 8801-1** enables feeding of up to six consumers with IEC C13 connectors (10 A) and one consumer with IEC C19 connector (16 A). In addition, it allows manual switching by button push, SNMP, Telnet or web interface for purposes of power supply maintenance.

**Expert Transfer Switch 8801-1** incorporates energy and residual current metering and disposes of clearly visible LED displays providing a quick overview of switching status and measured data of the device. Two sensor interfaces allow monitoring of ambient temperature, humidity and air pressure by optional available sensors. The appliance makes it possible to generate messages by e-mail, Syslog and SNMP traps depending on threshold values of sensor metering. Hence critical system conditions and down-times can be avoided. Moreover IPv6, SSL, SNMPv3 as well as Telnet, Radius und Modbus TCP are supported to meet current security standards.

**Expert Bypass Switch 8701** is a mechanical transfer switch for replacement or maintenance of uninterruptible power supplies (UPS). By deploying the bypass switch, the connected loads do not have to be detached from mains. The appliance has a height of one rack unit and makes it possible to power up to six consumers with IEC C13 connectors (10 A) and one consumer with IEC C19 connector (16 A). A clearly visible LED display reveals switching status of **Expert Bypass Switch 8701** by showing ‘USV’ (=UPS) or ‘Netz’ (=net).
### Transfer Switches for rack mounting

<table>
<thead>
<tr>
<th>Article Number</th>
<th>8701-1</th>
<th>8701-2</th>
<th>8801-1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mounting Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 inch, 1 RU</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

| **Power Connectors** | | | |
| Rear connectors | ● | ● | ● |

| **Current** | | | |
| Total current (A) | 10 | 16 | 16 |
| Current per port / per phase (A) | | | 16 |

| **Power Inputs** | | | |
| IEC C14 (max. 10 A) from mains/from UPS | 1 / 1 | | |
| IEC C20 (max. 16 A) from mains/from UPS | 1 / 1 | 2 / - |

| **Power Outlets** | | | |
| IEC C13 (max. 10 A) | 6 | 6 | 6 |
| IEC C13 (max. 10 A) to USV | 1 | | |
| IEC C19 (max. 16 A) | 1 | 1 | 1 |
| IEC C19 (max. 16 A) to USV | | 1 | |

| **Technical Features** | | | |
| Manual switching to alternate power supply | ● | ● | ● |
| Automatic switching to alternate power supply | | ||
| Total current metering per phase | ● | | |
| Metering of divers electrical dimensions * | | | ● |
| Energy meters (kWh) | 2 x 2 | | |
| Residual current monitor | | | ● |
| LED display indicating switching status | ● | ● | ● |
| Digits display (number of digits) | 1 (4) | | |
| Fuse (10 A) for IEC C19 load outlet | ● | | |
| Sensor interfaces | | 2 | |
| Internal alarm beeper | | | ● |
| Integrated webserver | | | ● |
| E-mail | | | |
| DHCP, SNMP v1/v2c, Syslog | | | ● |
| IPv6, SSL, SNMPv3, Telnet, Radius, Modbus TCP | | | ● |

* Voltage (V), phase angle (°), power factor, frequency (Hz), active power (W), apparent power (VA), reactive power (VAR)
Expert Bypass Switch 8701 Series

Mechanical bypass switch for uninterrupted replacement of UPS systems

Features
• Uninterrupted replacement or maintenance of UPS systems through bypass switch without shutdown of connected loads
• Available in two versions for 10 A or 16 A current (8701-1 or 8701-2)
• 6 load outlets IEC C13, 10 A
• 1 load outlet IEC C19, 16 A
• 10 A fuse for protection of IEC C19 outlet
• Easily operable selection switch
• Switch position „Netz“: Connected loads are operated directly with mains voltage
• Switch position „USV“: Connected loads are operated with UPS system voltage
• Clearly visible LED display for switch status
• Low internal power consumption
• Developed and manufactured in Germany

Electrical Connections
Expert Bypass Switch 8701-1 / 8701-2
• 1 power supply „von Netz“ IEC C14, 10 A / IEC C20, 16 A
• 1 output „zur USV“ IEC C13, 10 A / IEC C19, 16 A
• 1 input „von USV“ IEC C14, 10 A / IEC C20, 16 A
• 6 load outlets IEC C13, 10 A
• 1 load outlet IEC C19, 16 A / IEC C19, 16 A

Technical Details
• 19 inch, 1 rack unit
• Dimensions of device: LxHxD: 43.4 x 4.4 x 16.5 cm (without brackets)
• Weight: ca. 2.2 kg
• Operating temperature: 0 - 50 °C
• Storage temperature: -20 - 70 °C
• Relative humidity: 0 - 95 % (non-condensing environment)

Order code | Product | Feature | Maximum Current |
--- | --- | --- | --- |
8701-1 | Expert Bypass Switch 8701-1 | Bypass switch, 6 load outlets IEC C13, 1 load outlet IEC C19, 10 A fuse for IEC C19 load outlet | 10 A |
8701-2 | Expert Bypass Switch 8701-2 | Bypass switch, 6 load outlets IEC C13, 1 load outlet IEC C19 | 16 A |
0807 | Cable Holder 0807 | 13 fixation bridges for load cables |
Expert Transfer Switch 8801-1

Automatic transfer switch (ATS) for redundant power supply of network components

---

**Features**

- Automatic transfer to alternate power supply if blackout of primary power supply occurs (A or B)
- Switches also if phase is shifted
- If primary power supply returns (A or B), automatic shift-in possible
- LED display featuring status of power supply including phase-shift
- Metering of energy, current, power factor, phase angle, frequency, voltage and active/apparent/reactive power
- 2 energy meters, one meter continuously, the other resettable
- Metering of residual current type A
- Clearly visible LED display for total current, IP address, sensor data and error reports
- 2 interfaces for optional sensors for environmental monitoring (temperature, humidity and air pressure)
- Messages by e-mail, Syslog and SNMP traps depending on threshold values of energy and sensor metering
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- IPv6-ready
- HTTP/HTTPS, e-mail (SSL, STARTTLS), DHCP, Syslog
- SNMPv1, v2c, v3 (Get/Traps)
- TLS 1.0, 1.1, 1.2
- Radius and Modbus TCP protocol supported
- Configuration and control over Telnet
- Access control via IP Access Control List
- Low power consumption
- Developed and manufactured in Germany

---

**Electrical Connections**

- 2 power supplies IEC C20, max. 16 A
- 6 load outlets IEC C13, max. 10 A
- 1 load outlet IEC C19, max. 16 A
- Ethernet connector RJ45 (10/100 Mbit/s)
- Galvanic isolated signal output (Sub-D 9-pin)
- 2 sensor interfaces (RI45) for optional sensors

---

**Technical Details**

- 19 inch, 1 rack unit
- Dimensions of device:
  - LxHxD: 43.9 x 4.4 x 19.5 cm (without brackets)
- Weight: ca. 2.5 kg
- Operating temperature: 0 - 50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

---

**Highlights at a glance**

- Transfer time at in-phase condition:  
  - by pushing button: ≤ 7 ms  
  - by automatic: ≤ 15 ms
- Transfer time at phase-shift condition:  
  - by pushing button: ≤ 10 ms  
  - by automatic: ≤ 18 ms
- Residual current metering
- Energy metering

---

**Order code** | **Product** | **Feature** | **Max. Current**
--- | --- | --- | ---
8801-1 | Expert Transfer Switch 8801-1 | Automatic Transfer Switch (ATS), 6 load outlets IEC C13, 1 load outlet IEC C19, residual current monitor | 16 A
7101 | Temperature Sensor 7101 | -20°C to +80°C  
7102 | Temp./Humidity Sensor 7102 | -20°C to +80°C / 0-90% humidity  
7103 | Air pressure/Temp.-/Humidity Sensor 7103 | 300-1100 hPa / -20°C to +80°C / 0-90% humidity  
7201 | Temperature Sensor 7201 | Box case with RJ45 socket, -20°C to +80°C  
7202 | Temp./Humidity Sensor 7202 | Box case with RJ45 socket, -20°C to +80°C / 0-90% humidity  
7203 | Air pressure/Temp.-/Humidity Sensor 7203 | 300-1100 hPa / -20°C to +80°C / 0-90% humidity  
0807 | Cable Holder 0807 | 13 fixation bridges for load cables
Monitoring Systems from GUDE offer a broad range of features making them perfectly suitable for surveillance and management of network performance. These compact appliances attest to a low internal power consumption. Besides switching of the integrated potential-free relays, it is possible to retrieve sensor values, switching states and metered energy consumption.

The remote I/Os of Expert Net Control line and the LAN sensors of Expert Sensor Box series are designed for configuration and operation via network. No additional software is required, just a plain web browser is sufficient. Web server, SNMP, Syslog and e-mail functionality are integrated in all units, making them controllable through Internet from remote locations. In addition, all Monitoring Systems allow remote access through Gude Control, a free app for Android and iOS devices.

The new Expert Net Control 2111 disposes of an extensive feature set allowing for remote controlling and monitoring: 4 potential-free relays, 12 passive signal inputs and 4 sensor ports are integrated in a sturdy steel housing. A variety of sensor types can be attached for surveillance purposes. 3 luminous digits and LED displays provide a quick monitoring and device status overview. The solid Environmental Monitoring System (EMS) can be powered redundantly by two separate 12V inputs or optionally by Ethernet port in order to decrease cabling and energy expenses (PoE). In addition, Expert Net Control 2191 has a GSM module integrated, allowing remote control from locations without Internet access or in case of network failure.

Expert Net Control 2312-1 is equipped with consumption and energy metering. Total current metering enabling load estimation and planning of appliance upgrades in IT infrastructures; precision electronics facilitating metering of energy and other electrical dimensions, e.g. reactive/apparent/active power, power factor and phase angle.

Expert Net Control and Expert Sensor Box products are characterized by sturdy housings and significant manufacture. Many of them dispose of integrated Power-over-Ethernet power supplies enabling easy integration into existing infrastructures. Appliances for DIN rail mounting are available as well.

All products and their software (including firmware) are developed, manufactured and tested in Germany under high quality standards. Free software updates and technical support as well as continuous product development are integral part of GUDE products.
## Remote I/O and LAN Sensors

<table>
<thead>
<tr>
<th>Article Number</th>
<th>2111-1 / 2111-2</th>
<th>2191-1 / 2191-2</th>
<th>2301</th>
<th>2312-1</th>
<th>7211-0 / 7211-1</th>
<th>7211-0 / 7211-1</th>
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<td>Power-over-Ethernet</td>
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<td>●</td>
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<td>Connection 12 V DC by PTR multiconnectors (redundant)</td>
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<td>Connection 230 V AC or 24 V DC by PTR multiconnectors</td>
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<td>Connection 12-24 V AC/DC by PTR multiconnectors</td>
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<tr>
<td><strong>Technical Features</strong></td>
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<td>Potential-free relay outputs</td>
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<td>Signal inputs</td>
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<td>Integrated temperature/humidity sensor</td>
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<td>1 (3)</td>
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<td>GSM module</td>
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<td>RS232</td>
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<tr>
<td>DHCP, SNMPv1/v2c, Syslog</td>
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<td>●</td>
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<tr>
<td>IPv6, SSL, SNMPv3, Telnet, Radius, Modbus TCP</td>
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<td>Manageable by Gude Control app</td>
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</tr>
</tbody>
</table>

* Voltage (V), phase angle (°), power factor, frequency (Hz), active power (W), apparent power (VA), reactive power (VAR)*
Expert Net Control 2111 / 2191 Series

Monitoring system with 4 relay outputs and 12 passive signal inputs and GSM connectivity (2191)

Features

- 4 switchable, potential-free relay outputs with change-over connectors (NO and NC), high switching voltage 36 V, 3 A
- Relays dispose of high contact reliability also at very small loads
- 12 passive inputs for monitoring NO and NC devices, e.g. door contacts, smoke detectors, leakage sensors etc.
- Each signal input includes a 12 V connector for supply of NO/NC devices
- 4-channel watchdog for monitoring connected consumers (ICMP/TCP)
- 4 interfaces for optional sensors for environmental monitoring (temperature, humidity and air pressure)
- Messages by e-mail, Syslog and SNMP traps depending on threshold values of sensor metering and signal inputs
- A clearly visible LED display for total current, IP address, sensor data and error reports
- LED display for status of power supply, inputs/outputs and GSM (2191)
- 2 inputs for redundant power supply (12 V DC) via 2 external power supply units (one included in delivery)
- For 2111-2 / 2191-2 additional power supply by Power-over-Ethernet (PoE) possible
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- IPv6-ready
- HTTP/HTTPS, e-mail (SSL, STARTTLS), DHCP, Syslog
- SNMPv1, v2c, v3 (Get/Traps)
- TLS 1.0, 1.1, 1.2
- Radius and Modbus TCP protocol supported
- Configuration and control over Telnet
- Access control via IP Access Control List
- Android and iOS app Gude Control allows access from anywhere (without SSL)
- Low power consumption
- Developed and manufactured in Germany

Electrical Connections

- 2 sockets for external power supply units (P2T multiconnector, 2-fold)
- 4 switchable outputs (P2T multiconnector, 3-fold)
- 12 passive signal inputs (P2T multiconnector, 3-fold)
- 4 sensor connectors RJ45 for optional sensors (temperature, humidity and air pressure)
- Ethernet connector RJ45 (10/100 Mbit/s), for 2111-2 / 2191-2 as additional power supply by Power-over-Ethernet (PoE)
- Connector for GSM antenna (antenna included in delivery) (2191)
- Slot for SIM card (2191)

Technical Details

- Powdered steel case, LxHxD: 139 x 91 x 35 mm
- Comfortable DIN rail mounting by optional mounting clip
- Weight: ca. 440 g
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)
Application scenario of Expert Net Control 2191 Series

<table>
<thead>
<tr>
<th>Order code</th>
<th>Product</th>
<th>Feature</th>
<th>Power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>2111-1</td>
<td>Expert Net Control 2111-1</td>
<td>4 switchable outputs, 12 passive signal inputs, 4 sensor ports</td>
<td>Ext. power supply unit 12 V</td>
</tr>
<tr>
<td>2111-2</td>
<td>Expert Net Control 2111-2</td>
<td>4 switchable outputs, 12 passive signal inputs, 4 sensor ports</td>
<td>Ext. power supply unit 12 V or Power-over-Ethernet</td>
</tr>
<tr>
<td>2191-1</td>
<td>Expert Net Control 2191-1</td>
<td>4 switchable outputs, 12 passive signal inputs, 4 sensor ports, GSM module, GSM antenna enclosed in delivery</td>
<td>Ext. power supply unit 12 V</td>
</tr>
<tr>
<td>2191-2</td>
<td>Expert Net Control 2191-2</td>
<td>4 switchable outputs, 12 passive signal inputs, 4 sensor ports, GSM module, GSM antenna enclosed in delivery</td>
<td>Ext. power supply unit 12 V or Power-over-Ethernet</td>
</tr>
<tr>
<td>7101</td>
<td>Temperature Sensor 7101</td>
<td>-20°C to +80°C</td>
<td></td>
</tr>
<tr>
<td>7102</td>
<td>Temp./Humidity Sensor 7102</td>
<td>-20°C to +80°C / 0-90% humidity</td>
<td></td>
</tr>
<tr>
<td>7103</td>
<td>Air pressure/Temp./Humidity Sensor 7103</td>
<td>300-1100 hPa / -20°C to +80°C / 0-90% humidity</td>
<td></td>
</tr>
<tr>
<td>7201</td>
<td>Temperature Sensor 7201</td>
<td>Box case with RJ45 socket, -20°C to +80°C</td>
<td></td>
</tr>
<tr>
<td>7202</td>
<td>Temp./Humidity Sensor 7202</td>
<td>Box case with RJ45 socket, -20°C to +80°C / 0-90% humidity</td>
<td></td>
</tr>
<tr>
<td>7203</td>
<td>Air pressure/Temp./Humidity Sensor 7203</td>
<td>300-1100 hPa / -20°C to +80°C / 0-90% humidity</td>
<td></td>
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<tr>
<td>7311</td>
<td>Optical Smoke detector 7311</td>
<td>Overhead installation (d=100 mm), screw terminal NO or NC</td>
<td></td>
</tr>
<tr>
<td>7312</td>
<td>Thermal Smoke detector 7312</td>
<td>Overhead installation (d=100 mm), screw terminal NO or NC</td>
<td></td>
</tr>
<tr>
<td>7313</td>
<td>Leakage Sensor 7313</td>
<td>13 mm two-tined, detects flooding, operations at 12 V</td>
<td></td>
</tr>
<tr>
<td>7901</td>
<td>Power Supply Unit 7901</td>
<td>12 V DC, 500 mA, plug for 2.1 mm pin, included in delivery</td>
<td></td>
</tr>
<tr>
<td>0860</td>
<td>DIN rail mounting clip 0860</td>
<td>Plastic clip for easy installation on DIN rails</td>
<td></td>
</tr>
</tbody>
</table>
Monitoring

Order code | Product | Feature | Power supply
---|---|---|---
2301 | Expert Net Control 2301 | 4 switchable outputs, 8 passive signal inputs, 1 sensor or RS232 interface | 230 V AC or 24 V DC
7001 | Temperature Sensor 7001 | -20°C to +80°C | 
7002 | Temp./Humidity Sensor 7002 | -20°C to +80°C / 0-90% humidity | 
7902 | DIN Rail Power Supply Unit 7902 | Power supply unit for DIN rail, 230 VAC / 12 VDC 1250 mA (not included in delivery) | 
7990 | RS232 Adapter Cable 7990 | Connector cable for RS232 to mini-DIN 6, length ca. 2.3 m | 

Features

- 4 switchable, potential-free relay outputs, switching voltage 230 V AC 16 A / 24 V DC, 10 A
- All relay outputs individually switchable directly on the device, via HTTP, command line tool and RS232 serial interface
- Status and Power-up delay (0...9999 seconds) adjustable individually for each output after power blackout
- Simultaneous power-up of multiple Power Ports prevented by latency time of 1 second
- 4-channel watchdog to monitor connected consumers (ICMP/TCP)
- Bicoloured LEDs on front panel display status information of inputs/outputs
- 8 passive inputs for monitoring NO and NC devices, e.g. door contacts, smoke detectors etc.
- Interface for optional sensor for environmental monitoring (temperature and humidity)
- Power supply via external DIN rail unit (not included in delivery)
- Programmable turn-on/turn-off sequence
- Firmware update via Ethernet during operation
- HTTP 1.1, e-mail, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Access control via IP Access Control List
- Access control via optional HTTP password
- Android and iOS app Gude Control allows access from anywhere
- Low power consumption, max. 2 W
- Compatible to products of Solar-Log
- Developed and manufactured in Germany

Electrical Connections

- Terminal clamps for power supply with 230 V AC or 24 V DC
- 4 switchable outputs (terminal clamp)
- 8 passive signal inputs (terminal clamp)
- Ethernet connector RJ45 (10/100 Mbit/s)
- Mini-DIN connector for optional sensor or serial interface (RS232)

Technical Details

- LxHxD: 10.5 x 7 x 9 cm
- Weight: ca. 300 g
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)
**Expert Net Control 2312-1**

**Remote I/O System with 3 switchable relay outputs for DIN-rail mounting**

**Features**
- 3 switchable, potential-free relay outputs, switching voltage 230 V AC 16 A
- Metering of energy, current, power factor, phase angle, frequency, voltage and active / apparent / reactive power per output
- 2 energy meters per output, one meter continuously, the other resettable
- A clearly visible LED display for total current, IP address, sensor data and error reports
- All relay outputs individually switchable directly on the device, via HTTP, command line tool and RS232 serial interface
- Status and Power-up delay (0...9999 seconds) adjustable individually for each output after power blackout
- Simultaneous power-up of multiple Power Ports prevented by latency time of 1 second
- Programmable turn-on/turn-off sequence
- 3-channel watchdog to monitor connected consumers (ICMP/TCP)
- Bicoloured LEDs on front panel display status information of relay outputs
- Interface for optional sensor for environmental monitoring (temperature and humidity)
- Power supply via external DIN rail unit (not included in delivery)
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- HTTP 1.1, e-mail, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Access control via IP Access Control List
- Access control via optional HTTP password
- Android and iOS app Gude Control allows access from anywhere
- Low power consumption, max. 3 W
- Developed and manufactured in Germany

**Electrical Connections**
- Terminal clamps for power supply with 12-24 V AC/DC voltage
- 3 switchable outputs (terminal clamps for phases)
- Ethernet connector RJ45 (10/100 Mbit/s)
- Mini-DIN connector for optional sensor or serial interface (RS232)

**Technical Details**
- LxHxD: 10.5 x 7 x 9 cm
- Weight: ca. 280 g
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

**Order code** | **Product** | **Feature** | **Power supply**
---|---|---|---
2312-1 | Expert Net Control 2312-1 | 3 switchable outputs, 1 sensor or RS232 interface, 3-phase metering of electrical dimensions | External power supply unit 12-24 V AC/DC
7001 | Temperature Sensor 7001 | -20°C to +80°C | 7002 | Temp./Humidity Sensor 7002 | -20°C to +80°C / 0-90% humidity |
7902 | DIN Rail Power Supply Unit 7902 | Power supply unit for DIN rail, 230 VAC / 12 VDC 1250 mA (not included in delivery) |
7990 | RS232 Adapter Cable 7990 | Connector cable for RS232 to mini-DIN 6, length ca. 2.3 m |
**Expert Sensor Box 7211 / 7212 Series**

LAN sensor for monitoring of temperature and relative humidity

<table>
<thead>
<tr>
<th>Order code</th>
<th>Product</th>
<th>Feature</th>
<th>Power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>7211-0</td>
<td>Expert Sensor Box 7211-0</td>
<td>Temperature Sensor -20°C to +80°C</td>
<td>Power-over-Ethernet</td>
</tr>
<tr>
<td>7211-1</td>
<td>Expert Sensor Box 7211-1</td>
<td>Temperature Sensor -20°C to +80°C</td>
<td>External power supply unit (12 V)</td>
</tr>
<tr>
<td>7212-0</td>
<td>Expert Sensor Box 7212-0</td>
<td>Temp./Humidity Sensor -20°C to +80°C / 0-90% humidity</td>
<td>Power-over-Ethernet</td>
</tr>
<tr>
<td>7212-1</td>
<td>Expert Sensor Box 7212-1</td>
<td>Temp./Humidity Sensor -20°C to +80°C / 0-90% humidity</td>
<td>External power supply unit (12 V)</td>
</tr>
<tr>
<td>7901</td>
<td>Power Supply Unit 7901</td>
<td>12 V DC, 500 mA, plug for 2.1 mm pin, included in delivery of Expert Sensor Box 7211-1 / 7212-1</td>
<td></td>
</tr>
</tbody>
</table>

**Features**

- Integrated temperature sensor (7211-0 and 7211-1)
- Integrated temperature/humidity sensor (7212-0 and 7212-1)
- Power supply via Power-over-Ethernet (7211-0 and 7212-0)
- Power supply via external power supply unit, included in delivery (7211-1 and 7212-1)
- Internal beeper for acoustic alarm for set sensor thresholds
- Comfortable configuration by web browser, Windows or Linux tool
- Firmware update via Ethernet during operation
- HTTP 1.1, e-mail, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Access control via IP Access Control List
- Access control via optional HTTP password
- Android and iOS app Gude Control allows access from anywhere
- Low internal power consumption
- Developed and manufactured in Germany

**Electrical Connections**

- DC socket for external power supply unit (7211-1 and 7212-1)
- Ethernet connector RJ45 (10/100 Mbit/s), serves as power supply for 7211-0 and 7212-0

**Technical Details**

- Plastic case, LxHxD: 158 x 28 x 66 mm (inclusive sensor pipe)
- Weight: ca. 100 g
- Measuring range temperature: -20 °C to +80 °C at +/- 2 °C (maximum) and +/- 1 °C (typical)
- Measuring range humidity: 0-90% at +/- 3% (7212-0 / 7212-1)
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)
**Expert Mouse Clock / EMC Professional – the Time Receivers**

Appliances of **Expert Mouse Clock** Series enable synchronisation of single clients and entire networks with the atomic radio time based on DCF77 signal from Frankfurt/Main and devices of **Expert GPS Clock** Series with time based on satellite-controlled GPS signal.

The radio time systems can be easily connected to the PC. After successful installation, devices synchronize the internal PC time permanently. Windows and Linux software are available.

Time Servers of **EMC Professional** Series deliver the current radio time of the DCF77 sender to the entire network by their integrated NTP server. In case of reception interferences, the internal temperature compensated real time clock keeps running and assures the precise time in the entire network. Web interface **EMC Professional** enables configuration by any PC in the network, independent of operating system (Windows or Linux.)

Time systems and servers of GUDE are characterized by sturdy housings and significant manufacture. Customers benefit from ease of operation and for **EMC Professional** Series from good readable displays as well. All products and their software (including firmware) are developed, manufactured and tested in Germany under high quality standards. Free software updates and technical support as well as continuous product development are integral part of GUDE products.

DCF77 time receiver systems provide access to one of the most exact working atomic clocks in the world. It is run by the Federal Physical-Technical Institute (Physikalisch-Technische Bundesanstalt, PTB) in Braunschweig/Germany and deviates less than 1 second in 300,000 years. Time and date are broadcasted by the DCF77 long-wave sender in Frankfurt/Mainflingen in Germany on a frequency of 77.5 kHz. The broadcasted time and date information is CET/CEST. The range of DCF77 is about 2000 km. The signal is received by the device antenna and transmitted via the applicable interface to the PC or network. The transmission is effected once a second or once a minute depending on configuration settings.
Expert Mouse Clock Series

DCF77 radio time receiver with serial or USB interface for PCs

Features
- Reception of time and date based on DCF77 signal within a 2000 km radius around Frankfurt/Main
- Ideal reception through active ferrite rod antenna, included in delivery (0108 and 0131)
- Waterproof up to 5 m (IP68) (0102)
- Compatible to Windows and Linux systems
- Power supply by serial or USB interface
- Developed and manufactured in Germany

Technical Details
- Plastic case, LxHxD: 78 x 22 x 37 mm
- Weight: 0100, 0107 and 0108: ca. 115 g
- 0102: ca. 160 g
- 0131: ca. 110 g
- Cable length: ca. 2 m
- Operating temperature: 0 - 50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

Electrical Connections
- 0100, 0102 and 0131: 1 connector cable for serial interface RS232 (Sub-D, 9-pin)
- 0107 and 0108: 1 connector cable for USB interface
- 0108 and 0131: BNC connector for active antenna

<table>
<thead>
<tr>
<th>Order code</th>
<th>Product</th>
<th>Feature</th>
<th>Power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>0100</td>
<td>Expert Mouse Clock 0100</td>
<td>Serial interface</td>
<td>by PC connection</td>
</tr>
<tr>
<td>0102</td>
<td>Expert Mouse Clock 0102</td>
<td>Serial interface, waterproof up to 5 m</td>
<td>by PC connection</td>
</tr>
<tr>
<td>0107</td>
<td>Expert Mouse Clock 0107</td>
<td>USB interface</td>
<td>by PC connection</td>
</tr>
<tr>
<td>0108</td>
<td>Expert Mouse Clock 0108</td>
<td>USB interface</td>
<td>by PC connection</td>
</tr>
<tr>
<td>0131</td>
<td>Expert Mouse Clock 0131</td>
<td>Serial interface</td>
<td>by PC connection</td>
</tr>
<tr>
<td>0220</td>
<td>DCF77 Antenna 0220</td>
<td>Active ferrite rod antenna with BNC connector, cable length 5 m (extendable up to 100 m), included in delivery of Expert Mouse Clock 0108 / 0131</td>
<td>by PC connection</td>
</tr>
<tr>
<td>0134-0138</td>
<td>BNC Extension Cable for active antenna</td>
<td>10 / 20 / 30 / 50 / 100 m</td>
<td></td>
</tr>
</tbody>
</table>
EMC Professional 3001 / 3011

DCF77 time server with integrated radio time receiver for industrial environments

Features

- Reception of time and date based on DCF77 signal within a 2000 km radius around Frankfurt/Main
- Stand-alone NTP time server
- Battery buffered and temperature compensated real time clock
- Signal monitor
- LC display for time, date and error value
- Ideal reception through active ferrite rod antenna (included in delivery)
- Switchable potential-free relay output (24 V, 0.5 A)
- Interface for optional temperature sensor (3011)
- Independent of OS (Ethernet, RS232)
- Firmware update via Ethernet during operation
- HTTP 1.1, DHCP, SNMPv1 (Traps), SNMPv2c (Traps), Syslog
- Access control via IP Access Control List
- Access control via optional HTTP password
- Low power consumption, typ. 3 W / 5 W (3001 / 3011)
- Developed and manufactured in Germany

Electrical Connections

- DC socket for external power supply unit, included in delivery (3001)
- 1 power supply IEC C14 (max. 10 A) (3011)
- Ethernet connector RJ45 (10/100 Mbit/s)
- 1 switchable output (PTR multicoupler, 2-fold)
- RI11 interface for optional temperature sensor (3011)
- Serial interface RS232 (Sub-D, 9-pin)
- BNC connector for active antenna

Technical Details

- LxHxW: 17 x 6.5 x 10.5 cm (3001)
- Weight: ca. 0.7 kg (3001)
- Dimensions: 19 inch, 1 rack unit (3011)
- LxHxW: 43.9 x 4.4 x 15.0 cm (without brackets) (3011)
- Weight: ca. 2.2 kg (3011)
- Operating temperature: 0 - 50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

<table>
<thead>
<tr>
<th>Order code</th>
<th>Product</th>
<th>Feature</th>
<th>Operating voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>3001</td>
<td>EMC Professional 3001</td>
<td>DCF77 time server in desktop body</td>
<td>External power supply unit (12 V)</td>
</tr>
<tr>
<td>3011</td>
<td>EMC Professional 3011</td>
<td>DCF77 time server in 19 inch body, switchable output, sensor interface</td>
<td>230 V</td>
</tr>
<tr>
<td>0220</td>
<td>DCF77 Antenna 0220</td>
<td>Active ferrite rod antenna with BNC connector, cable length 5 m (extendable up to 100 m), included in delivery</td>
<td></td>
</tr>
<tr>
<td>0134-0138</td>
<td>BNC Extension Cable for active antenna</td>
<td>10 / 20 / 30 / 50 / 100 m</td>
<td></td>
</tr>
<tr>
<td>7000</td>
<td>Temperature Sensor 7000</td>
<td>-20°C to +80°C</td>
<td></td>
</tr>
<tr>
<td>7901</td>
<td>Power Supply Unit 7901</td>
<td>12 V DC, 500 mA, plug for 2.1 mm pin, included in delivery of EMC Professional 3001</td>
<td></td>
</tr>
</tbody>
</table>
Expert GPS Clock 0508 / 0509

GPS radio time receiver with serial or USB interface for PCs

Features

• Receives time and date worldwide via satellite
• 20 channel GPS receiver
• Transmission of GPS position and time information
• Connection through serial interface (0508)
• Connection through USB interface (0509)
• Works with GPS suitable navigation software (NMEA 0183, version 2.20 compatible)
• Power supply through USB interface
• Suitable for Windows and Linux systems
• Developed and manufactured in Germany

Expert GPS Clock 0509

Electrical Connections

• 1 connector cable for serial interface RS232 (Sub-D, 9-pin) for data transmission (0508)
• 1 connector cable for USB interface for power supply (0508)
• 1 connector cable for USB interface for data transmission and power supply (0509)

Technical Details

• Plastic case, LxHxD: 78 x 22 x 37 mm
• Weight: ca. 130 g
• Cable length USB: ca. 2 m
• Cable length RS232: ca. 2.40 m (0508)
• Operating temperature: 0 - 50 °C
• Storage temperature: -20 - 70 °C
• Relative humidity: 0 - 95 % (non-condensing environment)

Order code | Product | Feature | Power supply
---|---|---|---
0508 | Expert GPS Clock 0508 | GPS receiver, 2 connector cables for USB and RS232 | through USB interface
0509 | Expert GPS Clock 0509 | GPS receiver, 1 connector cable for USB | through USB interface
0809 | GPS Extension Cable 0809 | Extension cable for Expert GPS Clock 0508, RS232 to RS232, length up to 50 m | through USB interface
Isolators of GUDE’s **Expert Opto Bridge** Series protect serial and USB interfaces by galvanic isolation of signals and voltages from potential damages. By their electrical isolated data transmission, they assure maximum protection against disruptions, failures and damages on the interfaces and hence allow a trouble-free operation of connected devices. **Expert Opto Bridge 0403** and **0404** dispose of an integrated LED, indicating the operational status of the device.

The isolators provide protection against multiple disturbances:

- Overvoltage by distant thunder strikes
- Overvoltage by static discharge
- Mass displacements by different branch circuits
- Interference voltages on ground wires by engines or similar consumers
Expert Opto Bridge 0400

Interface isolation for RS232

**Features**
- Overvoltage protection by galvanic isolation
- Isolation voltage max. 2500 V
- Serial input voltage
  - -15 V to -6 V for logical 1
  - +15 V to +6 V for logical 0
- Data transfer rate up to 115,000 Baud
- Easy installation without drivers
- In addition to the data lines (receiver and transmitter lines), two handshake lines are supported in both directions
- Developed and manufactured in Germany

**Electrical Connections**
- Sub-D socket (25-pin) for RS232 (V.24)
- Sub-D plug (25-pin) for RS232 (V.24)
  (power supply of serial ports by attached devices)

**Technical Details**
- Plastic case, LxHxD: 62 x 17 x 54 mm
- Weight: ca. 45 g
- Operating temperature: 0 - 50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

<table>
<thead>
<tr>
<th>Order code</th>
<th>Product</th>
<th>Feature</th>
<th>Power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>0400</td>
<td>Expert Opto Bridge 0400</td>
<td>Interface isolator serial/serial</td>
<td>Power supply of serial ports by attached devices</td>
</tr>
</tbody>
</table>
Expert Opto Bridge 0403

Galvanic interface isolation for USB/USB

Features
- Galvanic isolation of USB device from USB host
- Isolation voltage max. 2500 V
- Supply through USB host
- Supply of connected USB device up to 100 mA through USB host
- Supply of connected USB device from 100 mA to 500 mA through external power supply unit (not included in delivery)
- LED status monitor
- Developed and manufactured in Germany

Electrical Connections
- USB-A socket
- Cable with USB-A plug
- USB-mini-B socket for connection with optional power supply unit (7900)
- USB 1.1 low speed modus (1.5 Mbit/s) and USB 2.0 full speed modus (12 Mbit/s)

Technical Details
- Plastic case, LxHxD: 78 x 22 x 37 mm
- Weight: ca. 55 g
- Cable length: ca. 40 cm
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

Order code | Product | Feature | Power supply |
---|---|---|---|
0403 | Expert Opto Bridge 0403 | Interface isolator USB/USB | by USB host |
7900 | Power Supply Unit 7900, not included in delivery | USB mini-B socket, 5V DC, 500 mA |
Expert Opto Bridge 0404

Galvanic interface isolation for USB/RS232

Features

- Overvoltage protection by galvanic isolation
- Isolation voltage max. 2500 V
- Serial input voltage
  - -15 V to -6 V for logical 1
  - +15 V to +6 V for logical 0
- Data transfer rate up to 115,000 Baud
- Easy installation through virtual COM port
- In addition to the data lines (receiver and transmitter lines),
  two handshake lines are supported in both directions (RTS/CTS)
- For Windows and Linux systems (from Kernel 2.6)
- LED status monitor for RxD, TxD
- Developed and manufactured in Germany

Electrical Connections

- Serial interface RS232 Sub-D plug (9-pin) for device connection
  (power supply through USB interface)
- Cable with USB-A plug for PC connection
- USB 2.0 full speed (12 Mbit/s)

Technical Details

- Plastic case, LxHxD: 77 x 24 x 42 mm
- Weight: ca. 55 g
- Cable length: ca. 40 cm
- Operating temperature: 0-50 °C
- Storage temperature: -20 - 70 °C
- Relative humidity: 0 - 95 % (non-condensing environment)

<table>
<thead>
<tr>
<th>Order code</th>
<th>Product</th>
<th>Feature</th>
<th>Power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>0404</td>
<td>Expert Opto Bridge 0404</td>
<td>Interface isolator USB/serial</td>
<td>through USB interface</td>
</tr>
</tbody>
</table>
## Accessories: Sensors

<table>
<thead>
<tr>
<th>Order code</th>
<th>Product</th>
<th>Feature</th>
<th>Compatible to</th>
</tr>
</thead>
<tbody>
<tr>
<td>7000</td>
<td>Temperature Sensor 7000</td>
<td>RJ11 connector, -20°C to +80°C, cable length ca. 2.3 m</td>
<td>Expert Power Control 8012 / 8090</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EMC Professional 3011</td>
</tr>
<tr>
<td>7001</td>
<td>Temperature Sensor 7001</td>
<td>Mini-DIN connector, -20°C to +80°C, cable length ca. 2.3 m</td>
<td>Expert Power Control 1100 / 1101 / 1102 / 1103 / 1202 / 1292 / 8210 / 8211 / 8212 / 8213</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Expert PDU Energy 8301</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Expert Net Control 2301 / 2312</td>
</tr>
<tr>
<td>7002</td>
<td>Temp./Humidity Sensor 7002</td>
<td>Mini-DIN connector, -20°C to +80°C / 0-90% humidity, cable length ca. 2.3 m</td>
<td>as for 7001</td>
</tr>
<tr>
<td>7101</td>
<td>Temperature Sensor 7101</td>
<td>RJ45 connector, -20°C to +80°C, cable length ca. 2.3 m</td>
<td>Expert Power Control 8221 / 8226 / 8316</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Expert PDU Energy 8311 / 8340 / 8341</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>Expert Transfer Switch 8801</td>
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<td></td>
<td>Expert Net Control 2111 / 2191</td>
</tr>
<tr>
<td>7102</td>
<td>Temp./Humidity Sensor 7102</td>
<td>RJ45 connector, -20°C to +80°C / 0-90% humidity, cable length ca. 2.3 m</td>
<td>as for 7101</td>
</tr>
<tr>
<td>7103</td>
<td>Air pressure/Temp./Humidity Sensor 7103</td>
<td>RJ45 connector, 300-1100 hPa /20°C to +80°C / 0-90% humidity, cable length ca. 2.3 m</td>
<td>as for 7101</td>
</tr>
<tr>
<td>7201</td>
<td>Temperature Sensor 7201</td>
<td>Box case with RJ45 socket, -20°C to +80°C</td>
<td>as for 7101</td>
</tr>
<tr>
<td>7202</td>
<td>Temp./Humidity Sensor 7202</td>
<td>Box case with RJ45 socket, -20°C to +80°C / 0-90% humidity</td>
<td>as for 7101</td>
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<tr>
<td>7203</td>
<td>Air pressure/Temp./Humidity Sensor 7203</td>
<td>Box case with RJ45 socket, 300-1100 hPa / 20°C to +80°C / 0-90% humidity, length ca. 2.3 m</td>
<td>as for 7101</td>
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<tr>
<td>7311</td>
<td>Optical Smoke Detector 7311</td>
<td>Overhead installation (d=100 mm), screw terminal NO or NC</td>
<td>Expert Net Control 2111 / 2191</td>
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<tr>
<td>7312</td>
<td>Thermal Smoke Detector 7312</td>
<td>Overhead installation (d=100 mm), screw terminal NO or NC</td>
<td>Expert Net Control 2111 / 2191</td>
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<tr>
<td>7313</td>
<td>Leakage Sensor 7313</td>
<td>13 mm two-tined, detects flooding</td>
<td>Expert Net Control 2111 / 2191</td>
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</tbody>
</table>
## Accessories: Miscellaneous

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<thead>
<tr>
<th>Order code</th>
<th>Product</th>
<th>Feature</th>
<th>Compatible to</th>
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<tbody>
<tr>
<td>0134-0138</td>
<td>BNC Extension Cable 0134 / 0135 / 0136 / 0137 / 0138</td>
<td>10 / 20 / 30 / 50 / 100 m</td>
<td>DCF77-Antenne 0220</td>
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<tr>
<td>0220</td>
<td>DCF77 Antenna 0220</td>
<td>Active ferrite rod antenna with BNC plug, cable length 5 m (extendable up to 150 m)</td>
<td>EMC Professional 3001 / 3011  Expert Mouse Clock 0108 / 0131  Expert Power Control 8012 / 8090 / 8221 / 8226  Expert Bypass Switch 8701  Expert Transfer Switch 8801</td>
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<tr>
<td>0807</td>
<td>Cable Holder 0807</td>
<td>Cable Holder</td>
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<tr>
<td>0809</td>
<td>GPS Extension Cable 0809</td>
<td>Extension cable for RS232 on RS232, length up to 50 m</td>
<td>Expert GPS Clock 0508</td>
</tr>
<tr>
<td>0860</td>
<td>DIN Rail Mounting Clip 0860</td>
<td>Plastic clip for DIN rail installations, 2 fixation screws</td>
<td>Expert Net Control 2111 / 2191</td>
</tr>
<tr>
<td>7900</td>
<td>Power Supply Unit 7900</td>
<td>Power supply with USB mini-B plug, 5V DC, 500 mA</td>
<td>Expert Opto Bridge 0403</td>
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<tr>
<td>7901</td>
<td>Power Supply Unit 7901</td>
<td>Power supply with plug for 2.1 mm pin, 12 V DC, 500 mA,</td>
<td>Expert Net Control 2111 / 2191  Expert Sensor Box 7211 / 7212  EMC Professional 3001</td>
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<tr>
<td>7902</td>
<td>DIN Rail Power Supply Unit 7902</td>
<td>Power supply unit for DIN rail, 100-240 VAC / 12 VDC 1250 mA</td>
<td>Expert Net Control 2301 / 2312</td>
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<tr>
<td>7990</td>
<td>RS232 Adapter Cable 7990</td>
<td>Connector cable for RS232 to mini-DIN 6, length ca. 2.3 m</td>
<td>Expert Power Control 8210 / 8211 / 8212 / 8213  Expert Net Control 2301 / 2312</td>
</tr>
</tbody>
</table>
Good. Great. GUDE.