Make your systems fail-safe
With us you have an everlasting supply
Let's connect.

Power supply

Weidmüller

Guarantee your systems' immunity

We are your partner for custom-fit power supply

Reassure your customers by equipping your systems with the best failure protection against voltage drops and interruptions to the power supply.

Even short-term fluctuations in voltage can have serious consequences for your customers' production processes. Electronic controls in particular respond very sensitively to supply faults. Entire production lines are often affected and considerable costs are incurred when individual systems fail.

2012 saw network operators report just under 200,000 interruptions to the power supply in Germany alone. This number indicates network faults lasting three minutes or more. Furthermore, every day there are countless transient failures and faults occurring within the supply infrastructure that can last up to one minute. The reasons behind these voltage drops are diverse and there is no way for network operators to prevent them.

What you have to do is take precautionary measures to ensure immunity directly on your systems. To keep the outlays as effective and economically viable as possible, the protection should be optimally coordinated to the application's sensitivity and your customer's individual needs.

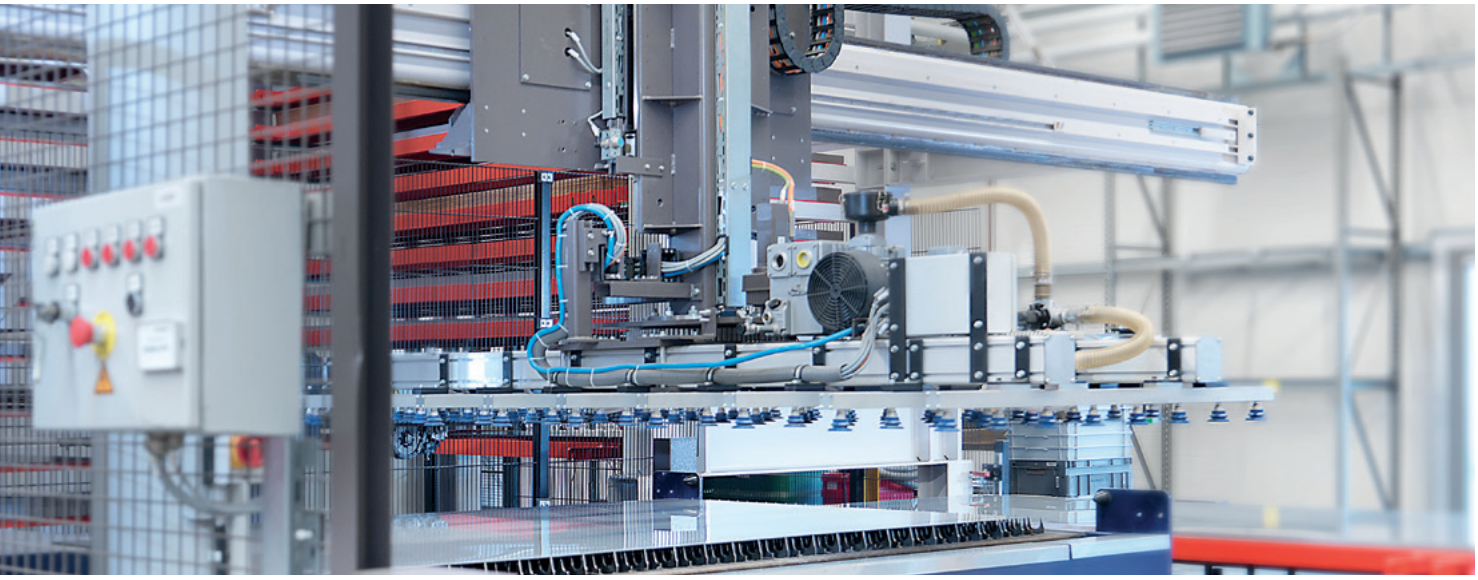
The modular power supply concept from Weidmüller helps you to meet all of your requirements practically. We provide you with a tailored solution with components that are precisely coordinated with one another. Redundant switched-mode power supply units, uninterruptible power supplies (UPS), capacity modules and our extensive range of expansion modules improve the reliability of your systems and prevent costly production downtimes. You can therefore supply your customers with custom-fit failure protection and the reassurance of a profitable investment.

Confidently respond to all of your application requirements

Our customised switched-mode power supply units provide a reliable basis

Your customers expect maximum reliability of supply for every application. With the three families of switched-mode power supply units from Weidmüller, you are laying the foundation for a needs-based supply concept.

From the especially economical PROeco, through the powerful PROmax, to our specialist PRO-H, we always deliver the right supply – coordinated to the specific requirements of your machine or system. Parallel circuits consisting of up to five devices mean that power can be adapted in a customised fashion.



PROmax, "the powerhouse":
suitable for maximum loading and flexible in use

The high-performance PROmax series of switched-mode power supply units are designed for especially ambitious machine construction. They demonstrate their strengths in plant manufacture, in the food and beverage industry, in automotive construction and even in simple systems in the process industry. PROmax is capable of handling continuous overload of up to 20% at 45°C or transient peak loads of 300% with ease. With start-up temperatures down to –40°C, the power packs prove to be especially robust. Thanks to their narrow width, they also fit in confined spaces. A multitude of approvals mean that PROmax can be used around the world.

PROeco, “the economical solution”: outstanding power on a small budget

The PROeco series of switched-mode power supply units offer all the basic functions and cut an impressive figure with high power and flexibility. They are optimally suited to the smallest of applications in machine building where everything boils down to space, user-friendliness and efficiency. Given their extremely low construction depth of just 100 mm, PROeco units are ideally suited to use in field cabinets, flat distributor boxes or compact series machines.

PRO-H, “the specialist”: ideal for the specific requirements of explosive risk zones

The switched-mode power supply units of the PRO-H series withstand the most extreme conditions. Thanks to MTBF (Mean Time Between Failures) values of up to 1,800,000 hours, they are suitable for special applications, such as in transporting fuel from chemical systems or to conventional power plants. ATEX approvals allow for use in explosive risk zones and in the high-performance range.

PROeco, “the economical solution”

- Up to 93% efficiency already in “eco”-level
- Compact design: also suitable for installation in flat control boxes with a depth of just 100 mm
- A triclour LED display indicates an output current level at 90% and thus makes analysing statuses easier.

PROmax, “the powerhouse”

- High power reserves up to 60°C and a start -up at –40°C for safe operation
- Robust thanks to an input voltage range of up to 277 V AC, surge protection category III and SEMI F47
- Side-by-side connectability and a very thin design save space in the cabinet.
- International approvals guarantee an international use.

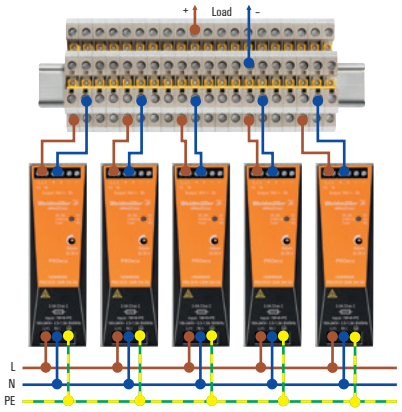
PRO-H, “the specialist”

- ATEX approval for use in energy and process applications
- High reliability thanks to MTBF times of up to 1.8 million hours
- Redundancy modules with active, symmetrical current sharing for long service life
- Models with ultra-wide voltage input of 100 to 500 V AC for single and two-phase networks

Increasing the output power

The direct parallel circuit consisting of several power supplies enables customised adaptation of the output power. This must not be confused with redundant switching, when the stabilised load current is to be shared equally.

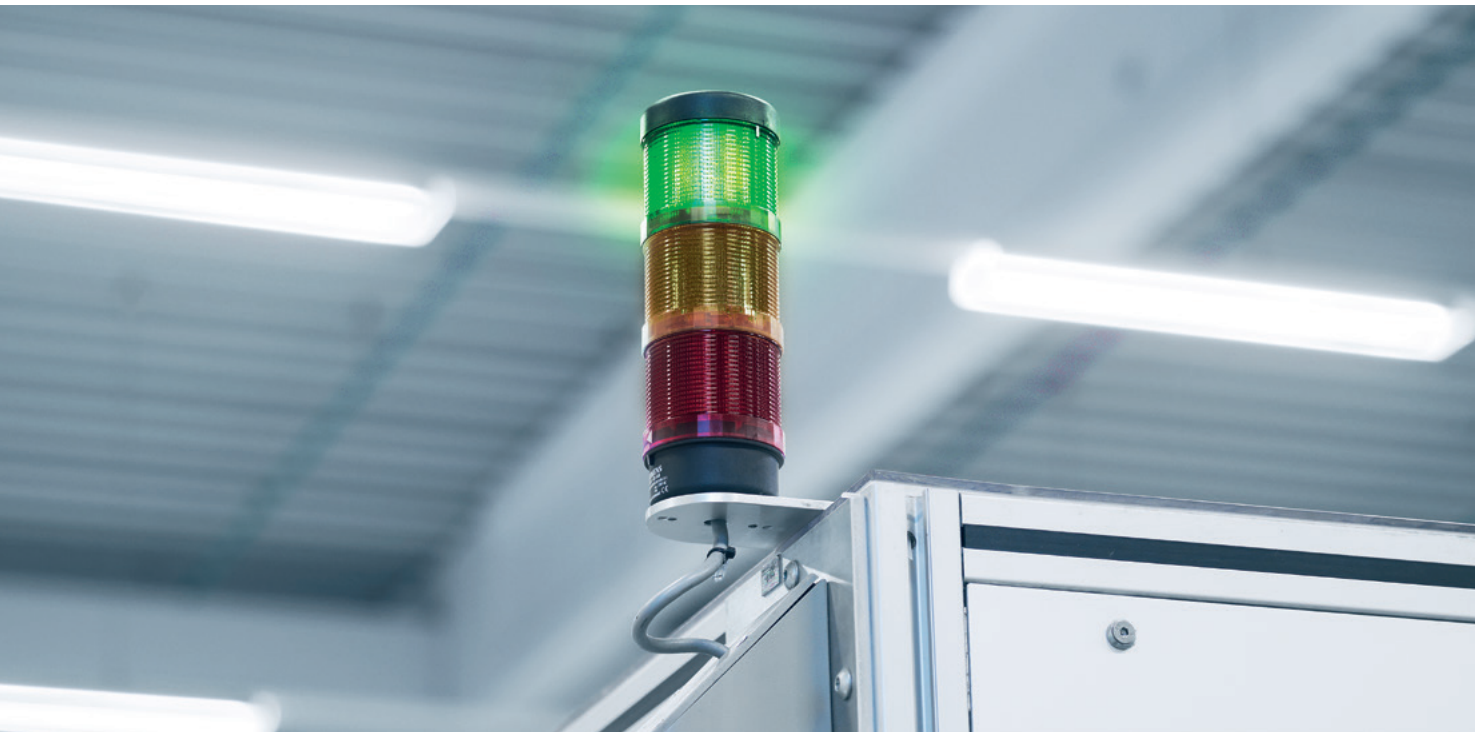
- PROeco, PROmax and PRO-H power supply units: up to five devices can be connected in parallel.
- Also featuring our INSTAPOWER power supplies: up to three devices can be directly switched in parallel.
- Indication of the failure of individual devices can be achieved using optional diode modules.



Useful information

To ensure the most even distribution of the load within the parallel connected power supply units, the voltage difference must not be more than ±50 mV. This balance is achieved when the plus wire is connected. Symmetrical wiring also helps to distribute the current uniformly.

Make your supply concept everlasting
We offer tailored complete solutions

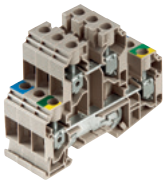


The growing degree of automation in your customers' production processes calls for the reliable guarantee of a DC power supply during ongoing operation, especially in the event of a fault. Make your supply concept everlasting and connect our switched-mode power supply units using perfectly coordinated add-on modules.

For an uninterruptible power supply, we offer buffer modules, UPS devices and batteries to bridge everything from a few milliseconds up to several hours. Use our diode and redundancy modules to connect two power supplies and compensate for a device failing. In addition, our capacity module offers power reserves, guaranteeing purposeful and quick triggering of a circuit breaker, for example.

As an industrial connectivity partner, Weidmüller offers you power supply solutions in a variety of reliability levels – which accurately fit into your application right down to the very last detail.

Input/supply



AC distribution

Lightning and surge protection

Upstream protective circuit for the AC input: modular terminals for a flexible connection to the mains and our VARITECTOR lightning and surge protectors for supplementary or complete protection of your power supply.

Switched-mode power supply units

PROeco

PROmax

PRO-H

Expansion modules

Diode module

Capacity module

The right switched-mode power supply unit is an essential element of a permanently reliable cabinet and supplies the fuel for all the automation equipment. The expansion modules allow you to supplement individual functions.

System components

Uninterruptible power supply (UPS)

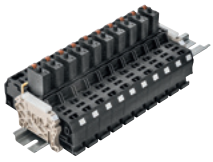
DC/DC converters

Electronic fuse

WAVEGUARD

Depending on which requirements the devices in your automation have and how they are protected or supported in a customised manner, the system components turn your power supply into a solution for your application.

Distribution



Control energy distribution

Distribution of the DC control voltages for the individual consumer paths.

Play it safe, twice over

Redundancy circuitry increases the availability of your system

The benefits of establishing a redundant supply are twofold. Neither a device failure of a power supply nor a failure in an individual phase can cause the 24 V DC control voltage to fail. Each redundant branch is capable of supplying the full output load separately.

The extensive range of power supply products from Weidmüller offers you an extremely wide range of solutions to redundantly supply your application. For example, you can add the associated diode module to our PROmax switched-mode power supply units. One advantage of this solution is that it is very compact. When the various PROmax modules are fitted in the cabinet, they can be lined up, right next to one another, because there is no need to separate them for cooling.

We also offer suitable redundancy modules for cases where our PRO-H switched-mode power supply units are used in explosive risk zones and in the high-performance range. These enable two PRO-H devices with the exact same distributed load to be operated in parallel (active current sharing). Both switched-mode power supply units are symmetrically loaded and if one device fails, the other takes over the full load as part of an uninterruptible process.

Edwin van Brakel, Production Manager at Gooiland Elektro bv in the Netherlands

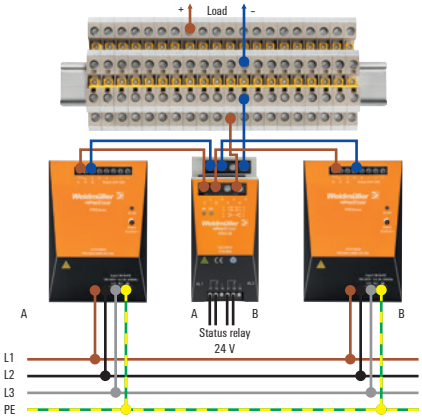
"The Weidmüller power supplies and expansion modules are the perfect solution for our requirements. They reliably ensure the secure and redundant supply of our applications. As our partner, Weidmüller always offers the best advisory, suitable products and perfect service."

Edwin van Brakel

Redundant power supply units

The availability of the power supply units is increased by the use of redundant circuits. Here, each individual power supply unit can cope with the total load required in the event of a failure by itself.

- In the case of redundancy switching, the diode module's output current must not exceed that of either switched-mode power supply units.
- Diode modules are also used for a secure parallel circuit of switched-mode power supply units.
- Full status monitoring thanks to integral alarm monitoring the voltage of both inputs.



Performance characteristics and order data for our redundancy and diode modules

Name	U_{IN} [V]	U_{IN} [A]	U_{OUT} [V]	I_{OUT} [A]	Order No.
CP DM 10 (PROeco)	10–40	10	U_{IN} – 0.7	20	**8710620000**
CP DM 20 (PROeco)	10–40	20	U_{IN} – 0.7	40	**8710650000**
CP M DM 20 (PROmax)	18–30	20	U_{IN} – 0.7	20	**1222210000**
CP M DM 40 (PROmax)	18–30	40	U_{IN} – 0.7	40	**1222220000**
CP T RM 10 (PRO-H)	24	15	24	15	**1105880000**
CP T RM 20 (PRO-H)	24	25	24	25	**1105890000**

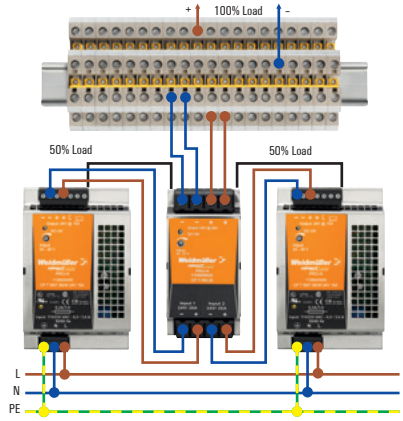
Useful information

Example of a redundant power supply at an output load of 20 A:
2 x PROeco 20 A and 1 x CP DM 20 or
2 x PROmax 20 A and 1 x CP M DM 200

Example of a parallel circuit of switched-mode power supply units to boost performance for an output load of up to 40 A:
2 x PROeco 20 A and 1 x CP M DM 40 or
2 x PROmax 20 A and 1 x CP M DM 40

Active load distribution

Active load distribution (active current sharing) ensures that a load current is evenly shared over two power supplies. The availability of the total power supply is increased considerably, as each power supply is always operated with just half of the nominal load at most.



Useful information

Only use devices of the same type at all times. Active load distribution is guaranteed by means of the redundancy modules CP T RM 10 and CP T RM 20.

Bridge network failures of up to 30 hours

With our modules for an uninterruptible power supply

Coordinated to the switch-mode power supply, the UPS control units and corresponding battery modules from Weidmüller form a complete DC UPS system offering support times ranging from minutes to hours.

If security functions, process checks and communication processes are to be purposefully maintained, then the automation components need an everlasting supply. Using our uninterruptible power supply units in conjunction with the suitable battery modules allows you to bridge longer network failures in an especially reliable way.

The modules can supply up to 40 A for 30 minutes or 1 A for 30 hours, depending on requirements. The modular design allows the complete load to be split into non-safe and safe load circuits, often enabling a smaller UPS to be designed.

The core features of our UPS system at a glance:

- Different status relays for status monitoring
- Long battery service life thanks to integral deep discharge protection and temperature-compensated battery charging
- Especially space-saving thanks to a small width of 66 mm

When it comes to protecting against transient interruptions in the range of several 100 milliseconds, we recommend using our maintenance-free buffer module.

Current peaks can occur time and time again in your customers' applications due to high connected loads and alternating loads. These high pulses result in mains feedback, and faults lasting milliseconds are a frequent occurrence. Sudden fluctuations may occur, especially in regions with weak low voltage networks. Examples of such applications include smaller machines for woodworking or metal processing. Network fluctuations sometimes aren't documented, and machines may fail out of the blue.

Our buffer module is a practical way of being well-equipped for difficult network situations, especially in rural areas. It can bridge 20 A for 260 milliseconds with ease. By connecting two modules in parallel, you can increase the current or buffer time.

The buffer module is simply connected to the secondary side of the switched-mode power supply unit in parallel and is therefore very easy to include in planning. You don't really have to worry about it much once it has been inserted. Depending on the application, it has a service life of up to ten years.

"We rely on Weidmüller as a partner for holistic solutions. When it comes to power supply, for example, we get everything from them – the switched-mode power supply unit, the UPS unit and the battery module – all of which are selected to meet the exact requirements of our various system types."

Valter Clerico

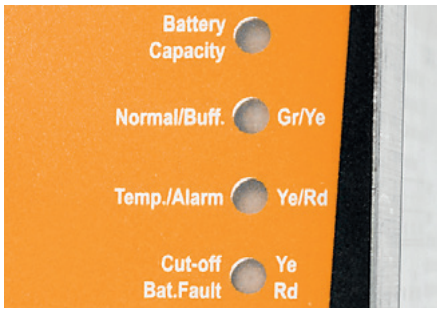
Valter Clerico (l.), Anselmo's Electrical and Automation Department Manager, and Francesco Pape (r.), Sales at Weidmüller Italy

DC-USV uninterruptible power supply

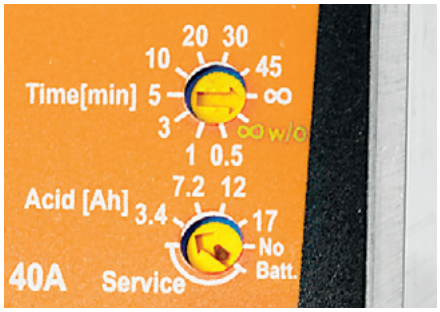
Secure energy in automation

Long battery service life
The temperature-compensated characteristic charge curve ensures the best charge for the battery. This maintains the battery's long service life.

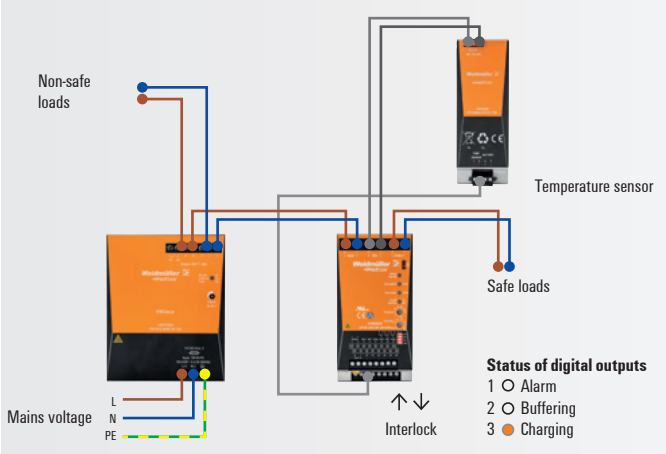
Quick error analysis
The charging level indicator and the status and error indicators facilitate rapid error analysis.



Flexible application
Multiple operation modes optimise the use of battery power and facilitate its flexible application.

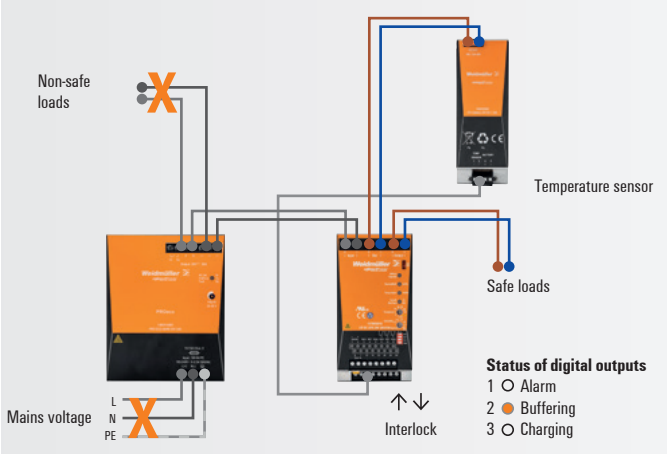


Time saving
The three additional active 24 V DC transistor outputs simplify cabling and save time.



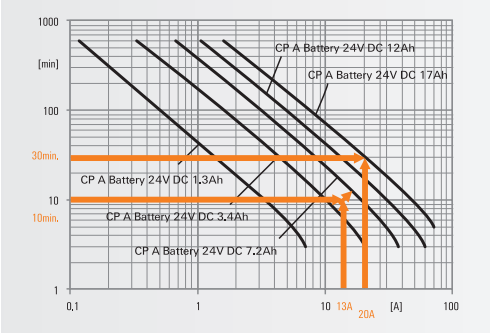
Normal mode

A DC-UPS can be inserted into any 24 V DC system and will pass the supply through the unit and also charge two connected batteries in series. The unit is complete with one digital input for interlock normally linked, and three digital outputs (relay and transistor). In normal operation output three would be on to indicate charging of batteries in progress.



Buffering (back-up mode)

When 24 V DC supply is removed, the non-critical load will stop and the battery will instantly power the safe load or output for a pre-set time period from 0.5-45 minutes or for as long as possible (deep discharge). Digital output two will provide feedback that DC-UPS is buffering the load and output one will initiate when either the pre-set cut off time is reached, or deep discharge has caused the battery voltage too low.



Performance characteristics for battery modules

Battery capacity	3.4 Ah	7.2 Ah	12 Ah	17 Ah
Current				
10 A	11.3 min.	26.5 min.	51 min.	81 min.
20 A	5 min.	11.5 min.	22.7 min.	34 min.
40 A	–	5 min.	9 min.	13.5 min.
Max. output current	25 A	50 A	50 A	50 A

Order data

Type	Fixing	Order No.
CP DC BUFFER 24 V 20 A	DIN rail	1251220000
DC-UPS 20 A / 10 A	DIN rail	1370050010
DC-UPS 40 A	DIN rail	1370040010
Battery 1.3 Ah	DIN rail, wall mounting	1406930000
Battery 3.4 Ah	DIN rail, wall mounting	1251070000
Battery 7.2 Ah	Wall mounting	1251080000
Battery 12 Ah	Wall mounting	1251090000
Battery 17 Ah	Wall mounting	1251110000

Guarantee reliable, selective load protection

Our capacity module offers quick and purposeful triggering

The increasing automation of production processes calls for a guaranteed everlasting supply under all circumstances.
Our capacity module acts as an energy store and can quickly and purposefully release the power in the event of a fault, in order to ensure a safe system status.

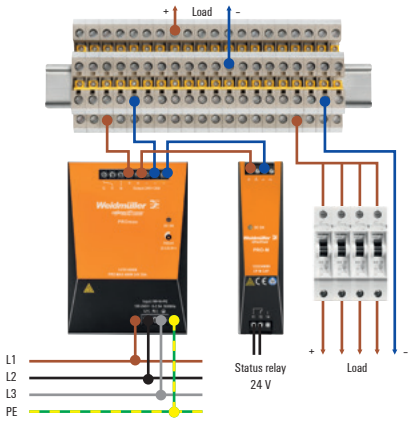
Reliably protect sensitive system components
with our expansion modules and fuses

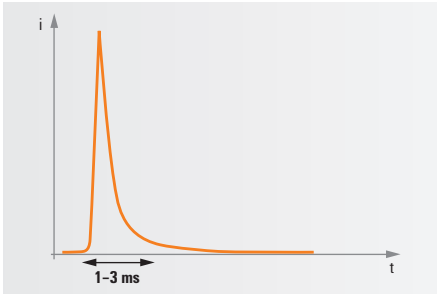
Power reserve for peak currents

In many cases, highly dynamic load situations are generated in machines. In packaging machines or winding gear, for example, motors or heaters start up at short intervals. Current peaks can be generated during this process, pushing a switched-mode power supply unit to its limits. Other components, such as controls, respond to this with errors.

For selective triggering of circuit breakers or for short-term additional power reserves, a capacitor module can be integrated into the 24 V circuit.

- The integrated alarm relay monitors the input voltage, thereby monitoring the status of the 24 V DC power supply.
- Sufficient power for the pulse triggering of circuit breakers (MCBs).
- To further increase the power reserves, multiple capacitor modules can be connected in parallel.





Performance characteristics and order data for our capacity module

Name	U [V]	I [A] / 1 [ms]	Order No.
CP M CAP	18–30	40	1222240000

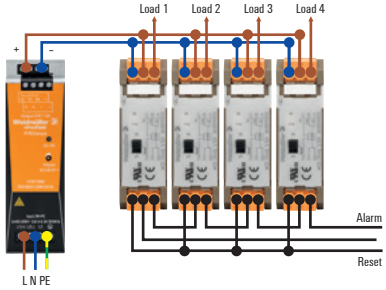
Useful information

The capacitor module can be used independently of the output power from the power supply modules. When triggering circuit breakers, the line impedance must be observed.
You will find the relevant values for circuit breakers with the characteristics B6, B10 and B16 and those for C2, C4, C6 and C10 here: **www.weidmueller.com/MCB**

Selective load protection

The breakdown of the whole secondary load into individual load circuits which have quick-operating safety elements in case of a fault is known as selective load protection. Electronic fuses are ideal to meet the special requirements found in selective load protection.

- The tripping characteristic curve of the electronic fuse is, on the one hand, fast enough to switch off the faulty circuit quickly, and on the other, tolerant enough to deal with a motor start-up or capacitive loads.
- A switch to turn the output on or off means that it is simpler to diagnose errors and to commission.
- The fuse triggering is signalled via a potential-free alarm relay.
- A reset input allows the fuse to be switched on again remotely.



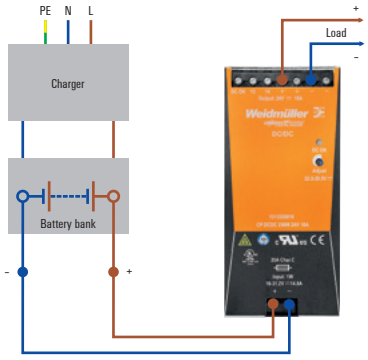
Performance characteristics and order data for our fuses

Name	U_{nom} [V]	I_{OUT} [A]	Order No.
WGS 24 V dc 1.6 A	24	1.6	**8618890000**
WGS 24 V dc 3.15 A	24	3.15	**8618910000**
WGS 24 V dc 6.3 A	24	6.3	**8618930000**
WGS 24 V dc 8.0 A	24	8.0	**8618940000**
WGS 24 V dc 0.5-5 A	24	0.5-5 adjustable	**8710270000**

Galvanic isolation and stabilisation

DC/DC converters galvanically isolate the input from the output voltage and prepare them:

- to compensate for voltage losses which occur due to the higher cable resistance,
- to avoid ground loops which can occur in plants which are spread over a large area.
- A potential-free alarm relay and three transistor outputs give you full status monitoring.
- The DC/DC-Converter is a protection class III device, thus you can use them in floating earth systems such as might be found when operating back-up batteries.



Performance characteristics and order data for our DC/DC converters

Name	U_{IN} [V]	U_{OUT} [V]	I_{nenn} [A]	P [W]	Order No.
PRO DCDC 120W 24V 5A	18-32	22.5-29.5	5	120	**2001800000**
PRO DCDC 240W 24V 10A	18-32	22.5-29.5	10	240	**2001810000**
PRO DCDC 480W 24V 20A	18-32	22.5-29.5	20	480	**2001820000**