





# The All-In-One Power Supply

The Gude Expert Power Control 8291-1 is a smart power distributor for controlling and protecting AV and IT equipment with 21 switchable ports, which can monitor sensitive hardware in complex installations, protect and above all switch them.

Copy: Sven Schuhen

**M**any manufacturers save in the wrong place, especially when choosing external power supplies. This is a mistake that can lead to unnecessary downtime due to defective power supplies or even to the death of the hardware being supplied. And even if the external power supply is well chosen, the clunky connectors are a nuisance in many installations. This is compounded by heat problems,

which in turn can have a detrimental effect on the service life. In the end, a device failure due to a defective power supply is at least very annoying. So why not find a solution for this? And that's exactly what Gude has done with its Expert Power Control 8291-1 smart Power Distribution Unit (PDU) with integrated industrial power supply.

But not only a high-quality power supply of different

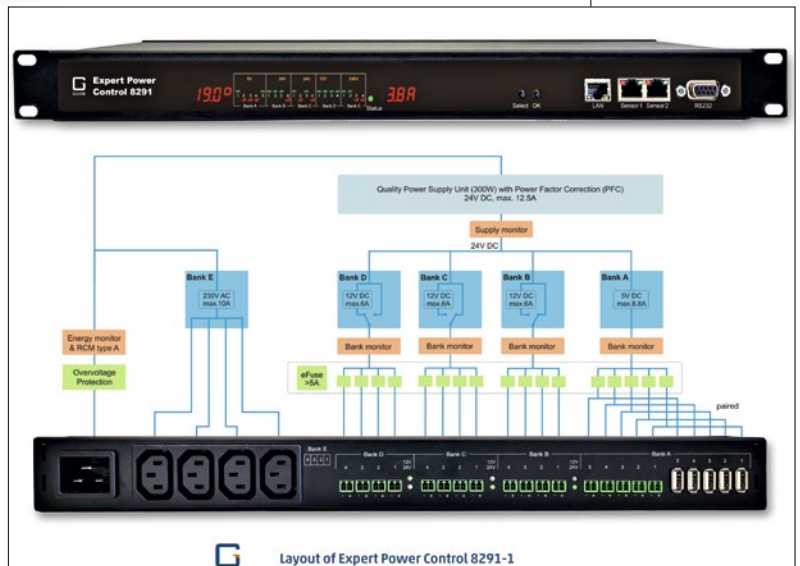


Image: Gude

230 V AC and DC voltage devices with 5 V/12 V/24 V is possible with the Expert Power Control, but also switching and current measurement via a TCP/IP network or a serial connection. This field test will show how practical this can be and why this is an issue for Green AV and IT.

On the back of the 19" device with 1 RU there are numerous possibilities to supply devices with power. In addition to four classic 230 V IEC C13 couplings, the power distributor has three sections with four connection terminals for 12 V or 24 V DC and five connections with 5 V, each of which is designed as a connection terminal and a USB port. A maximum of 4 A is available for each DC output, a maximum of 8.8 A for the complete section of 5 V connections, a maximum of 6 A for the 12 V connections and max. 12.5 A for the 24 V connections. Internally, a fail-safe 24 V power supply unit is permanently available for the power supply of the 24 V, 12 V and 5 V banks and provides a maximum of 300 W. This was designed for 1.8 million operating hours. A total of 10 A can be supplied for the 230 V outputs.

For those who are reluctant to cut the cable from the original power supplies of the devices that are to be connected to the power distributor, all common cables →

**Layout**

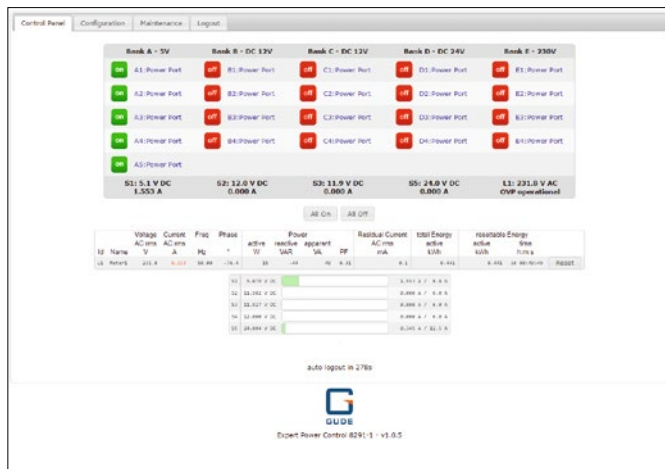
The connections for the outputs on the smart power distribution unit are arranged in banks. On the left are the four ports 230 V IEC C13 (bank E), in the middle are three banks with four ports for 12 V and 24 V respectively, and on the right are five ports with 5 V, which are designed in parallel as two-pole Phoenix terminals or as USB ports.



Screenshot: Sven Schuhen

**Front panel**

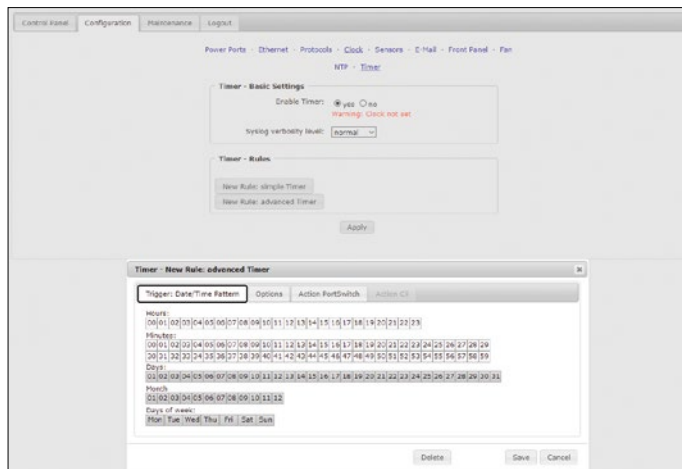
The front panel gives an overview of the switched outputs, the voltage of the banks, error status of the device and the total current consumption. Via buttons further to the right, the channels can also be switched manually and the IP addresses can be displayed.



Screenshot: Sven Schuhen

**Dashboard**

The dashboard in the web interface of the smart power distributor provides all kinds of information about the switching states, the voltage and current values and the total load in the individual banks. Here, all channels can be switched individually or all together.



Screenshot: Sven Schuhen

**Schedule configuration**

Detailed time switches are defined in the configuration. Here either single and multiple ports can be switched or command line instructions can be executed.

with the appropriate power plugs can also be optionally obtained from Gude.

The outputs can be switched individually at the device, via schedules or by event-based switching sequences via HTTP(S) (TLS 1.2 + 1.3), SNMP (v1, v2c and v3) and via Modbus TCP.

**Output monitoring and protection**

Current monitoring is available for the 5 V, 12 V and 24 V outputs, which can prevent downtime. For the 230 V outputs on the other hand, there is only voltage monitoring. In addition, each output and thus also other connected consumers are protected against short circuits thanks to eFuses. A type 3 overvoltage protection prevents damage to the power distribution unit and the connected devices.

An individual watchdog (ICMP/TCP) for each output automatically restarts a hung device by briefly disconnecting it from the power supply. If a device does not have a watchdog interface, hung devices can still be restarted remotely via SSH, Telnet or browser (e.g. via a VPN connection). For the mains input of the device, a measurement of the differential current type A as well as measurements of the current, the voltage, the phase angle, the power factor, the frequency as well as the active, apparent and reactive power are performed.

The Gude Remote Power Switch 8291-1 offers two connections for optional sensors for environmental monitoring such as temperature, humidity or air pressure. Switching operations can be set up on the basis of external sensors or the energy measurement. For relevant events, the software can generate messages as e-mail,

syslog and SNMP traps to inform the user of e.g. errors or critical states. Critical errors are also indicated via notices and LEDs on the front panel.

**Control Panel**

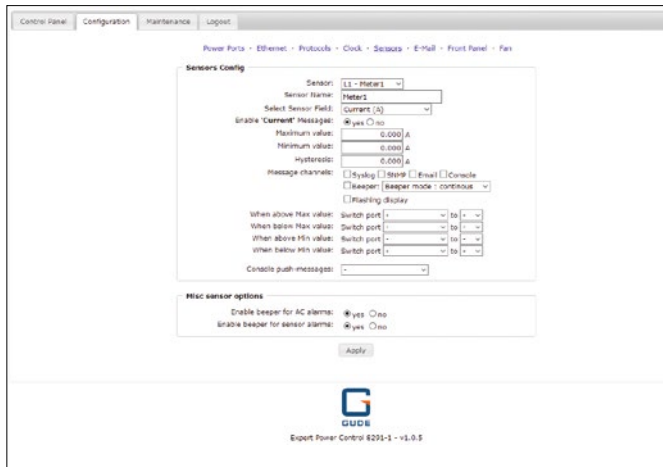
The Control Panel, the web interface of the Gude power distribution system, allows a wide range of settings to be made on the smart power distribution unit from Gude. The current switching states of the outputs for each bank are displayed on the dashboard. In addition, the voltage and current measurement per bank can be read here. If required, all outputs can be switched on or off at once, this is then done for each output in turn with a small time delay. The measurements at the mains input and those of the optional sensors can also be called up here. In addition, the dashboard also provides an insight into the load distribution of the individual power sources.

Various settings for the individual ports and the banks, the network interface, the web interface, the allowed communication protocols, the sensors as well as the notifications, the front panel and the fan can be made in the configuration. In addition, a timer function is also available here, which allows switching operations or command line operations to be performed for various rules. Furthermore, preset threshold values of the sensors can be used for switching operations.

The sensor data generated can also be integrated into common monitoring software such as PRTG, Icinga, Nagios, Power IQ, Tivoli.

In terms of security, the smart power distributor offers several options. In addition to SSL-encrypted access, the user's own SSL certificates can also be loaded onto the





### Sensor configuration

In the „Sensors“ area, settings can be made for the internal and optional sensors. Actions that are triggered when threshold values are reached can be determined here.

device. An IP access control list can be used to activate an IP filter that only allows certain IPs, MAC addresses or domains to access the web interface and IP control.

Added value of a smart power distributor?

According to Gude, the Remote Power Switch was designed to meet the needs and challenges of AV and IT professionals, and plays to its strengths in integrations ranging from huddle and conference rooms, auditoriums, theaters, and digital signage applications and LED walls to smart homes and yachts. During development, strong attention was paid to increased operational safety through surge protection, eFuses and the choice of high-quality components as well as energy efficiency, but also to small details such as minimizing cabling problems. Thanks to the industry-standard internal power supply, the connected devices are reliably and stably supplied with power. Failures due to faulty power supplies can thus be reduced to an absolute minimum. The elimination of clunky plug-in power supplies creates additional space in the rack. In addition, the integrated energy meter allows precise measurement of the connected loads and thus enables the detection of power-hungry devices. The monitoring of various parameters detects possible faults at an early stage, which enables preventive measures and additionally minimizes downtimes.

Drivers for easy integration are available for common media control systems such as Atlona, Barco, Crestron, Extron or Neets in order to control the Gude Expert Control 8291-1 power distributor via these systems and to switch connected devices. This allows AV and IT equipment to be restarted, switched on and off via a media control system without the need for switches or their

own switching function. This can significantly reduce the power consumption of some installations, where the devices would otherwise be in operation 24/7, even though there is no need for this. IT and AV components are also often installed deep in equipment racks or in furniture that cannot be accessed directly for manual switching. Also here, a smart power distributor enables remote access. In addition, the optional sensors allow simple environmental monitoring, which can also be used to generate messages or whose data can be integrated into central monitoring systems

### Conclusion

Especially for larger or hidden installations, the smart power distributor Gude Expert Power Control 8291-1 brings a real advantage. Here it avoids several problems that occur with conventional plug-in power supplies. Lack of space is eliminated, since the

device uses only 1 RU in the rack and can save up to 17 power supplies. The internal, high-quality power supply is designed for long durability, which increases the reliability of the connected devices. In addition, it will operate much more efficiently than most conventional plug-in power supplies, which in itself will lead to power savings. The possibility to control the connected loads at the device, via the timer function and remotely via the web interface, serial commands or IP commands, as well as the integration of the power distributor into media control systems, provides a wide range of possibilities. Devices without a stand-by function or easily accessible switches can be switched off in the first place, which can result in significant power savings. Especially for devices that are not designed for 24/7 operation, a timed switch-off can additionally increase the service life.

The smart power distributor Expert Power Control 8291-1 is available in the DACH region from the Cologne-based manufacturer Gude Systems at a net list price of € 899. •

### Web-Links

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