EN

2013/14
Edition 1

BLOCK
POWER SUPPLIES

Switched mode power supplies / electronic circuit breakers /
uninterruptible power supplies / redundancy modules / accessories

Switched mode power supplies

Electronic circuit breakers

reddot design award
winner 2013

Uninterruptible power supplies

Redundancy modules

BLOCK
block-trafo.de

INTRODUCTION

Your partner for leading technology and high quality products.

Our benchmarks are our customer requirements. sophisticated technology and intelligent solutions are our target values.

We guarantee you reliable and energy efficient products and concepts.

www.block-trafo.de

MADE IN GERMANY

KNOW-HOW

Technologically convincing

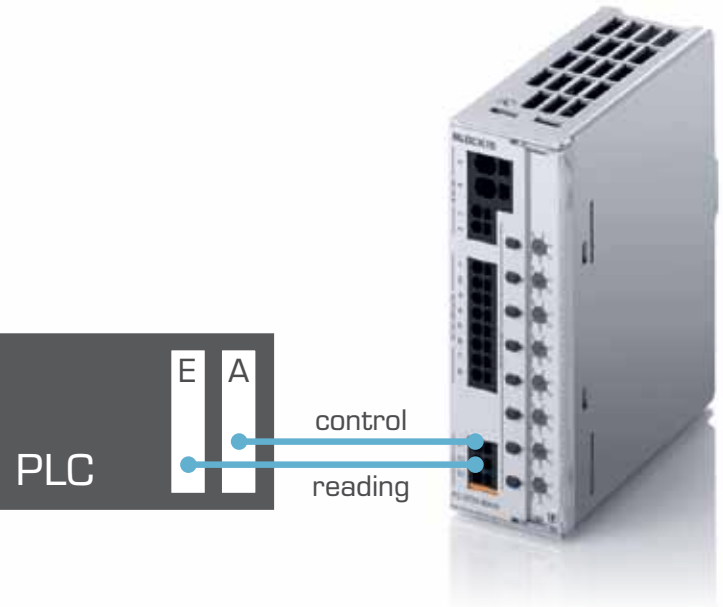
BLOCK products are specially tailored to the requirements of the particular application and offer you the greatest availability for your machines and equipment.

www.block-trafo.de

Switched mode power supplies with powerful BOOST technology

Up to 100 A for 50 ms available for the reliable solution of standard circuit breakers in faulty circuits. Furthermore load switching of very high inrush currents is ensured thanks to the reserve capacity of up to 100% for 4 seconds without over-dimensioning the switched mode power supply.

[more from page 8]



Electronic circuit breakers with cheaper connection to a higher level control system

Up to 8 fused circuits can be specifically switched on or off through via a digital output of the PLC. A digital input reads the operating and fault status of each circuit.

[more from page 28]

DC - USV Systems with battery control

Reliable battery management can only be realized through a permanent data exchange between charger and controller. This enables the optimal and gentle charging of the batteries and at the same time the superior machine control system provides a reliable signal as soon as the accumulator needs to be changed due age.

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Develops and produces products in Germany for the whole world

Choose from our large range of switched mode power supplies, electronic circuit breakers, USV-systems and redundancy modules.

BLOCK

Switched mode power supplies

POWER ECO LINE

POWER **ECO LINE**

Our powerful mini for compact controllers

POWER MINI

POWER **MINI**

Efficient power supply in compact casing for multiple uses

POWER PRINT

POWER **PRINT**

Smallest power supply for assembly on printed circuit boards

POWER COMPACT

POWER **COMPACT**

Optimized for the core task of voltage and current supply.

POWER VISION

POWER **VISION**

The high performer for demanding tasks

POWER VISION

Power Vision power supplies

for the highest system availability

Power Vision, a product line that's a leading light in the world of power supplies in terms of its technical and economical benefits. All of the modules are slim, feature communication capabilities and boast maximum power reserves for optimum system availability. And all this is available at a cost that won't break the bank.

Top Boost

Enables the use of classic circuit breakers for the selective fuse protection of DC 24V voltage supply

Power Boost

Large supply reserves secure the start up of loads with high inrush currents

Power input fuse

Previously mentioned pre-fuses can be omitted for device protection thanks to the integrated fuses

Monitoring

The inspection of input and output supply is ensured via the interfaces and configurable signal outputs, for extensive monitoring possibilities.

Special features

Input fuses

The devices have built in input fuses and can be directly connected to industry standard sockets. This saves space and costs for additional circuit breakers and their wiring.

Software

Free parameter diagnosis software is available for devices with integrated interfaces. The recording of measurement values and reports is possible for an analysis of the network output voltage and the output current and voltage relationship.

Large current reserves Top and Power Boost

Digital boost control

Boost is available directly after device start up.

Two power boost levels

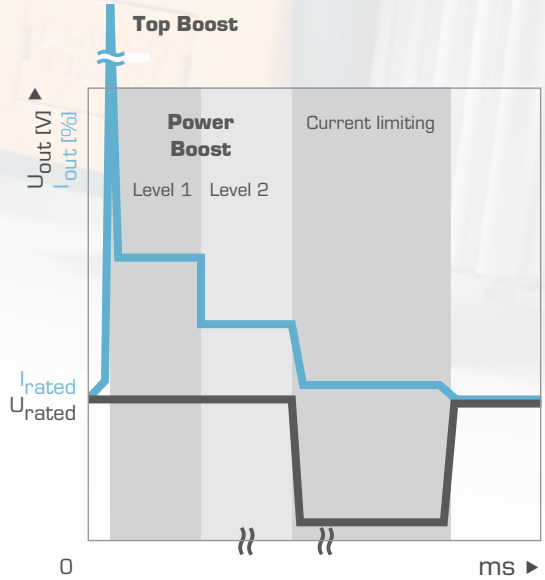
100 % bonus power supply for 4 secs.
50 % bonus power supply for 16 secs.

Top Boost

temporary increased power supply, reliable start from loads with very high inrush current peaks, enables the tripping of circuit breakers up to C characterization

Dynamic power boost

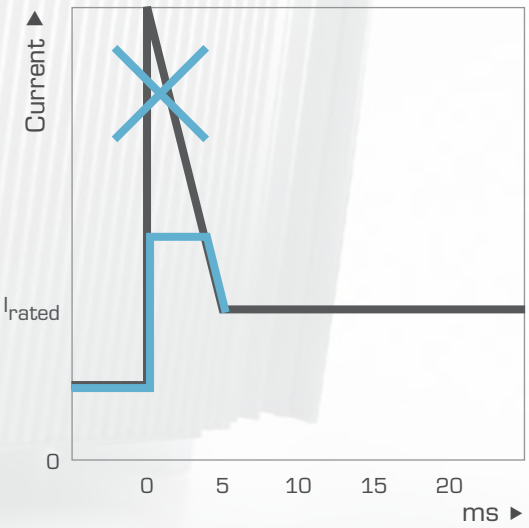
enables cyclic use of power boost



Active inrush current limiting

After the switching on of the supply voltage an inrush current peak occurs from the current supply through internal condensors, which limit it with passive components. The parallel switching of several current supplies are added to the inrush currents.

Versions are available which limit these inrush currents to a minimum. An unwanted tripping of the same back-up fuse is avoided.



POWER VISION

POWER **VISION** ECONOMY

Economy- the low-cost option

Power Vision Economy are optimized switched mode power supplies with high-precision output voltage for all automation technology requirements. “Economy” concentrates on the core task of voltage and current supply.

Power range from 72 to 960 W
Universal output
Stabilized and variable output voltage

Single-phase

12 Vdc 6 A	12 Vdc 10 A	12 Vdc 15 A	
24 Vdc 3 A	24 Vdc 5 A	24 Vdc 10 A	24 Vdc 20 A
			30 Vdc 15 A
		48 Vdc 5 A	48 Vdc 10 A

Three-phase

24 Vdc 10 A	24 Vdc 20 A	24 Vdc 40 A
		30 Vdc 25 A
	48 Vdc 10 A	48 Vdc 20 A

Highlights

- ✔ Top Boost - 60A over rated current to tripping of circuit breakers
- ✔ Up to 200% real Power Boost for 4 seconds
- ✔ Standby input
- ✔ Plug-in spring-loaded connection technology
- ✔ Robust support rail mounting
- ✔ Potential-free DC OK signal contact

POWER VISION

POWER **VISION** BASIC

Basic featuring load monitoring

Basic is for all requirements in automation technology, with numerous parameter-setting and indicator functions and output current and output voltage monitoring. In addition to the PVSE power reserves, a serial interface and four active signal outputs ensure uninterrupted communication with the system environment.

Power range from 240 to 960 W
Universal input of 340 to 550 Vac
Stabilized and variable output voltage

Three-phase

24 Vdc 10 A | 24 Vdc 20 A | 24 Vdc 40 A

Output monitoring for a more preventive approach

The current and voltage of the PVSB switched mode power supply output are monitored continuously. Key information can be read directly from the display. The integrated control unit is able to detect potential faults affecting equipment at an early stage, store the associated data and output signals accordingly.

Potential faults the PVSB is able to detect:

Overcurrent
When the output current exceeds the rated output current.

Undervoltage
When the output voltage falls below the configurable DC OK limit value.

Hardware fault
When the device's internal self-testing function fails.

Key information that can be obtained via the display or the interface:

- Input voltage
- Output voltage
- Max. Output current
- Min./Max. Output voltage
- Visualisation of all faults
- Type of fault
- Hour counter

Highlights

✔ Top Boost - 60A over rated current to tripping of circuit breakers

✔ Integrated output current and voltage monitoring

✔ Robust support rail mounting

✔ Plug-in spring-loaded connection technology

✔ Up to 200% real Power Boost for 4 seconds

✔ Display and RS-232-interface

✔ Function monitoring through four active DC 24V signal contacts

POWER VISION

POWER **VISION** LINE

Line featuring load and mains supply monitoring

The PVSL 400 is a top-of-the-range switched mode power supply designed to meet all automation technology requirements. It features a whole range of parameterization and display functions, including output current and voltage monitoring as well as integrated supply input analysis.

Power range from 240 to 960 W
Universal input of 340 to 550 Vac
Stabilized and variable output voltage

Three-phase

24 Vdc 10 A **24 Vdc 20 A** **24 Vdc 40 A**

Highlights

- ✔ Top Boost - 60A over rated current to tripping of circuit breakers
- ✔ Up to 200% real Power Boost for 4 seconds
- ✔ Display and RS-232-interface
- ✔ Integrated output current and voltage monitoring
- ✔ Robust support rail mounting
- ✔ Plug-in spring-loaded connection technology
- ✔ Function monitoring through four active DC 24V signal contacts
- ✔ Additional input voltage monitoring including frequency and rotary field measurement

Input and output monitoring for a more preventive approach

In addition to the features supported by the PVSB model, the PVSL switched mode power supply is equipped with an integrated supply input monitoring function.

Potential faults the PVSL is able to detect:

Supply undervoltage
When the input voltage of at least one supply input phase falls below a configurable threshold value.

Supply overvoltage
When the input voltage of at least one supply input phase exceeds a configurable threshold value.

Phase error
When a supply input phase fails.

Phase sequence error
When the connected phase sequence direction is anticlockwise.

Frequency error
When the power frequency is outside the frequency range of 44 to 66 Hz.

Power failure
When at least two power input phases fail (typical response time 4 ms).

Communication error
When the internal communication test fails.

Overcurrent
When the output current exceeds the rated output current.

Undervoltage
When the output voltage falls below the configurable DC OK limit value.

Hardware fault
When the device's internal self-testing function fails.

Key information that can be obtained via the display or the interface:

- Power input voltage
- Power frequency
- Phase sequence direction
- Output current
- Output voltage
- Max. Output current
- Visualisation of all faults
- Type of fault
- Hour counter

Information that can only be obtained via the interface:

- Power input voltage of the different phases

PVSL for tidier wiring cabinets

A PVSL renders the use of various other modules in the wiring cabinet superfluous. The line version is able to monitor the phase sequence direction and check for failed input phases - as well as keeping an eye on the quality of the incoming supply!

Thanks to faster response times in the event of a power failure, there is even time for important data to be stored for restarting the machine.

POWER COMPACT

POWER **COMPACT**

The basic power supply for your application

Power Compact combines the basic functionality of an economic switched mode power supply with the essential additional feature for a high system availability. The devices cover the average power requirements from 120 W to 480 W.

Power range from 120 to 480 W
Universal input of 85 to 264 Vac
Stabilized and variable output voltage

Single-phase

Highlights

✔ Quick tripping of standard circuit breakers

✔ Robust Support rail mounting

✔ Potential-free "DC OK" signal contact

✔ Push-In connection technology

✔ Constant current limiting on overload

POWER MINI

POWER **MINI**

Slim and efficient

Power Mini are efficient switched mode power supplies in slim plastic casing.
The devices cover the lower and average power requirements from 25 W to 100 W.

Power range from 25 to 100 W
Universal input of 85 to 264 Vac
Stabilized and variable output voltage

Single-phase

12 Vdc 2 A	12 Vdc 4 A	12 Vdc 8 A
24 Vdc 1 A	24 Vdc 2 A	24 Vdc 4 A
		48 Vdc 2 A

Highlights

- ✔ Active “DC OK” signal contact
- ✔ Constant current limiting on overload
- ✔ Push-In connection technology
- ✔ Low standby loads <1 W
- ✔ Conforms to domestic appliances EN 60335-1

POWER ECOLINE

POWER **ECO LINE**

Power switched supplies in flat plastic casing.

The devices cover the power requirements from 25 W to 100 W. Preferably designed for use in distribution boards or flat control panels.

Power range from 25 to 100 W
Universal input of 85 to 264 Vac
Stabilized and adjustable output voltage

Single-phase

12 Vdc 2 A	12 Vdc 4 A	12 Vdc 6.5 A
18 Vdc 1.1 A		
24 Vdc 1.3 A	24 Vdc 2.5 A	24 Vdc 4 A

Highlights

✔ Stabilized and variable output voltage

✔ Vibration-resistant spring loaded terminals

✔ Constant current limiting on overload

POWER PRINT

POWER **PRINT**

For direct soldering onto the circuit board

Switched mode power supply with outstanding efficiency and low standby loads for direct soldering on the circuit board. Enables an extreme space saving installation of diverse applications.

Output supply: 4 W
Universal output: 85–264 Vac
Stabilized output voltage

Single-phase

5 Vdc 0.8 A

9 Vdc 0.45 A

12 Vdc 0.34 A

18 Vdc 0.23 A

24 Vdc 0.17 A

Highlights

✔ Short circuit and standby test

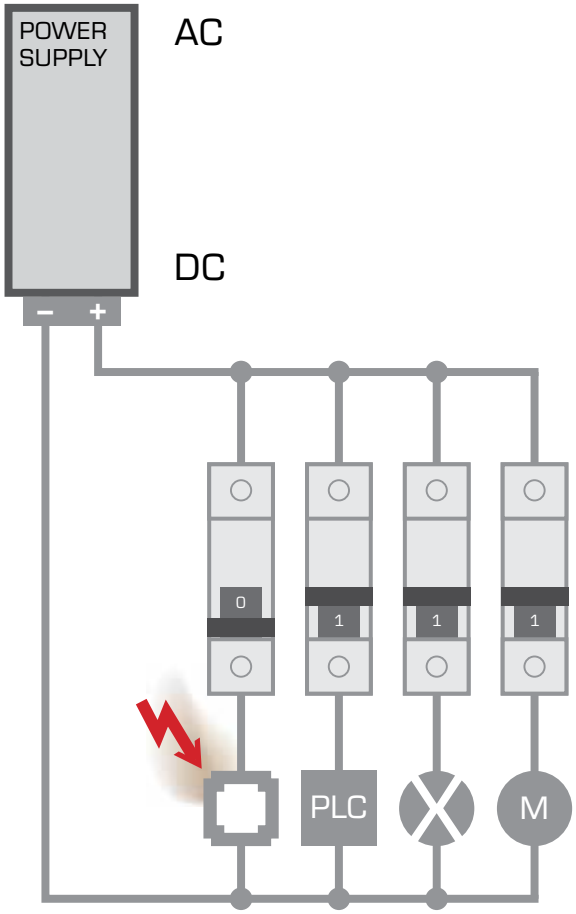
✔ Low standby-losses L <0.1W

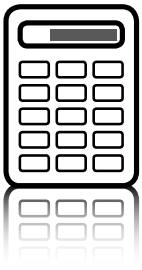
✔ Overtempera-ture switch off

✔ High efficiency

Possibilities of a DC 24V fuse protection with BLOCK power supplies

A temporary overcurrent is necessary for the magnetic quick tripping of the standard circuit breaker. The power supply of the Power Vision and Power Compact series are able to reliably switch off faulty current paths in the case of a short-circuit.



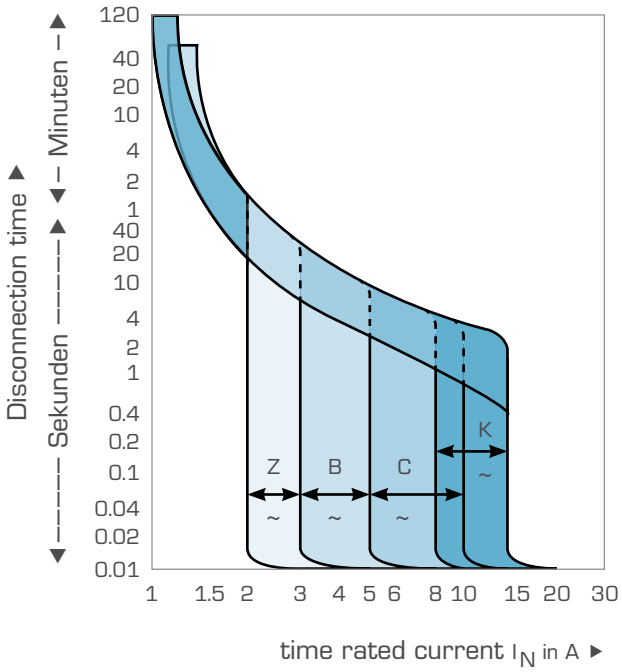


Note

line length calculation

The line length calculator helps with the layout of your device and is ready to use as a free software tool on www.block-trafo.de.
For all Power Vision power supplies the maximum line length can be calculated for the used circuit breaker, taking into account the line cross section.

Typical disconnection trip characteristic of a standard circuit breaker

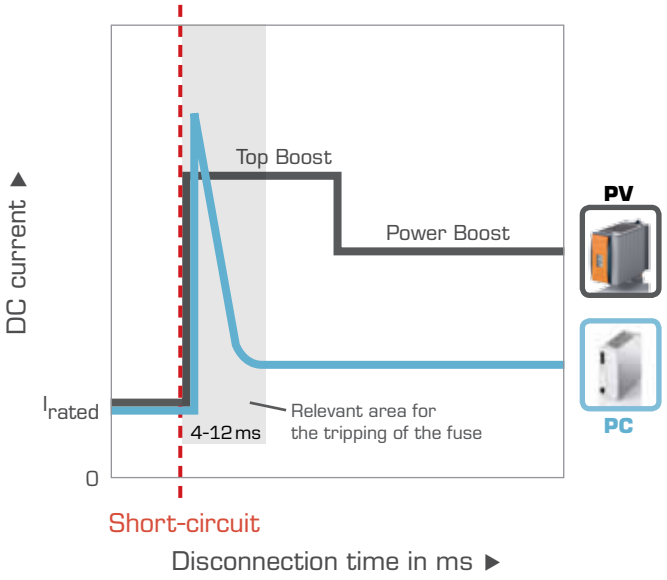


Please note

Continuous total resistance of the conductor loop in the electromagnetic disconnection trip characteristic are is a requirement for the reliable and quick trip of the circuit breaker. The ohmic resistance of the feed and reverse feed is limited to a maximum possible current (conductor cross-section and length as well as the contact resistance)

Devices from the Power Vision series provide temporary Top Boost technology up to 100A. This power supply enables the reliable tripping of circuit breakers up to B10 or C6 characterization.

For line lengths of up to 40 meters a Power Compact power supply is also suitable, thanks to a high capacity current reserve.



For high line resistances or use of power supply without current reserves, the electronic circuit breaker offers a technical alternative to the classic circuit breaker.
Learn more on this module on page 28.

Type	Power Vision **Economy 1p**	Power Vision **Economy 3p**	Power Mini **Basic**	Power Vision **Line**	Power Compact	Power Mini	Power Eco Line	Power Print	
	✓	✓	✓	✓	✓	✓	✓	✓	Can be used worldwide through wide-range input
	✓	✓	✓	✓	✓	✓	✓		Parallel switching for increased supply
	✓	✓	✓	✓	✓	✓	✓	✓	internal device fuses
	✓	✓	✓	✓	✓	✓	✓	✓	stabilized output voltage
	✓	✓	✓	✓	✓	✓	✓		variable output voltage
	✓	✓	✓	✓	✓	✓	✓		Status LED
	✓	✓	✓	✓					Top Boost for reliable start-up with high inrush current loads and quick tripping of circuit breakers up to C characterization
	✓	✓	✓	✓					Power Boost for the reliable start up of heavy initiating loads
					✓				Current peaks for the quick tripping of circuit breakers up to B characterization
		✓	✓	✓					permanent 2-phase operation
	✓	✓			✓				DC OK message via potential-free contact
			✓	✓		✓			DC OK message via active signal contacts
	✓	✓							Stand-by input
			✓	✓					Display for simplified commissioning
			✓	✓					RS-232-interface
			✓	✓					DC current and voltage monitoring
				✓					AC power input monitoring
					✓	✓			Push-in direct plug-in technology
							✓		Spring-loaded plug-in technology
	✓	✓	✓	✓					Plug-in spring-loaded connection technology
		✓							Protective coating for harsh environmental conditions
	✓	✓	✓	✓	✓	✓	✓		UL certification
					✓	✓	✓		GL certification
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	Output rated voltage	Type	Input rated voltage	0 – 20 W	20 – 30 W	50 – 60 W	70 – 100 W	120 W	180 – 240 W	450 – 480 W	720 – 960 W	Page
Single-phase	5 V	Power Print	100 – 240 V	0.8 A								19
	9 V	Power Print	100 – 240 V	0.45								19
	12 V	Power Vision Economy	110 – 240 V				6 A	10 A	15 A			12
		Power Compact	100 – 240 V						15 A			16
		Power Mini	100 – 240 V		2 A	4 A	8 A					17
		Power Eco Line	100 – 240 V		2 A	4 A	6.5 A					18
		Power Print	100 – 240 V	0.34								19
	18 V	Power Eco Line	100 – 240 V	1.1 A								18
		Power Print	100 – 240 V	0.23 A								19
	24 V	Power Vision Economy	110 – 240 V				3 A	5 A	10 A	20 A		12
		Power Compact	100 – 240 V					5 A	10 A	20 A		16
		Power Mini	100 – 240 V		1 A	2 A	4 A					17
		Power Eco Line	100 – 240 V		1.3 A	2.5 A	4 A					18
		Power Print	100 – 240 V	0,17 A								19
	30 V	Power Vision Economy	110 – 240 V							15 A		12
	48 V	Power Vision Economy	110 – 240 V						5 A	10 A		12
		Power Compact	100 – 240 V						5 A	10 A		16
		Power Mini	100 – 240 V				2 A					17
Three-phase	24 V	Power Vision Economy	3 x 400 – 500 V						10 A	20 A	40 A	12
		Power Vision Basic	3 x 400 – 500 V						10 A	20 A	40 A	13
		Power Vision Line	3 x 400 – 500 V						10 A	20 A	40 A	14
	30 V	Power Vision Economy	3 x 400 – 500 V								25 A	12
	48 V	Power Vision Economy	3 x 400 – 500 V							10 A	20 A	12

Power Vision Economy 3-phase with protective coating

It is recommended to use a protective coating on the circuit board in harsh environmental temperatures where dust, dirt, occasional high humidity, vibrations or sudden temperature changes are expected.
The protective layer will increase operational safety. A short circuit caused by deposits of dirt and dust is prevented and erosion of the conductors and soldering joints is equally avoided.

The coating created by the protective layer does not alter the electrical properties of the power supply.

Special features

- particularly suitable for use in outdoor areas
- problem free cold start also at -40 °C

PROTECTIVE COATING

PV POWER **VISION** ECONOMY Single-phase

POWER VISION

Order no.

12 Vdc/6 A	PVSE 230/12-6
24 Vdc/3 A	PVSE 230/24-3
24 Vdc/3 A	PVSE 230/24-3B

active inrush current limiting

Order no.

12 Vdc/10 A	PVSE 230/12-10
24 Vdc/5 A	PVSE 230/24-5
24 Vdc/5 A	PVSE 230/24-5B

Order no.

12 Vdc/15 A	PVSE 230/12-15
24 Vdc/10 A	PVSE 230/24-10
48 Vdc/5 A	PVSE 230/48-5

Order no.

24 Vdc/20 A	PVSE 230/24-20
30 Vdc/15 A	PVSE 230/30-15
48 Vdc/10 A	PVSE 230/48-10

PV POWER **VISION** ECONOMY Three-phase

POWER VISION

Order no.

24 Vdc/10 A	PVSE 400/24-10
24 Vdc/10 A	PVSE 400/24-10B
24 Vdc/10 A	PVSE 400/24-10C
24 Vdc/10 A	PVSE 400/24-10W

Order no.

24 Vdc/20 A	PVSE 400/24-20
24 Vdc/20 A	PVSE 400/24-20B
24 Vdc/20 A	PVSE 400/24-20C
24 Vdc/20 A	PVSE 400/24-20W
48 Vdc/10 A	PVSE 400/48-10

Order no.

24 Vdc/40 A	PVSE 400/24-40
24 Vdc/40 A	PVSE 400/24-40B
24 Vdc/40 A	PVSE 400/24-40C
24 Vdc/40 A	PVSE 400/24-40W
30 Vdc/25 A	PVSE 400/30-25
48 Vdc/20 A	PVSE 400/48-20

active inrush current limiting

protective coating

direct wall mounting

PV POWER **VISION** BASIC Three-phase

POWER VISION

Order no.

24 Vdc/10 A PVSB 400/24-10	**24 Vdc/20 A** PVSB 400/24-20	**24 Vdc/40 A** PVSB 400/24-40	
24 Vdc/10 A PVSB 400/24-10B	**24 Vdc/20 A** PVSB 400/24-20B	**24 Vdc/40 A** PVSB 400/24-40B	active inrush current limiting
24 Vdc/10 A PVSB 400/24-10W	**24 Vdc/20 A** PVSB 400/24-20W	**24 Vdc/40 A** PVSB 400/24-40W	direct wall mounting

PV POWER **VISION** LINE Three-phase

POWER VISION

Order no.

24 Vdc/10 A PVSL 400/24-10	**24 Vdc/20 A** PVSL 400/24-20	**24 Vdc/40 A** PVSL 400/24-40	
24 Vdc/10 A PVSL 400/24-10B	**24 Vdc/20 A** PVSL 400/24-20B	**24 Vdc/40 A** PVSL 400/24-40B	active inrush current limiting

PC POWER **COMPACT** Single-phase

POWER COMPACT

Order no.

24 Vdc/5 A	PC-0124-050-0

Order no.

12 Vdc/15 A	PC-0112-150-0
24 Vdc/10 A	PC-0124-100-0
48 Vdc/5 A	PC-0148-050-0

Order no.

24 Vdc/20 A	PC-0124-200-0
48 Vdc/10 A	PC-0148-100-0

active inrush current limiting

PM POWER **MINI** Single-phase

POWER MINI

Order no.

12 Vdc/2 A	PM-0112-020-0
24 Vdc/1 A	PM-0124-010-0

Order no.

12 Vdc/4 A	PM-0112-040-0
24 Vdc/2 A	PM-0124-020-0

Order no.

12 Vdc/8 A	PM-0112-080-0
24 Vdc/4 A	PM-0124-040-0
48 Vdc/2 A	PM-0148-020-0

PEL POWER **ECO LINE** Single-phase

POWER ECO LINE

	Order no.
12 Vdc/2 A	PEL 230/12-2
18 Vdc/1.1 A	PEL 230/18-1.1
24 Vdc/1.3 A	PEL 230/24-1.3

	Order no.
12 Vdc/4 A	PEL 230/12-4
24 Vdc/2.5 A	PEL 230/24-2.5

	Order no.
12 Vdc/6.5 A	PEL 230/12-6.5
24 Vdc/4 A	PEL 230/24-4

PP POWER **PRINT** Single-phase

POWER PRINT

	Order no.
5 Vdc/0.8 A	PP-0105-008-0
9 Vdc/0.45 A	PP-0109-005-0
12 Vdc/0.34 A	PP-0112-004-0
18 Vdc/0.23 A	PP-0118-003-0
24 Vdc/0.17 A	PP-0124-002-0

Electronic circuit breakers

POWER COMPACT POWER MINI

POWER **COMPACT**
POWER **MINI**

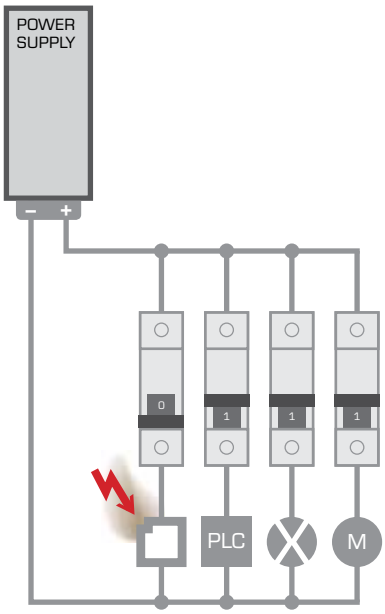
POWER VISION

POWER **VISION**

Areas of application

Electronic circuit breakers are installed in areas where a selective fuse of DC 24V circuit with thermomagnetic circuit breakers cannot be reliably guaranteed.

Physical limits for the use of circuit breakers



1 If the switched mode power supply does not deliver adequate current for magnetic quick disconnection.

2 With inconvenient overload conditions:
- short line cross-section
- long line lengths

General advantages of the BLOCK electronic circuit breaker

+ reliable disconnection also for high line impedances.
+ Universally suitable through individual variable rated current per channel.
+ remote switch-on of disconnected channels is possible.
+ An inrush current of the system is distributed through sequential power-up of the channels.

Function

Electronic circuit breakers are specially adjusted to the behavior of switched mode power supplies and to the supplying DC 24V loads. They divide the load current to several branches and reliably monitor overload and short-circuiting. Defective circuits will be selectively shut down for long line lengths and short cross-sections.

Disconnection function

The BLOCK electronic circuit breaker is designed for a variety of requirements in machines and devices. You can chose between 2 disconnection functions.

The economical overcurrent and power protection

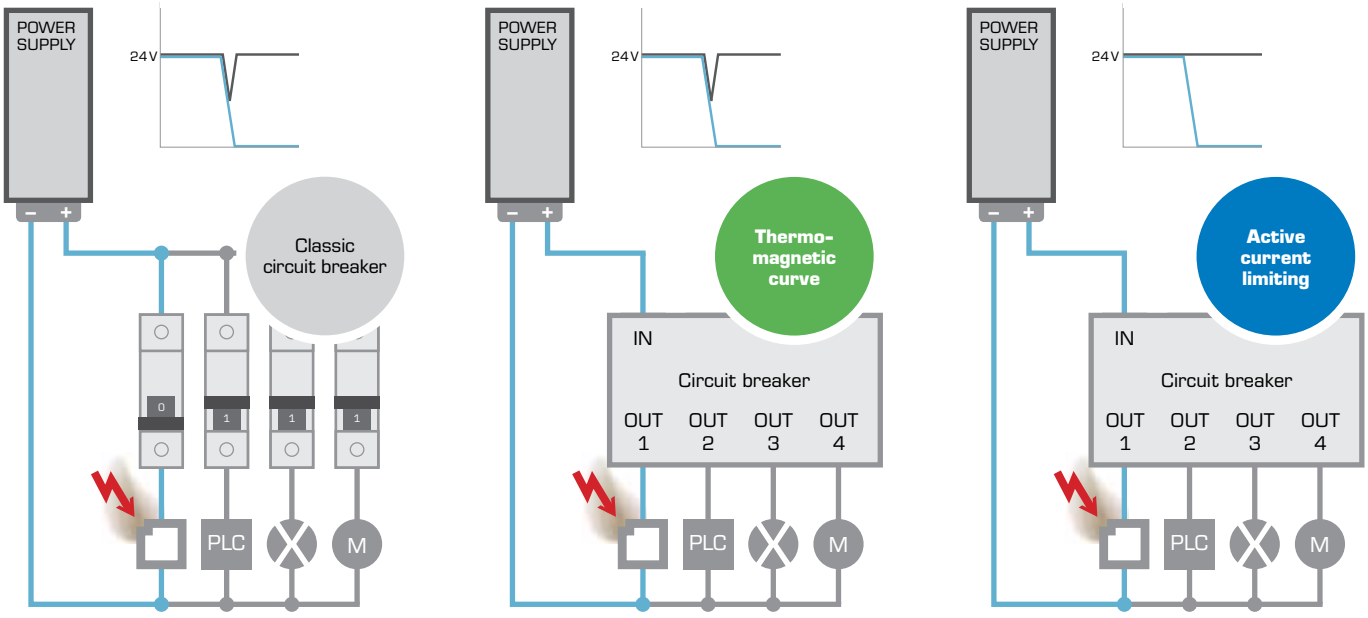
Circuit breaker with thermomagnetic curve is the economical alternative to the classic circuit breaker. The switch-off characteristic also ensures a safe disconnection with high line impedance.

The disconnection time is dependent on the amount of overcurrent. On short-circuit, the defective circuit will be shut down reliably within a few milliseconds.

Active current limiting for sensible loads

This module actively limits the overcurrent of each circuit to a maximum of 1.7 times the variable rated current. It will selectively shut down only defective circuits on overcurrent. A drop in voltage will not hinder the reliability of the respective circuit.

The constant current limiting also enables the switching-on of particularly high capacitive loads.



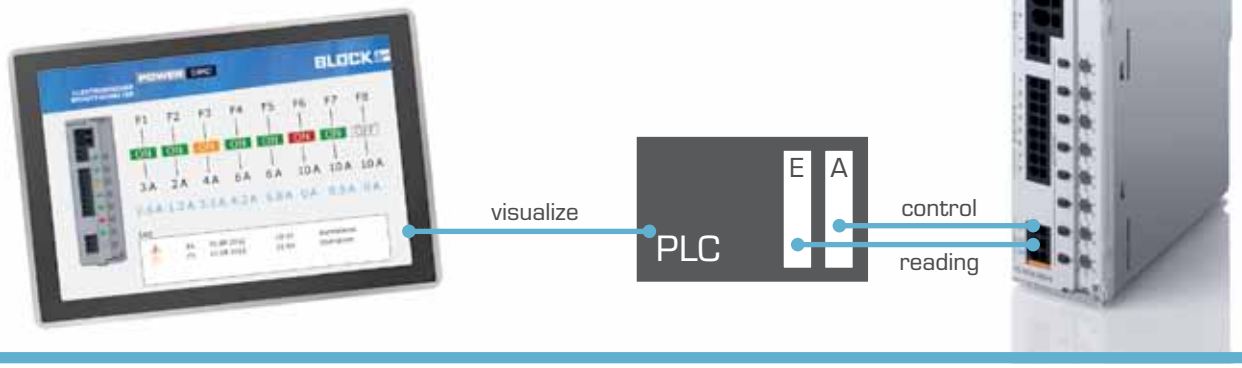
Note

With classic circuit breakers and electronic circuit breakers with thermomagnetic curve, the DC 24V supply voltage can be cause a drop for a few milliseconds. The amount of drop in voltage is dependent on the line resistance and the over-current ability of the feeding power supply. A drop in output can only be reliably avoided through active current limiting.

Communication with the central control system using only two lines

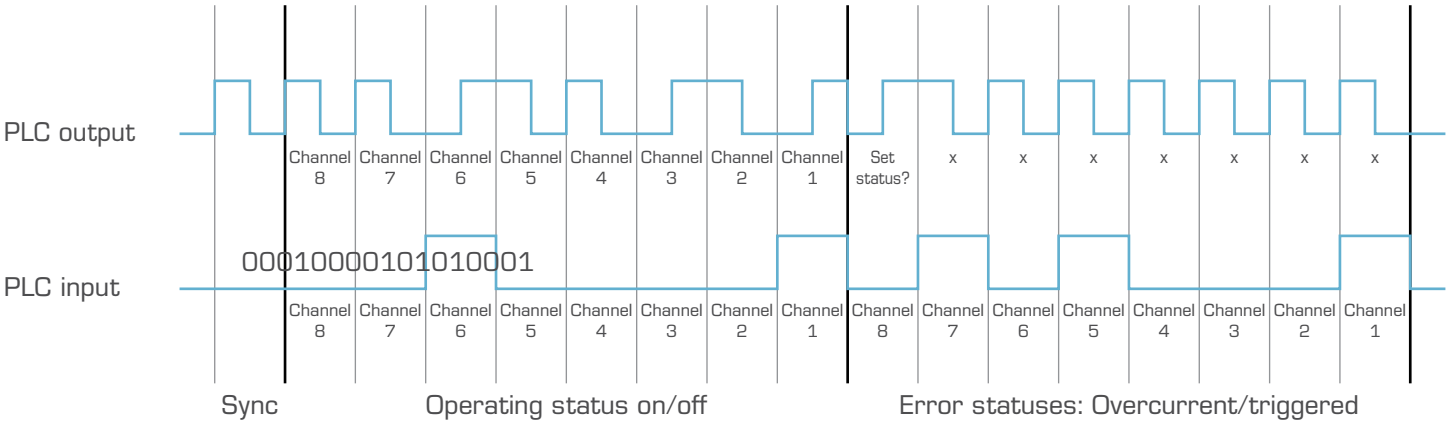
Intelligent overcurrent protection

Integrated in the complete management and monitoring process.
The new Power Compact and Power Mini circuit breakers.



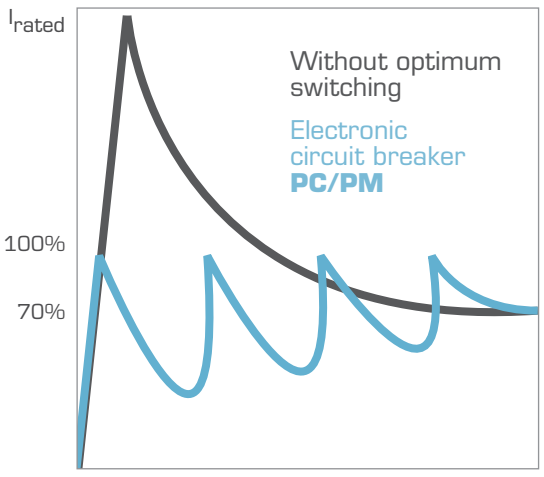
In connection with a higher level control system, this further developed circuit breaker offers the possibility of switching on/off each of the digital input/output of the desired output channel, resetting disconnected circuits and at the same time querying the current status of each output. The diagnosis ability and the targeted switching of each circuit provides more transparency and makes a valuable contribution for greater energy efficiency and increased availability of machines and devices.

Free functional modules for Simatic Step & + CoDeSys



Sequential switching

The integrated output channels are delayed and switch on dependent on load. As soon as the variable disconnection current of the output channel is exceeded it is switched on within the shortest possible time. The inrush current of the whole device is leveled off, as the power supply must never be overdimensioned.

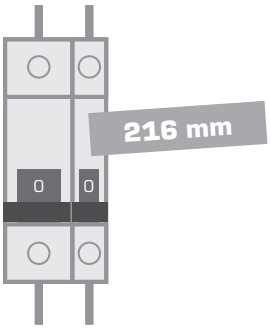


Narrow width creates space in switch cabinet

A clear comparison for 8 fused circuits - why the name Power Compact is justified.
Only 5.25mm per channel for Power Compact electrical circuit breaker.

Space requirement
8 channels

Factor 5,1

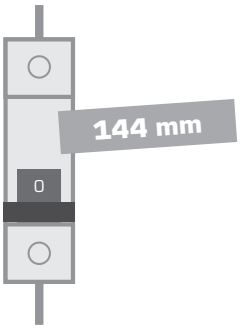


Circuit breaker
with auxiliary switch

Width: 18 + 9 mm / channel

Space requirement
8 channels

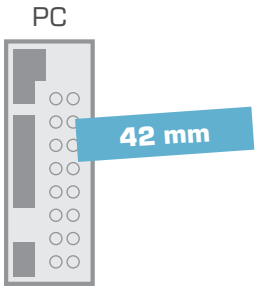
Factor 3,4



Circuit breaker

Width: 18 mm / channel

Space requirement
8 channels



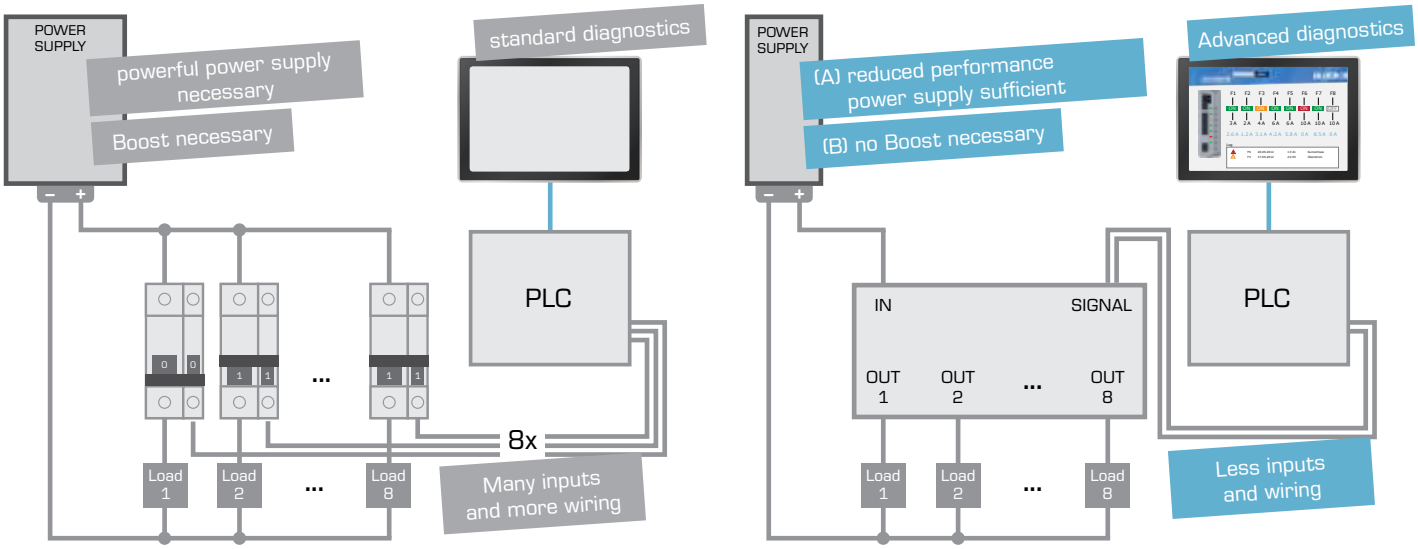
Circuit breaker
Power Compact

Width: 5.25 mm / channel

Comparison of 8 fused circuits

In many applications, a change of circuit breaker
towards an electronic solution has technical and economical advantages.

(A) Thanks to optimum distribution of the inrush
(B) No current spikes for triggering Circuit breakers



POWER COMPACT POWER MINI

POWER **COMPACT** ECONOMY
POWER **MINI** ECONOMY

Electronic circuit breakers

An economical alternative to the classic circuit breaker with thermomagnetic curve.
They also ensure a safe disconnection on high line resistances and are optimally suited for devices and machine series.

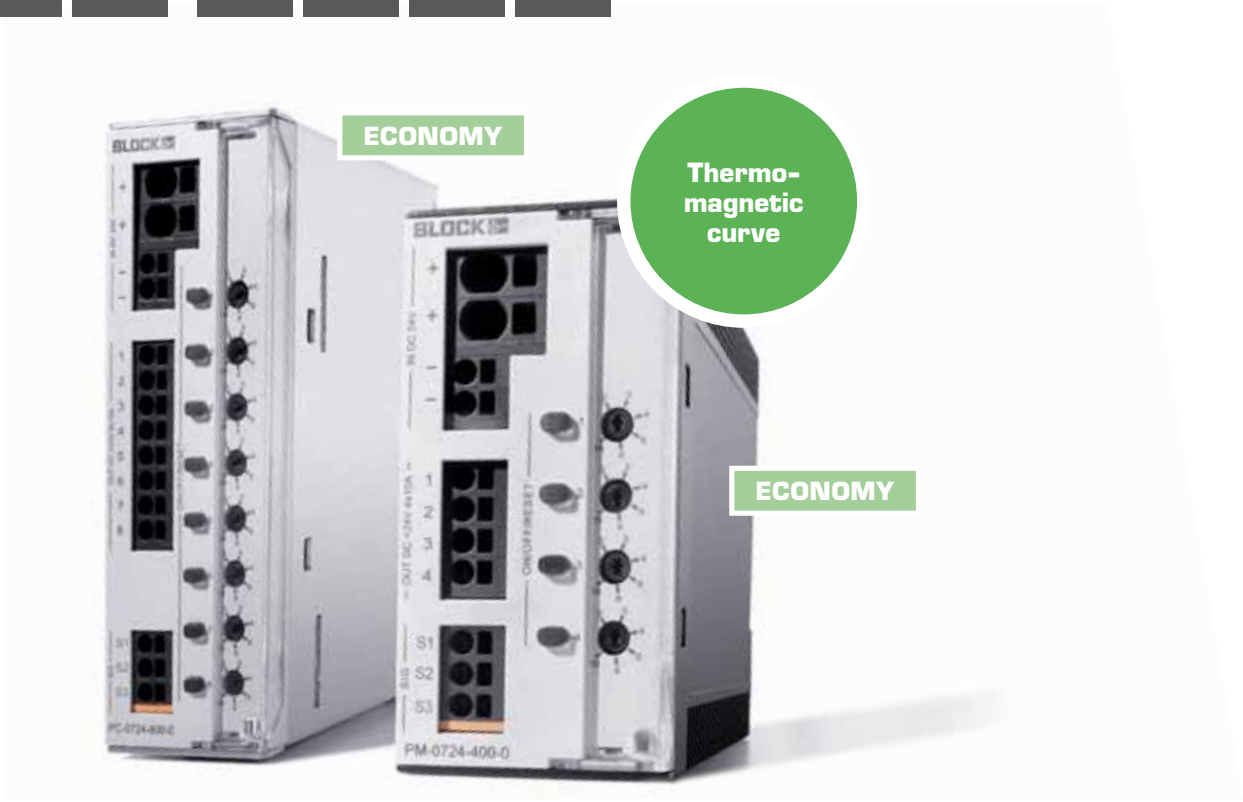
Variable rated current: 1-6A and 2-10A
Number of output channels: 8/4/2 per circuit breaker

PC

24 Vdc 8x 1-6 A	24 Vdc 8x 2-10 A

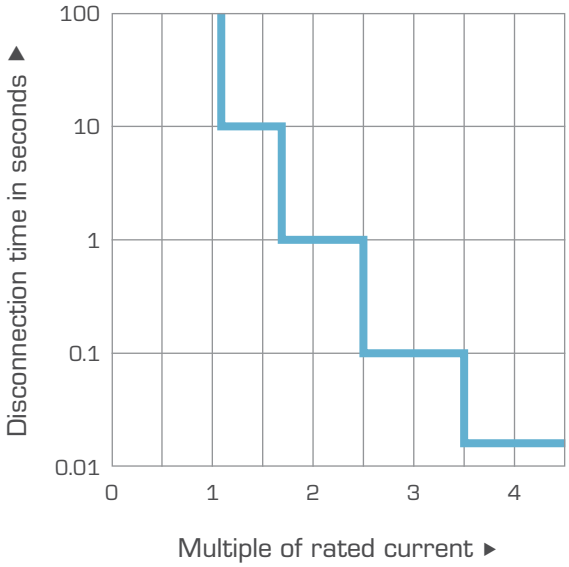
PM

24 Vdc 4x 1-6 A	24 Vdc 4x 2-10 A	24 Vdc 2x 1-6 A	24 Vdc 2x 2-10 A



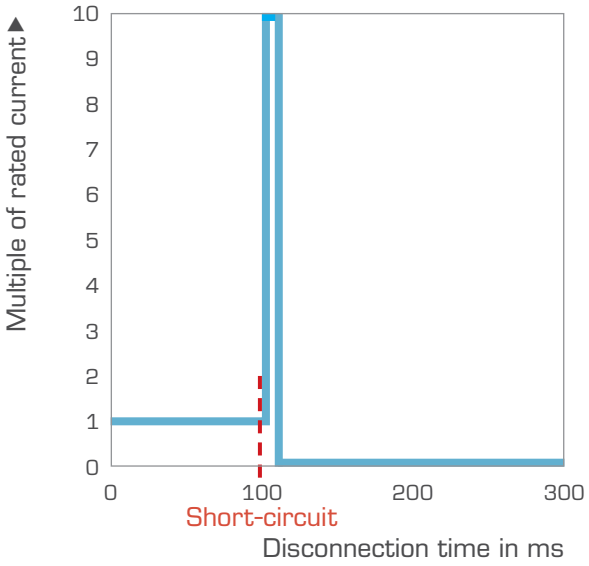
Highlights

- ✔ Switch on high capacitive loads up to 500 µF
- ✔ Sequential and load-dependent switching-in of channels
- ✔ Remote reset contact
- ✔ Short channel width
- ✔ Communication with the central control system using only two lines
- ✔ common signal contact for simple remote diagnosis



Disconnection trip characteristic

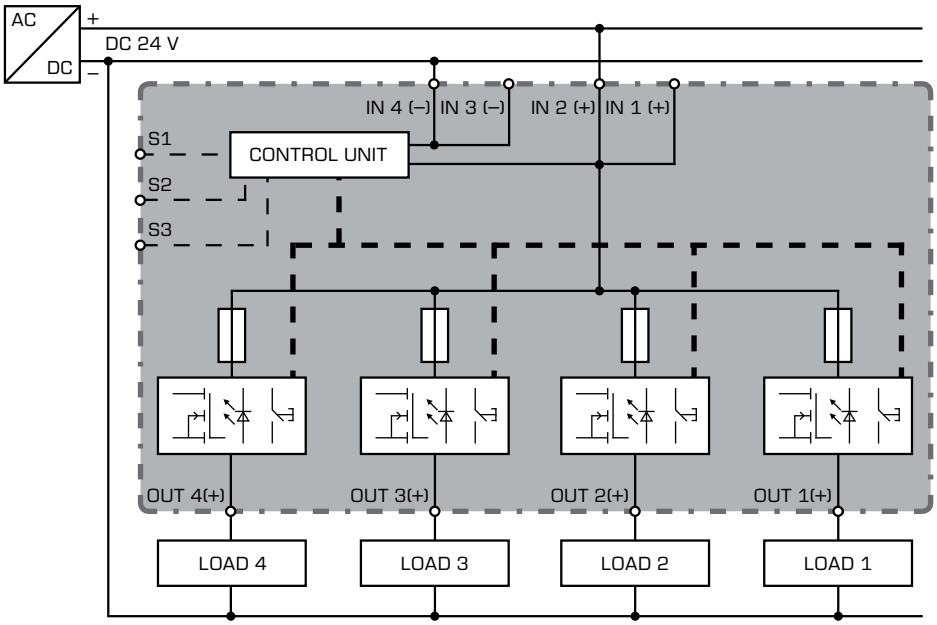
The disconnection time is dependent on the overcurrent and amounts to the smallest overload of maximum 100 seconds. On short-circuit, the defective circuit will be shut down reliably within a few milliseconds.



Disconnection trip characteristic on short circuit

The amount of the short-circuit is dependent on the current limiting of the feeding power supply and on the total resistance of the conductor loop (line and contact resistance).

Function circuit diagram an example of 4 channel modules



Temperature range

The modules work within a large temperature range and are appropriate for extraordinary medial loads in harsh industrial environmental conditions.

+ Problem free cold start at -40 °C
+ Further temperature range from -25 °C to +70 °C
+ For current load of up to 6A per channel no temperature derating is necessary

POWER COMPACT POWER MINI

POWER **COMPACT** BASIC
POWER **MINI** BASIC

Electronic circuit breaker with active current limiting

The BLOCK circuit breaker with active current limiting that maximizes system availability can be found in switch boxes in all sectors. On overload, the remaining circuits are separated from the defective current path without reverse feed thanks to active current limiting.

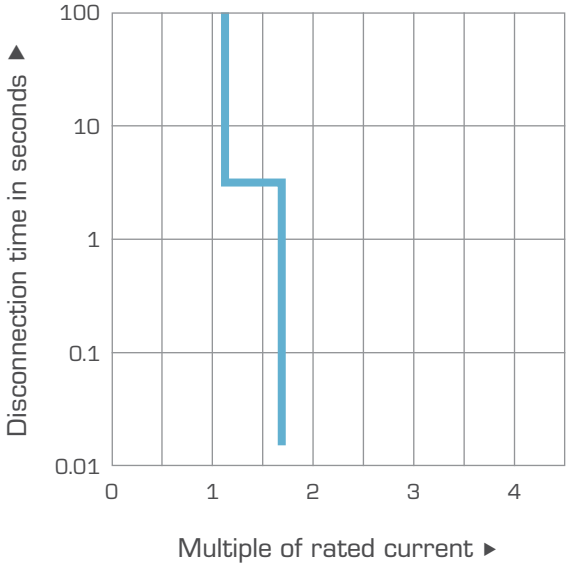
Variable rated current: 0.5-6A
Number of output channels: 8/4/2 per circuit breaker

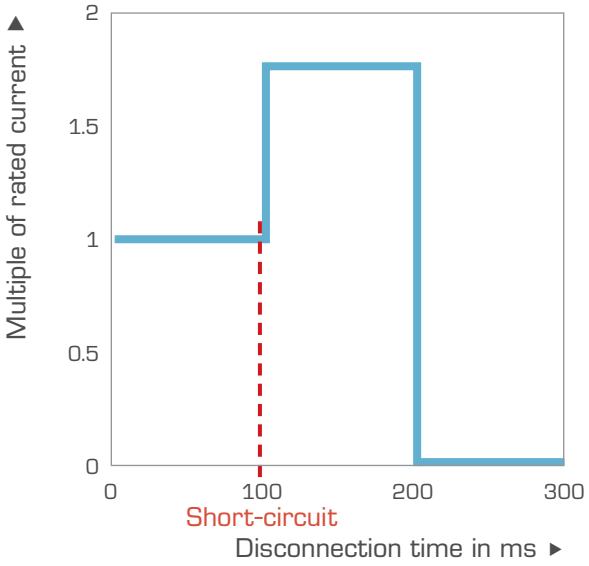
PC
24 Vdc 8x 0.5-6 A

PM
24 Vdc 4x 0.5-6 A
24 Vdc 2x 0.5-6 A

Highlights

- ✔ Active current limiting
- ✔ Shutdown of defective circuits in the event of critical supply voltage
- ✔ Total-signal contact for simple remote diagnosis
- ✔ Short channel width
- ✔ Communication with the central control system using only two lines
- ✔ Remote reset contact
- ✔ Sequential and load-dependent switching-in of channels





Disconnection trip characteristic on short circuit

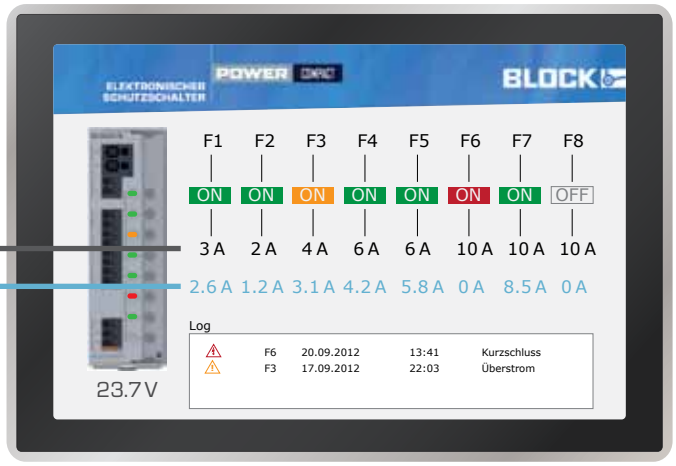
Within the range of 1.1 to 1.7 times the nominal rated current the disconnection time is typically 5 seconds. The active current limiting picks up the 1.7 times rated current and leads it to another selective shut down of the relevant current circuit after a period of ca. 100 ms.

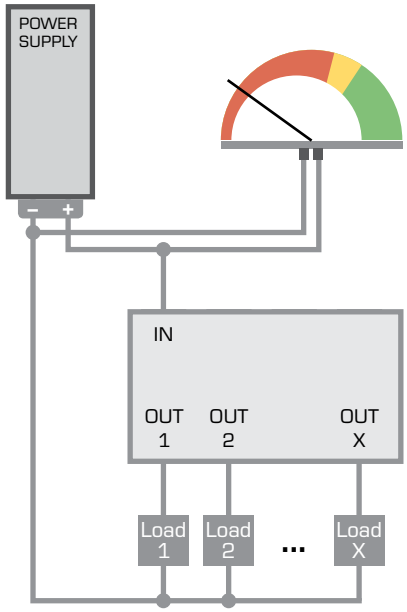
Disconnection trip characteristic on short circuit

The constant current limiting enables the reliable switching on of high capacity loads and ensures the highest availability of your machines and devices.

Further diagnoses

On the module queries can be made regarding the adjacent output voltage and the current current of each circuit in addition to operating and fault statuses. Through the visualization of this additional transmitted data the system informs you before any critical system failures occur.





Selective immediate shut-down on overcurrent

To protect the sensible loads to the power supply from temporary overload, a critical supply voltage of below 20 V of all circuits which runs above 100% of the variable rated current shall immediately be selectively shut-down.

POWER VISION

POWER **VISION** BASIC

Electronic circuit breaker with active current limiting

The electronic circuit breaker from the Power Vision series is equipped with active current limiting per output channel and selectively separates the remaining circuits from the defective circuit without reverse feed. The integrated display enables an indicator for voltage and current values onsite and facilitates commissioning or fault search.

Variable rated current: 1-8A

Number of output channels: 4

Integrated monitoring unit for maximum safety

The PVFB module monitors current and voltage continuously. Key information can be read directly from the display. The integrated monitoring unit is able to detect potential faults affecting current paths at an early stage, output signals accordingly and store the associated data for subsequent analysis.

Potential faults the PVFB module is able to detect:

Overcurrent
When the output current of a channel exceeds the rated current.

Channel tripped
When at least one channel shuts down due to an overcurrent.

Undervoltage
When the input voltage falls below a configurable limit value/

Hardware fault
When the device's internal self-testing function fails.

Key information that can be obtained via the display:

- Output current of each channel
- Input voltage
- Max. Output current of each channel
- Min. Input voltage
- Type of fault

Highlights

- ✔ Active current limiting
- ✔ 4 signal outputs for individual or common diagnosis
- ✔ Integrated fault memory
- ✔ RS-232-interface
- ✔ Sequential switching-in of channels
- ✔ Plug-in spring-loaded connection technology

The PVFB module is the key to maximum system availability and process reliability:

The functions supported by the integrated monitoring unit include voltage and current monitoring.
The devices feature a display, function keys, active signal outputs and an RS-232 interface.

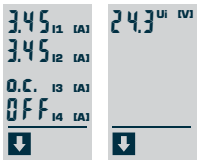
Tripping characteristics

Rated currents can be set separately for each channel in 1 A increments. In the event of an overcurrent, the current is limited and the affected channel is shut down safely and reset. Active current limiting is the only way to ensure that, in the event of a short circuit affecting an individual consumer, all other branches will remain unaffected and a voltage dip will not occur. This is where the flexibility of the PVFB module comes to the fore, since it allows scope for adjusting the tripping time taken to shut down a current path. Once a channel has been shut down, it can be reactivated using the keys on the module.

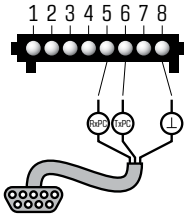
❸ Via the signal outputs: The PVFB module has four active signal outputs for monitoring functions. The active 24 V signal outputs are directly processed as a digital signal. Two outputs can be individually configured with the free parameterization software, e.g. for the purpose of generating a group signal for tripped circuit branches.

Communication with the user

❶ Via the LEDs: When the device is running without any errors, the green LED lights up. Non-critical statuses such as minor overcurrents or an undervoltage at the device input are indicated as warnings by the yellow LED, whilst the red LED signals situations that involve a circuit being shut down.



❷ Via the display:
The output voltages of the 4 channels are indicated continuously on the display along with the input voltage. In the event of a fault, the device features an integrated fault manager for self-diagnostics.



❹ Via the interface: The module can communicate with a PC or higher-level control system via the serial interface. Cyclic transfer means that the user can both view relevant data and respond to faults affecting connected circuits. Parameter settings can also be made via this interface.

The PowerVision software packages required for communication can be downloaded free of charge from www.block-trafo.de

Type	Power Compact **Economy**	Power Compact **Basic**	Power Mini **Economy**	Power Mini **Basic**	Power Mini **Basic**	
			✓	✓		2 output channels
			✓	✓	✓	4 output channels
	✓	✓				8 output channels
		✓		✓	✓	active current limiting in the event of an error
	✓	✓	✓	✓	✓	Variable rated current
	✓	✓	✓	✓	✓	Sequential switch-on of output channels
	✓	✓	✓	✓		Load dependent switch-on of output channels
	✓	✓	✓	✓		targeted remote switching of any output channel
	✓	✓	✓	✓	✓	Diagnosis of current operational and defective conditions
		✓		✓	✓	Diagnosis of input voltage and output currents
	✓	✓	✓	✓	✓	Common signal contact as 24V signal
					✓	Signal contact per output channel as 24V signal
	✓	✓	✓	✓		Remote reset input
					✓	Display for current and voltage indicator
					✓	RS-232-interface
	✓	✓	✓	✓		Communication with the central control system using only two lines
	✓	✓	✓	✓	✓	multi-colored status LEDs
	✓	✓	✓	✓		Push-in direct plug-in technology
					✓	plug-in spring-loaded connection technology
	✓	✓			✓	robust metal casing
	✓	✓	✓	✓	✓	UL certification
	✓	✓	✓	✓		GL certification
Page	**34**	**36**	**34**	**36**	**38**	

									Page
			12 A	**20 A**	**24 A**	**32 A**	**40 A**	**48 A**	**80 A**	
Input voltage	**Type**		**2 channels**		**4 channels**			**8 channels**		
24 V	Power Compact **Economy**							8x 6 A	8x 10 A	**34**
	Power Compact **Basic**							8x 6 A		**36**
	Power Mini **Economy**		2x 6 A	2x 10 A	4x 6 A		4x 10 A			**34**
	Power Mini **Basic**		2x 6 A		4x 6 A					**36**
	Power Mini **Basic**					4x 8 A				**38**

PC PM POWER **COMPACT** / POWER **MINI** ECONOMY

POWER MINI
POWER COMPACT

Order no.

24 Vdc/8x 6 A PC-0724-480-0

24 Vdc/8x 10 A PC-0724-800-0

Order no.

24 Vdc/2x 6 A PM-0724-120-0

24 Vdc/2x 10 A PM-0724-200-0

Order no.

24 Vdc/4x 6 A PM-0724-240-0

24 Vdc/4x 10 A PM-0724-400-0

Thermo-magnetic curve

PC PM POWER **COMPACT** / POWER **MINI** BASIC

POWER MINI
POWER COMPACT

Order no.

24 Vdc/8x 6 A PC-0824-480-0

Order no.

24 Vdc/2x 6 A PM-0824-120-0

Order no.

24 Vdc/4x 6 A PM-0824-240-0

Active current limiting

PV POWER **VISION** BASIC

POWER VISION

Order no.

24 Vdc/4x 8 A PVFB 24/24-32

Active current limiting

Uninterruptible power supplies

POWER COMPACT

POWER **COMPACT**

POWER VISION

POWER **VISION**

Reliable 24 Vdc supply voltage - also on power failure

BLOCK offers you tailored, required USP components.
Be it maintenance free capacitor based modules for short power interruption or intelligent USP systems with external battery modules for long buffer times - the USP components by BLOCK minimise the risk of time and cost intensive system standstills.

Principle installation of an interruptible power supply

With capacitors

Power supply + buffer module

Buffer modules can save a lot of energy due to their double layer capacitors and in addition are maintenance free.

They bypass power failures for seconds and at the same time support the 24V supply voltage against unwanted voltage dips, which are often caused by high-energy switching operations of a device.

With battery modules

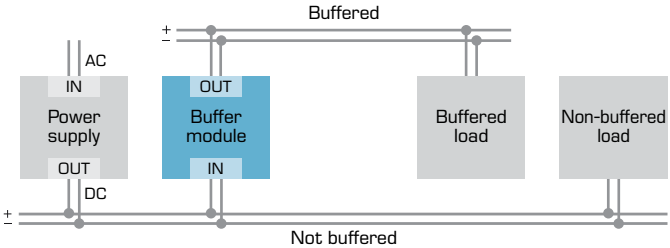
Power supply + Charge and control unit + Battery module

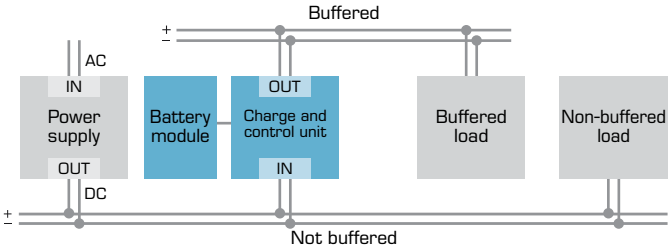
The maintenance of a power voltage over a long period or high buffer currents requires the use of a battery supported USP system.

Such a system consists of as a rule a power supply, an electronic charge and control unit as well as a battery module with integrated accumulators for energy saving.

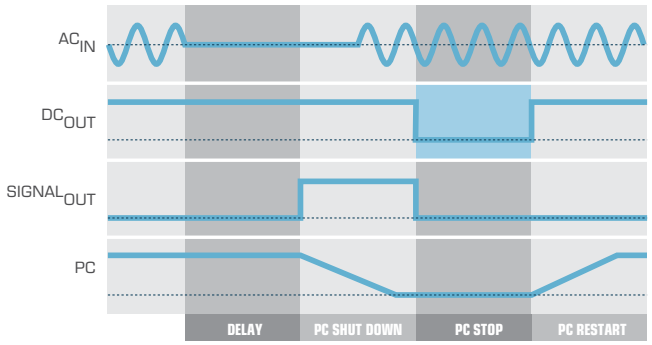
Switched mode power supplies + charge and control unit

Combi USP
The combi-device offers a further possibility. The Combi-USP from BLOCK unites power supply with a charge and charge unit within one device, thereby reducing space and wiring.





Reliable start up of industry PCs



In order to ensure the proper supply of an industry PC, the controlled shut-down must equally be possible as a reliable new start up of IPCs. Therefore the targeted interruption of output voltage of the USP module is necessary in order to provide the required re-start of the IPC after shut-down if the network voltage has already been available for a long time.

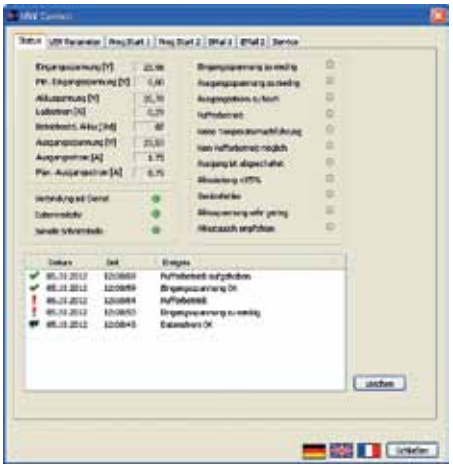
All BLOCK USP modules support this function.

"Battery Control" technology ensures better safety

Reliable battery management can only be realized through a permanent data exchange between charger and controller. This enables the optimal and moderate charging of the batteries and at the same time the superior machine control system provides a reliable signal as soon as the accumulator needs to be changed due age.

Advantages for you

+ Automatic recognition of connected battery modules for individual charging characteristic
+ Reliable early warning signal for low remaining life of batteries
+ Maximum life through temperature-controlled battery management



"USP control" software

The efficient visualisation and control software enable a simple connection to an industry PC. You can download the software for free from www.block-trafo.de.

Advantages for you

+ Visualising and recording of relevant data
+ Individual configuration of devices
+ Send emails and start up any program without user login

POWER VISION

POWER **VISION**

Charge and control units

The uninterruptible power supply for DC 24V load from the Power Vision series impresses with its optimal battery management. The charge and control unit manages and monitors the battery module and provides an early warning signal for low remaining battery life. It informs you of the charging status and the remaining duration during buffer mode. All relevant data is retrievable at any time via the integrated display or interface.

Power range: 240 to 480 W
Input voltage: 24 V DC

24 Vdc 10 A
24 Vdc 20 A

Integrated control unit for maximum safety

The PVUA module monitors current and voltage continuously. Key information can be read directly from the display. The integrated control unit is able to detect potential faults affecting the equipment to which power is being supplied at an early stage, output signals accordingly and store the associated data for subsequent analysis.

Key information that can be obtained via the display:

- Input voltage
- Output voltage
- Output current
- Status indicator battery charging and discharging
- Charging voltage
- Charging current
- Min. output voltage
- Max. Output current
- Accumulator running hours
- Type of fault

Highlights

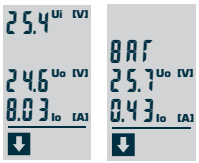
- ✔ Plug-in spring-loaded connection technology
- ✔ Extensive function monitoring
- ✔ Reliable early warning signal for battery exchange
- ✔ Status indicator battery charging and discharging
- ✔ Long life of batteries through optimal charge management
- ✔ Display for current and voltage indicator
- ✔ Safe supply of industry PCs

The PVUA module – much more than an ordinary UPS:

A key feature of the PVUA module is its optimum battery management. It also supports complete current and voltage monitoring with numerous signalling options. The module features a display, function keys, several signal outputs and an RS-232 interface. The charging voltage for the connected accumulator module is temperature-controlled; this helps to extend the service life of the accumulator significantly, thereby minimising maintenance overheads.

Communication with the user

❶ Via the LEDs: When the device is running without any errors, the green LED is illuminated. Non-critical statuses are indicated as warnings by the yellow LED, whilst critical situations are signalled by the red LED.

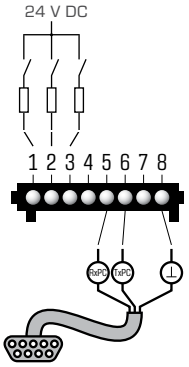


❷ Via the display:
All currents and voltages are indicated continuously on the display. Important parameter settings can be made with ease using the keys on the device. In the event of a fault, the device features an integrated fault manager for self-diagnostics.

❸ Via the signal outputs: The PVUA module has three active signal outputs and one isolated signal contact for monitoring functions. The active 24 V signal outputs are directly processed as a digital signal.

Potential faults the PVUA module is able to detect:

- Undervoltage at input
- Undervoltage at output
- Overcurrent
- Buffer mode
- No temperature control possible
- No battery mode possible
- Output shut down
- Batteries charged less than 85%
- Device error
- Low battery voltage
- Change of battery recommended



❹ Via the interface:
The module can communicate with a PC or higher-level control system due to the serial interface. Cyclic transfer means that the user can both view relevant data and respond to faults. Parameter settings can also be made via this interface.

The PowerVision software packages required for communication can be downloaded free of charge from www.block-trafo.de.

POWER COMPACT

POWER **COMPACT**

Switched mode power supplies + charge and control unit

The uninterruptible power supply Power Compact Combi includes an economic DC 24V/5A switched mode power supply with basic requirements, tailored for the supply of industry PCs as well as the charge and control unit for optimal battery management. The Combi-USP manages and monitors the battery module and provides an early warning signal for low remaining battery life.

Power 120 W
Universal input of 85 to 264 Vac
Stabilised and variable output voltage

24 Vdc
5 A

Highlights

✔ Reliable early warning signal for battery exchange

✔ Quick tripping of standard circuit breakers

✔ Extensive function monitoring

✔ Long life of batteries through optimal charge management

✔ Push-In connection technology

✔ Safe supply of industry PCs

POWER VISION

POWER **VISION**

Buffer modules

A buffer module is able to compensate brief power supply interruptions safely. Mains buffer times are extended for the power supplies and this increases the operational reliability of machines and systems. Buffer modules contain an electronic switching unit and an energy saver based on maintenance free capacitors in the same casing.

Power range: 240 to 480 W
Input voltage: 24 V DC

24 Vdc 10 A | 24 Vdc 20 A

Highlights

- ✔ Plug-in spring-loaded connection technology
- ✔ Isolated signal contact
- ✔ Decoupled output
- ✔ Adjustable buffer thresholds
- ✔ Long by-pass times
- ✔ Parallel switching

POWER VISION

POWER **VISION**

Battery modules

The maintenance free lead AGM accumulators guarantee a long life, high quality and reliability.
They are suitable for long bypass times on a scale of minutes and hours.

Capacitances: 1.2 to 12 Ah

2 series: PVA : optimised or two mounting directions
PVAF: optimised for low height

24 Vdc 1.2 Ah | 24 Vdc 3.2 Ah | 24 Vdc 7 Ah | 24 Vdc 12 Ah

Highlights

✔ No disconnection of DIN rail required for attachment in switch cabinet

✔ Plug-in fuses

✔ Plug-in spring-loaded connection technology

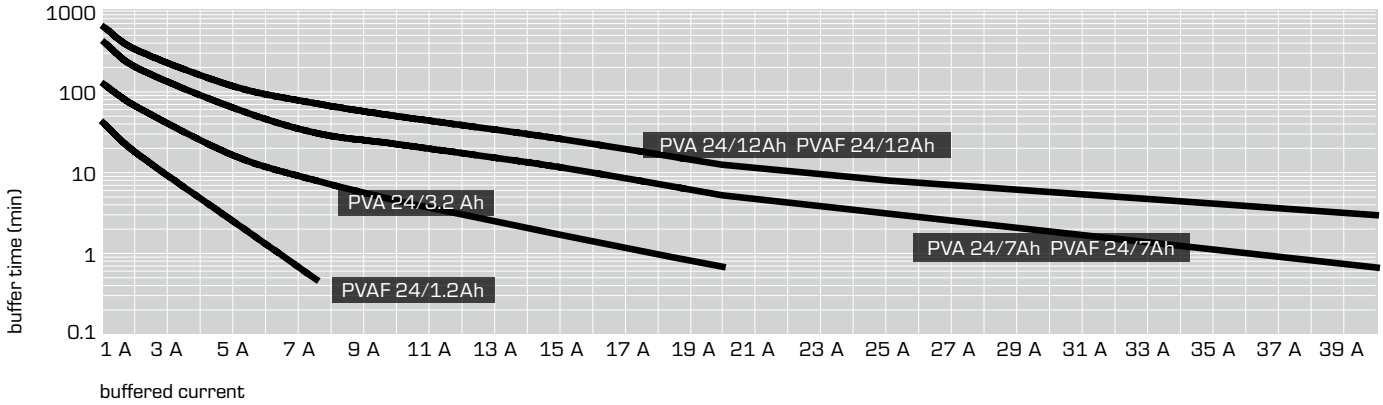
✔ Temperature measurement occurs in battery module

✔ Maximum availability thanks to “Battery Control” technology

Power Vision accumulator module with integrated temperature measurement

The environmental temperature is registered in the battery module and the optimal charging end voltage and remaining life are integrated. The battery module can automatically detect, so that the charging characteristic can be optimised without further installation of a management unit. A moderate charge and a long life of batteries is guaranteed, minimising service costs.

Buffer times is dependent upon output current



The appropriate battery module

The battery modules have been prepared for wall mounting. They can be book size as well as fitted longitudinally. The DIN mounting rail must not be disconnected for the installation of battery modules.

If a specific application requires use of energy storage between the horizontal cable ducts in the wiring cabinet, the reduced height PVAF model is well suited. Here the dimensions of height and depth are virtually identical to the charging and control modules.

Type	Power Vision **charge and control unit**	Power Compact **switched mode power supply + charge and control unit**	Power Vision **buffer modules**	Power Vision **battery modules**	
				✓	Exchangeable fuses
	✓		✓		Decoupled 24V output
			✓		Parallel-switching for increased power
	✓	✓	✓		Function monitoring through isolated contacts
	✓				Function monitoring through 24V signal contacts
	✓				Display for current and voltage indicator
	✓	✓			RS-232 interface
	✓	✓	✓		Multi-coloured status LEDs
		✓			Push-in direct plug-in technology
	✓		✓	✓	Plug-in spring-loaded connection technology
	✓	✓	✓		UL certification
		✓			GL certification
Page	**46**	**48**	**49**	**50**	

Input voltage	Type		24 Vdc 5 A	24 Vdc 10 A	24 Vdc 20 A	24 Vdc 1.2 Ah	24 Vdc 3.2 Ah	24 Vdc 7 Ah	24 Vdc 12 Ah	Page
24 V DC	Power Vision **charge and control unit**			✓	✓					**46**
100-240 Vac	Power Compact **switched mode power supply + charge and control unit**		✓							**48**
24 V DC	Power Vision **buffer modules**			✓	✓					**49**
24 V DC	Power Vision PVA **battery modules**						✓	✓	✓	**50**
24 V DC	Power Vision PVAF **battery modules**					✓		✓	✓	**50**

PC POWER **COMPACT** Switched mode power supplies + integrated charge and control unit

POWER COMPACT

Suitable for all
Power Vision battery modules

	Order no.
24 Vdc/5 A	PC-1024-050-0

PV POWER **VISION** Charge and control units

POWER VISION

	Order no.
24 Vdc/10 A	PVUA 24/24-10

	Order no.
24 Vdc/20 A	PVUA 24/24-20

PV POWER **VISION** Buffer modules

POWER VISION

	Order no.
24 Vdc/10 A	PVUC 24/24-10

	Order no.
24 Vdc/20 A	PVUC 24/24-20

PV POWER **VISION** Battery modules

POWER VISION

	Order no.
24 Vdc/1.2 Ah	PVAF 24/1.Ah

	Order no.
24 Vdc/3.2 Ah	PVA 24/3.2 Ah

	Order no.
24 Vdc/7 Ah	PVA 24/7 Ah
24 Vdc/7 Ah	PVA 24/7 Ah

	Order no.
24 Vdc/12 Ah	PVAF 24/12Ah
24 Vdc/12 Ah	PVA 24/12Ah

Redundancy modules

POWER ECO LINE

POWER **ECO LINE**

Redundancy module
for small power requirements

POWER VISION

POWER **VISION**

Redundancy and monitoring for the highest system availability

POWER VISION

POWER **VISION** ECONOMY

Economy- the low-cost option

Redundancy modules are used to decouple two power supplies to set up a fail-safe power supply system. Redundant circuits are found in machines and systems, which have to meet high requirements in terms of operational reliability.

Input voltage: 24 to 48 Vdc
Input current: 2 x 20 A or 1 x 40 A

24 V DC
2x20 A
1x40 A

48 V DC
2x20 A
1x40 A

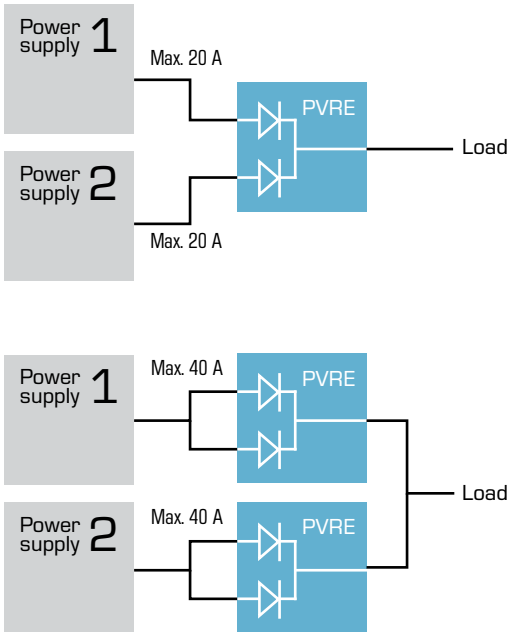
Highlights

- ✔ LED signalisation per input
- ✔ Reverse polarity protection
- ✔ Slim design
- ✔ Isolated signal contact
- ✔ Plug-in spring-loaded connection technology

The ideal way to protect against power supply failures.

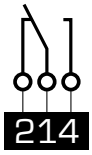
To avoid putting the operational reliability of machines and systems at risk in the event of a power supply failure, availability is safeguarded by two power supplies with the same rating which are decoupled via diodes.

Basic structure of redundant power supplies



Communication with the user

❶ Via the LEDs: The redundancy module features three LEDs on its front panel. The green LED signals sufficient voltage at the module output. Each of the two yellow LEDs is assigned to a connected power supply and will light up should it fail.



❷ Via the isolated signal contact:
The changeover contacts of the integrated relay the operational status of the connected power supplies. During normal operation the relay is active; it drops out in the event of a power supply failure.

POWER VISION

POWER **VISION** BASIC

Basic, inclusive of current and voltage monitoring

Redundancy modules are used to decouple two power supplies to set up a fail-safe power supply system. Redundant circuits are found in machines and systems, which have to meet high requirements in terms of operational reliability.

Input voltage: 24 Vdc
Input current: 2 x 20 A or 1 x 40 A

24 Vdc
2x20 A
1x40 A

Highlights

- ✔ Extensive function monitoring
- ✔ Display for current and voltage indicator
- ✔ Isolated signal contact
- ✔ Plug-in spring-loaded connection technology
- ✔ Reverse polarity protection
- ✔ Slim design
- ✔ LED signalisation per input

A smart combination: protection and monitoring in one.

To avoid putting the operational reliability of machines and systems at risk in the event of a power supply failure, availability is safeguarded by two power supplies with the same rating which are decoupled via diodes. What makes this module really special is its integrated control unit, which enables additional monitoring of the voltage and current. This means it is now even possible to keep one eye on the current and voltage conditions prevailing within a system through connection. The module also boasts a display, function keys, active signal outputs and a RS-232 interface.

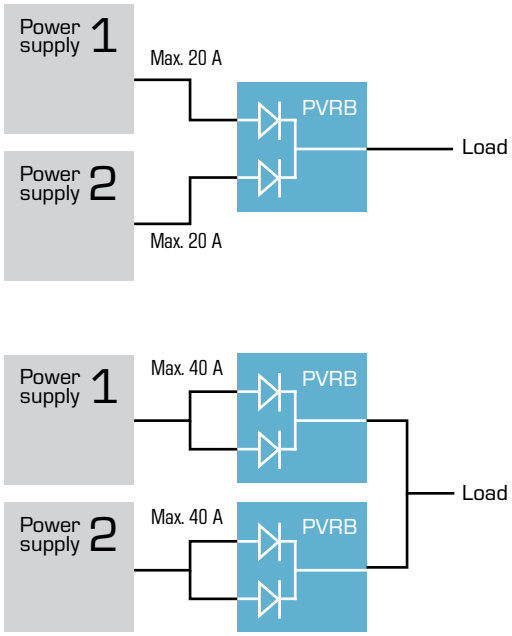
Integrated monitoring unit for maximum safety

The PVRB module monitors current and voltage continuously. Key information can be read directly from the display. The integrated monitoring unit is able to detect potential faults affecting the equipment to which power is being supplied at an early stage, output signals accordingly and store the associated data for subsequent analysis.

Key information that can be obtained via the display or the interface:

- Input voltage 1+2
- Output voltage
- Input current 1+2
- Output current
- Min. input voltages 1+2
- Min. output voltage
- Max. Input currents 1+2
- Max. Output current
- Visualisation of all faults
- Type of fault

Basic structure of redundant power supplies



Potential faults the redundancy module is able to detect:

Overcurrent at input
When one of the two input currents exceeds a configurable limit value.

Overcurrent at output
When the output voltage exceeds a configurable limit value.

Undervoltage at input
When one of the two input voltages falls below a configurable limit value.

Undervoltage at output
When the output voltage falls below a configurable limit value.

Hardware fault
When the device's internal self-testing function fails.

POWER ECO LINE

POWER **ECO LINE**

Redundancy module in flat plastic casing.

Redundancy module for decoupling from two power supplies on installation of a fail-safe power supply system.

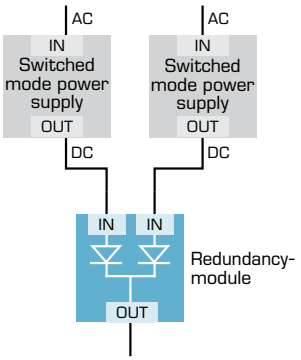
Input voltage: 12 to 24 Vdc

Input current: 2 x 5 A or 1 x 10 A

12-24 Vdc
2x5 A
1x10 A

Basic Structure

To avoid putting the operational reliability of machines and systems at risk in the event of a power supply failure, availability is safeguarded by two power supplies with the same rating which are decoupled via diodes.



Highlights

- ✔ LED-signalisation
- ✔ spring-loaded connection technology
- ✔ compact plastic casing

PV POWER **VISION** ECONOMY

POWER VISION

Order no.

24 Vdc/2x20A/1x40A PVRE 24/24-20

48 Vdc/2x20A/1x40A PVRE 48/48-20

PV POWER **VISION** BASIC

POWER VISION

Order no.

24 Vdc/2x20A/1x40A PVRB 24/24-20

PEL POWER **ECO LINE**

POWER ECO LINE

Order no.

12-24 Vdc/2x5A/1x10A PELR 24/24-5

Accessories

Communication cable Power Vision series

2.8 m long communication cable inc. connector plug. It connects the Power Vision device with integrated RS-232 interface directly to the PC.

Order number	PV-KOK2

Direct attachment

All PowerVision devices come with an appropriately sized metal wall mount for direct screwing to the wall.

Order number	PV-WB2

Communication cable Power Compact series

2.8 m long communication cable inc. connector plug. It connects the combi-USP from the Power Compact series directly to a PC.

Order number	PC-KOK1

DIN rail mounting

for side mounting on TH35 DIN rail.

Order number	PV-TS35M

Connector plug Power Vision series

Connector plug for all Power Vision devices with front sided signalcontacts or with integrated RS-232 interface.

Order number	PV-CON

USB serial adapter

USB converter for the connection of serial end devices (RS232 9-pin Sub-D) to the USB bus.

Order number	PV-USB/SERIAL

Connector plug Power Compact series

Connector plug for combi-USP from the Power Compact series for contact with RS-232 interface.

Order number	PC-CON1

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