Edition 7



Switched mode power supplies / Electronic circuit breakers / Uninterruptible power supplies / Redundancy modules / Accessories



MADE BY BLOCK

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We take care of finding the ideal solution for individual requirements – because we offer one of the largest portfolios of power supplies, circuit breakers, and uninterruptible power supplies. This ensures reliable power supply, distribution, and protection, from small control systems to large machinery and plant systems. Whether the application requires particularly powerful, robust, or compact products, our product lines, such as Power Vision, Power Ultimate, and Power Advanced, set the key standards.

Our power supply solutions are equipped with extensive features that prepare them for the complex demands of Industry 4.0 applications. This includes remote control and switching of individual channels, device lifetime monitoring, expansion of compatible interfaces, and comprehensive system monitoring and control. It is well established that customers from machinery and plant engineering, control cabinet construction, and the entire industrial sector rely on BLOCK products to ensure maximum availability of their systems.

Sebastian Winter Product Manager Electronics



Discover our power supplies here



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SWITCHED MODE POWER SUPPLIES **POWER ULTIMATE**

POWER ULTIMATE

OPTIMALLY PROTECTED – FOR DEMANDING APPLICATIONS

For the most demanding operating conditions, the POWER ULTIMATE series provides an exceptionally highperformance power supply. The integrated decoupling increases system availability, while the robust protective coating ensures operation even under extreme environmental conditions.



POWER SUPPLY FOR CHALLENGING ENVIRONMENTAL CONDITIONS

Ambient temperatures from -40 °C to +70 °C and an installation altitude of up to 5000 m are effortlessly managed.



PROTECTIVE COATED CIRCUIT BOARD

Effective protection against dust and corrosive gases as well as failures due to corrosion-related leakage currents.



SIGNAL CONTACT AND POWER RESERVES

INCREASED SYSTEM AVAILABILITY

availability of your application.

The integrated decoupling increases the system

In addition to high power reserves of 110 % continuous overload capacity and 150 % power boost for 5 seconds, the devices are equipped with a potential-free "DC OK" signal contact.











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* In preparation

TYPES ACCORDING TO SERIES **POWER ULTIMATE**



SWITCHED MODE POWER SUPPLIES **POWER ADVANCED**

POWER ADVANCED

POWERFUL AND COMPACT - SLIMMEST DESIGN AND MAXIMUM FLEXIBILITY

Our POWER ADVANCED series focuses on the core functionality of a power supply – ensuring reliable operation even under demanding conditions. POWER ADVANCED combines all the features needed to meet the requirements of a wide range of applications and industries – offering a compact design with above-average electrical and mechanical robustness.



HIGHEST POWER DENSITY

The extremely compact design saves space on the DIN rail and allows for use in a wide variety of applications.

RESISTANT TO OVERVOLTAGES UP TO 4 KV

The devices belong to overvoltage category III and thus offer transient protection up to 2 kV L - N or up to 4 kV (L, N) - PE.



OPTIMALLY PROTECTED AGAINST SHOCK AND VIBRATION LOADS

Thanks to reliable push-in terminals and a robust metal housing, the devices withstand vibration loads of up to 2.3 g on the DIN rail (DNV) and shock loads of up to 30 g.



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HIGH POWER RESERVES

The safe tripping of circuit breakers is ensured – the devices are 110 % continuously overload capable and provide a 150 % power boost for 5 seconds.









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TYPES ACCORDING TO SERIES **POWER ADVANCED**





SWITCHED MODE POWER SUPPLIES **POWER COMPACT**

POWER COMPACT

BASIC POWER SUPPLY FOR YOUR APPLICATION

The POWER COMPACT series combines the basic functionality of an economical switched mode power supply with essential additional features for a high system availability.

The versatile power supplies are suitable for a wide range of applications in solar, measurement, and control technology, demonstrating their strengths particularly in mechanical and system engineering. The devices cover the medium to high power requirements from 120 to 960 W. Variants with 12, 24, 48, and 60 V allow for diverse applications. The output voltage can be easily adjusted using the rotary potentiometer on the front of the housing.



RESISTANT TO OVERVOLTAGES UP TO 4 KV

The exceptionally robust design withstands transients and high-energy interference pulses at the power input.



ROBUST DIN RAIL MOUNTING

The robust rail mounting and modern push-in terminals enable quick and safe installation.



FAST TRIPPING OF CIRCUIT BREAKERS

Thanks to the high capacitive current reserve, reliable tripping of circuit breakers is easily achievable even with a cable length of up to 40 meters.

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OPTIONAL POWER BOOST

For the 2- and 3-phase devices, variants with 50 % power reserves are available for starting loads with high inrush currents.









TYPES ACCORDING TO SERIES **POWER COMPACT**

		Inpu	1-phase l ut voltage rai	MEDICAL nge 85 - 264	4 Vac	
Dimensions A C	A: 127 mm B: 42 mm C: 134.5 mm			A: 127 mm B: 55 mm C: 163.7 mr	n	
24 Vdc/5A	ł	PC-0124-050-4				
24 Vdc/10 A					PC-0124-100-	-4
	2-pł Input voltage ran	nase ge 180 - 550 Vac	111	3-phase t voltage range 320 - 575	o Vac	
Dimensions A C B	A: 127 mm B: 42 mm C: 118.5 mm	A: 127 mm B: 55 mm C: 118.5 mm	A: 127 mm B: 55 mm C: 152.5 mm	I	A: 127 mm B: 80 mm C: 152.5 mm	A: 127 mm B: 126 mm C: 170.5 mm
24 Vdc/5A	PC-0224-050-0 with Power Boost PC-0224-050-2					
24 Vdc/10 A		PC-0224-100-0 with Power Boost PC-0224-100-2	PC-0324 with Pow PC-0324	4-100-0 er Boost 4-100-2		
24 Vdc/20 A					PC-0324-200-0 with Power Boost PC-0324-200-2	
24 Vdc/40 A						PC-0324-400-0 with Power Boost
48 Vdc/20 A						PC-0324-400-2 PC-0348-200-0
						with Power Boost PC-0348-200-2
60 Vdc/16 A						with Power Boost, decoupling PC-0360-160-2D

ACCESSORIES POWER COMPACT





SWITCHED MODE POWER SUPPLIES THE FOUNDATION FOR YOUR APPLICATION

The **single-phase** switched mode power supplies excel with their robustness and flexibility. Thanks to their compact design and wide temperature range, they are suitable for a variety of applications.

FEATURES POWER ULTIMATE, POWER ADVANCED, POWER COMPACT – SINGLE-PHASE

- > Power range of 120 960 W
- > Wide input voltage range of 80(90) 264 Vac
- > Stabilized and adjustable output voltage
- > Push-in technology
- > Constant current limiting in the event of overload
- > In accordance with the standard EN 60335-1 for household appliances (only 24 V/5 A POWER COMPACT)



Thanks to **single-phase or two-phase** input from 180 to 550 Vac, these all-rounders are suitable for worldwide use. The switched mode power supplies also feature a compact design and service-friendly push-in terminals.

FEATURES POWER COMPACT - SINGLE- AND TWO-PHASE

- > Power range of 120 240 W
- > Wide input voltage range of 180 550 Vac
- > Stabilized and adjustable output voltage
- > Push-in technology
- > Constant current limiting in the event of overload

With high overvoltage resistance and the necessary energy reserve for tripping conventional circuit breakers, the **three-phase** POWER COMPACT and POWER ADVANCED switched mode power supplies are the optimal choice for controlling larger machines and systems.

FEATURES POWER ADVANCED, POWER COMPACT – THREE-PHASE

- > Power range of 120 960 W
- > Wide input voltage range of 320 575 Vac
- > Stabilized and adjustable output voltage
- Push-in technology
- > Constant current limiting in the event of overload



SWITCHED MODE POWER SUPPLIES **POWER VISION**

POWER VISION

FOR MAXIMUM SYSTEM AVAILABILITY

POWER VISION is the technologically and economically leading product line in the field of power supplies. All devices are communicative and provide maximum power reserves for the highest system availability. And all of this is based on excellent cost-effectiveness.



TOP BOOST

Enables the use of conventional circuit breakers for the selective protection of the DC 24 V supply voltage.

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MONITORING

POWER INPUT PROTECTION

extensive monitoring capabilities.

Required fuses for device protection can be eliminated thanks to the integrated fuses.

An interface and configurable signal outputs allow

for control of the input and output supply, providing



POWER BOOST

Large power reserves ensure the starting of loads with high inrush currents.





TYPES ACCORDING TO SERIES POWER VISION





Power Vision Economy











Power Vision Economy 3-phase Input voltage range 340 - 550 Vac

		1-ph Input voltage rar	nase 1ge 85 - 264 Vac		Input vo	3-phase Itage range 340 -	550 Vac
Dimensions A C	A: 127 mm B: 40 mm C: 163.5 mm	A: 127mm B: 57mm C: 163.5mm	A: 127 mm B: 57 mm C: 179.5 mm	A: 127 mm B: 97 mm C: 187.5 mm	A: 127 mm B: 57 mm C: 179.5 mm	A: 127 mm B: 77 mm C: 179.5 mm	A: 127 mm B: 128 mm C: 205.5 mm
12 Vdc/6A	PVSE 230/12-6						
12 Vdc/15 A			PVSE 230/12-15				
24 Vdc/5A		PVSE 230/24-5					
24 Vdc/10 A			PVSE 230/24-10		PVSE 400/24-10		
24 Vdc/20 A				PVSE 230/24-20		PVSE 400/24-20	
24 Vdc/40 A							PVSE 400/24-40
30 Vdc/25 A							PVSE 400/30-25
48 Vdc/5A			PVSE 230/48-5				
48 Vdc/10 A				PVSE 230/48-10		PVSE 400/48-10	
48 Vdc/20 A							PVSE 400/48-20



TYPES ACCORDING TO SERIES **POWER VISION**













Power Vision Basic Power Vision Line 3-phase 3-phase Input voltage range 340 - 550 Vac Input voltage range 340 - 550 Vac Dimensions A: 127 mm B: 57 mm C: 179.5 mm B: 77 mm C: 179.5 mm B: 57 mm C: 179.5 mm B: 77 mm C: 179.5 mm B: 128 mm B: 128 mm C: 205.5 mm C: 205.5 mm C, 24 Vdc/10 A PVSB 400/24-10 PVSL 400/24-10 24 Vdc/20 A PVSB 400/24-20 PVSL 400/24-20 24 Vdc/40 A PVSB 400/24-40 PVSL 400/24-40



POWER VISION CHARACTERISTICS

POWER INPUT PROTECTION

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



A free parameterization and diagnostic software is available for devices with an integrated interface. The logging of recorded measurement values and messages is possible for analyzing the input voltage and the output current and voltage ratios.





LARGE POWER RESERVES TOP BOOST AND POWER BOOST

- > Digital boost control: Boost is available immediately after the device is powered on.
- > Two Power Boost levels: 100 % bonus power for 4 seconds or 50 % bonus power for 16 seconds.
- > **Top Boost:** Short-term power increase, reliable starting of loads with very high inrush currents. Enables the tripping of circuit breakers up to the C-characteristic.
- > Dynamic Power Boost: Allows cyclical use of the Power Boost.



SWITCHED MODE POWER SUPPLIES POWER VISION ECONOMY – WITH HIGH PRECISION OUTPUT VOLTAGE

POWER VISION Economy (PVSE) are optimized switched mode power supplies with high precision output voltage for all requirements in automation technology. "Economy" focuses on the core task of voltage and current delivery.



FEATURES

- > Power range from 120 960 W
- > Wide range input
- > Stabilized and adjustable output voltage
- > Standby input
- > Potential-free "DC OK" signal contact

LED Signaling

The Economy version is equipped with two LEDs that indicate the current operating status. In normal operation, the green LED lights up. The red LED indicates an undervoltage condition at the output of the power supply.

Setting the output voltage

Potential-free signal contact

The power supplies are equipped with a potential-free "DC OK" signal output. In the case of undervoltage at the output, the internal relay becomes inactive. This fault can be queried via the changeover contact.

Standby input

The standby input allows for a targeted shutdown of the power supply. By applying an external DC voltage to the standby input, the output of the device is switched off, and the power supply remains in a standby state.



SWITCHED MODE POWER SUPPLIES POWER VISION BASIC – WITH LOAD MONITORING

POWER VISION Basic (PVSB) meets all requirements of automation technology with a variety of parameterization and display functions, including output current and voltage monitoring. In addition to the power reserves of the PVSB, a serial interface and four active signal outputs ensure continuous communication with the system environment.

FEATURES

- > Power range from 240 960 W
- > Wide range input from 340 550 Vac
- > Stabilized and adjustable output voltage
- > Integrated output current and voltage monitoring
- > Display and RS-232 interface
- > Functional monitoring through 4 active DC 24 V signal contacts



SWITCHED MODE POWER SUPPLIES POWER VISION LINE – WITH LOAD AND MAINS MONITORING

The POWER VISION Line (PVSL) 400 is a state-of-the-art switched mode power supply for all requirements in automation technology. Equipped with a variety of parameterization and display functions, including output current and voltage monitoring, as well as integrated mains input analysis.

FEATURES

- > Power range from 240 960 W
- > Wide input range from 340 550 Vac
- > Stabilized and adjustable output voltage
- > Integrated output current and voltage monitoring
- > Display and RS-232 interface
- Additional input voltage monitoring including frequency and phase rotation measurement
- > Function monitoring via 4 active DC 24 V signal contacts



INPUT AND OUTPUT MONITORING FOR MORE PREVENTION – BASIC OR LINE

Setting the output voltage

The output voltage can be set digitally either directly on the device using buttons or automatically via the interface between 22.0 and 28.8 Vdc. The stored final voltage value is automatically restored after each power-up.

Communication with the user

> Via LEDs:

Non-critical faults are visualized as warnings by the yellow LED, while critical faults are indicated by the red LED.

> Via the display:

The integrated fault memory allows a diagnosis to be performed directly on the device. Blinking segments on the display ensure the assignment of potential faults.





> Via the active signal outputs:

On the front of the PVSB, there are four active signal outputs for function monitoring. Their statuses can be read into the higherlevel control system. The outputs switch the output voltage and are thus directly processable as a digital signal. Two of the four signal outputs can be individually configured via the free parameterization software, for example, to generate a collective signal of all critical conditions.

> Via the interface:

Thanks to the serial interface, the device can communicate with a PC or a higher-level control system. The cyclical transmission of all key data from the switched mode power supply makes it possible to react not only to critical operating conditions but also to visualize relevant data.

PVSL CLEARS UP THE CONTROL CABINET

The use of a PVSL makes various additional modules in the control cabinet unnecessary. Whether monitoring the rotational field direction, phase loss, or input mains quality, the Line variant provides all of this as an added feature!

Thanks to fast response times in the event of a power failure, there is even time to save important data for the machine's restart.





The output of the PVSB switched mode power supply is continuously monitored for current and voltage. Important information can be read directly on the display. Possible faults in a system are detected, stored, and signaled early by the integrated control unit. In addition to the PVSB version, the PVSL switched mode power supply is equipped with an integrated mains input monitoring system.

POSSIBLE FAULTS THAT CAN BE DETECTED:

- > Overcurrent: The output current has exceeded the nominal output current
- > Undervoltage: The output voltage has dropped below the adjustable "DC OK" threshold
- > Hardware fault: The internal device self-test has failed
- > Mains undervoltage*: The input voltage of at least one mains input phase has dropped below an adjustable threshold
- > Mains overvoltage*: The input voltage of at least one mains input phase has exceeded an adjustable threshold
- > Phase failure*: A mains input phase has failed
- > Rotating field error*: The connected rotating field direction is counterclockwise
- > Frequency error*: The mains frequency is outside the range of 44 to 66 Hz
- > Power failure*: At least two mains input phases have failed (typical response time 4 ms)
- > Communication error*: The internal communication test has failed

IMPORTANT INFORMATION THAT CAN BE RETRIEVED VIA THE DISPLAY OR INTERFACE:

- > Output current
- > Output voltage
- > Max. output current
- > Min./max. output voltage
- > Visualization of all faults
- > Type of faults
- > Operating hours counter
- Mains input voltage*
- > Mains frequency*
- > Rotating field direction*

INFORMATION THAT CAN ONLY BE RETRIEVED VIA THE INTERFACE:

- > Mains input voltage of individual phases*
- * Only available with PVSL switched mode power supplies



SWITCHED MODE POWER SUPPLIES **POWER MINI**

POWER MINI

SLIM AND EFFICIENT SWITCHED MODE POWER SUPPLIES

The efficient control power supplies in a slim plastic housing are suitable for worldwide use with their wide input voltage range. The single-phase power supplies also have very low standby losses <1 W. For the two-phase power supplies, the two-phase input allows operation in neutral-free supply grids, reducing wiring and installation effort. Various versions are available for the construction of NEC Class 2 circuits.



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ACTIVE "DC OK" SIGNAL CONTACT Reliable reporting of the output voltage status.

For 12 V devices up to 4 A and 24 V devices up to 3.8 A.



COMPLIANT WITH STANDARDS

In accordance with the standard EN 60335-1 for household appliances.



ALL-PURPOSE POWER SUPPLIES

For a wide range of applications in solar technology, measurement and control technology, industrial and building automation.



NEC CLASS 2



TYPES ACCORDING TO SERIES **POWER MINI**

		1-phase		1-phase MEDICAL	2-phase Input voltage range	
Dimensions A C	A: 90 mm B: 22,5 mm C: 90.5 mm	85 - 264 Vac A: 90 mm B: 45 mm C: 90.5 mm	A: 90 mm B: 52 mm C: 103.5 mm	85 - 264 Vac A: 90 mm B: 52 mm C: 103.5 mm	200 - 500 Vac A: 90 mm B: 52 mm C: 103.5 mm	
12 Vdc/2A	<i>NEC Class 2</i> PM-0112-020-0					
12 Vdc/4A		<i>NEC Class 2</i> PM-0112-040-0				
12 Vdc/7A			PM-0112-070-0			
24 Vdc/1A	NEC Class 2 PM-0124-010-0					
24 Vdc/2A		NEC Class 2 PM-0124-020-0		PM-0124-020-4		
• 24 Vdc/3,8A			<i>NEC Class 2</i> PM-0124-038-0 PM-0124-038-5*		<i>NEC Class 2</i> PM-0224-038-0	
24 Vdc/4A			PM-0124-040-0			
30,5 Vdc/3A			PM-0130-030-0			
48 Vdc/2A			PM-0148-020-0			
	DC DK DC Adj.			* Variant with 3 minus term	iinals and without signal contact	
	23-28.5V					
	PM-0124-010-0					

SWITCHED MODE POWER SUPPLIES **POWER ECO LINE**

POWER ECO LINE

SWITCHED MODE POWER SUPPLIES IN A FLAT PLASTIC HOUSING

These devices cover the power range from 20 to 96 W. They are primarily designed for use in distribution boards or flat control panels in building automation.



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OUTPUT VOLTAGES 5 Vdc, 12 Vdc, 18 Vdc, and 24 Vdc.



OPTIMIZED FOR ELECTRICAL INSTALLATION DISTRIBUTION BOARDS The width corresponds to 3 - 5 modular units.

UL AND DNV APPROVALS This makes them suitable for worldwide use.









TYPES ACCORDING TO SERIES **POWER ECO LINE**



POWER SUPPLIES OPTIONS FOR A DC 24 V FUSE

For the magnetic quick release of conventional circuit breakers, a short-term overcurrent is required. The power supplies in the POWER ADVANCED, POWER ULTIMATE, POWER COMPACT, and POWER VISION series are capable of reliably shutting off faulty current paths in the event of a short circuit.



NOTE ON CABLE LENGTH CALCULATION

The cable length calculator, available as a cost-free software tool on block.eu, assists you in designing your system. For all POWER VISION power supplies, the maximum cable lengths are calculated, taking into account the cable cross-section and the circuit breaker used.



PLEASE NOTE

For reliable and fast tripping of circuit breakers in the electromagnetic tripping range of the characteristic curve, the total resistance of the conductor loop is always a requirement. The ohmic resistances of the supply and return conductors limit the maximum possible current (conductor crosssection and length, as well as contact resistances).



Devices in the POWER VISION series, thanks to Top Boost technology, provide up to 100 A temporarily. These power supplies enable the reliable tripping of circuit breakers up to the B10 or C6 characteristic.

For cable lengths up to 40 meters, the POWER COMPACT power supplies are also suitable, thanks to a high capacitive current reserve.

With high conductor resistances or when using power supplies without current reserves, electronic circuit breakers offer a technical alternative to conventional circuit breakers. Learn more about these modules in the chapter on Electronic Circuit Breakers.

ALL SWITCHED MODE POWER SUPPLIES **FEATURES AT A GLANCE**

	Power Advanced 1ph	Power Advanced 3ph	Power Ultimate 1ph	Power Compact 1ph	Power Compact 2ph	Power Compact 3ph	Power Vision Economy 1ph	Power Vision Economy 3ph	Power Vision Basic	Power Vision Line	Power Mini 1ph/2ph	Power Eco Line 1ph
Standby input							•	•				
AC mains input monitoring										-		
In accordance with the standard EN 60335-1 for household appliances				*							*	
NEC Class 2 variants for power limitation to max. 100 W											*	
Integrated decoupling			•									
Protective coated PCB			-									
Display for simplified start-up									•	•		
RS-232 interface									•	•		
DC current and voltage monitoring									-	-		
"DC OK" signal via active signal contacts									-	-	-	
"DC OK" signal via potential-free contact			-	-	•	-	-	•				
Continuous 2-phase operation		-			•	-		•	-	-	-	
Top Boost for reliable starting of loads with high inrush currents and fast tripping of circuit breakers up to the C characteristic							-	•	•	-		
Power Boost for reliable starting of heavy-starting loads	•	-	-		*	*	-	•	-	-		
Spring clamp technology							-	•	-	-		•
Push-in technology	•	-	-	-	•	-					-	
DNV approval				-	•	-					-	•
UL approval	•	-	-	-	•	-	-	•	-	-	-	•
Globally usable due to wide input range	•	-	-	•	•	-	•	•	•	-	-	•
Parallel operation possible for increased performance	* *	* *	* *	•	•	•	•	•	•	•	-	•
Internal device fuses	•		-	-	•		-	•	•	•	-	•
Stabilized output voltage	•	-	-	-	•	-	-	•	•	•	-	•
Adjustable output voltage	•	•	•	•	•	•	•	•	•	•	-	•
Status LED	•	•	•	•	•	•		•	•	•	-	•

* Only certain variants of the series
** With redundancy module or switchable parallel mode

ALL SWITCHED MODE POWER SUPPLIES OUTPUTS AT A GLANCE

	Output nominal voltage	Output voltage range	Type	Input voltage range	0 - 20 W	20 - 30W	40 - 60 W	70 - 100 W	120W	180 - 240 W	450 - 480 W	750 - 960 W	
	5 V	4.5 - 8.5 Vdc	Power Eco Line	85 - 264 Vac	-	5.5 A							
		11 - 18 Vdc	Power Vision Economy	85 - 264 Vac				6A		15 A			
		11.5 - 15 Vdc	Power Advanced	90 - 264 Vac					10 A	15 A			
	12 V	11.5 - 15 Vdc	Power Compact	85 - 264 Vac						15 A			
		11.5 - 14.5 Vdc	Power Mini	85 - 264 Vac	×.	2 A	4 A	7A					
		10.5 - 15.5 Vdc	Power Eco Line	85 - 264 Vac		2 A	4A	6.5A					Ľ
	18 V	15.5 - 19 Vdc	Power Eco Line	85 - 264 Vac	1.1A		2.5 A						
		22 - 29.5 Vdc	Power Vision Economy	85 - 264 Vac					5A	10 A	20 A		
ase		23 - 28.5 Vdc	Power Ultimate	90 - 264 Vac						10 A	20 A		
1-ph	2414	23 - 28.5 Vdc	Power Advanced	90 - 264 Vac	-				5A	10 A	20 A	40 A	
	24 V	23 - 28.5 Vdc	Power Compact	85 - 264 Vac					5A	10 A	20 A		
		23 - 28.5 Vdc	Power Mini	85 - 264 Vac		1A	2 A	3.8/4A					
		22.8 - 26.4 Vdc	Power Eco Line	85 - 264 Vac		1.3 A	2.5 A	4 A					ţ
	30.5 V	29 - 32 Vdc	Power Mini	85 - 264 Vac				ЗA					
		33 - 52 Vdc	Power Vision Economy	85 - 264 Vac						5A	10 A		
	10 V	40 - 56 Vdc	Power Advanced	90 - 264 Vac						5A	10 A	20 A	
	40 V	40 - 56 Vdc	Power Compact	85 - 264 Vac						5A	10 A		
		40 - 56 Vdc	Power Mini	85 - 264 Vac				2 A					
hase	24 V	23 - 28.5 Vdc	Power Compact	180 - 550 Vac	-				5A	10 A			
2-p		23 - 28.5 Vdc	Power Mini	180 - 575 Vac				3.8 A					
		22.8 - 28.8 Vdc	Power Vision Economy	340 - 550 Vac						10 A	20 A	40 A	
		23 - 28.5 Vdc	Power Compact	320 - 575 Vac						10 A	20 A	40 A	٨
	24V	22.8 - 28.8 Vdc	Power Advcanced	320 - 575 Vac					5A	10 A	20 A	40 A	
Se		22.8 - 28.8 Vdc	Power Vision Basic	340 - 550 Vac						10 A	20 A	40 A	
pha		22.8 - 28.8 Vdc	Power Vision Line	340 - 550 Vac	_					10 A	20 A	40 A	
Ś	30 V	27 - 43 Vdc	Power Vision Economy	340 - 550 Vac								25 A	
	48V	37 - 51Vdc	Power Vision Economy	340 - 550 Vac							10 A	20 A	
	40 V	40 - 56 Vdc	Power Compact	320 - 575 Vac	240\							20 A	1000
	60 V	40 - 61Vdc	Power Compact	320 - 575 Vac			2					16 A	
					P(DC-01:	24-100)-2			A	1	
											1.00		

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In addition to our standard power supplies, our particular strength lies in the development of customized complete solutions that meet innovative and individual requirements. Whether it's power supplies with output ratings of 5 kW or higher, decentralized power supplies with a high degree of protection, or complete systems for 19-inch rack mounting – we provide the right solution.







ELECTRONIC CIRCUIT BREAKERS FOR SELECTIVE PROTECTION OF DC CIRCUITS

ELECTRONIC CIRCUIT BREAKERS – EASYB THE MODULAR CIRCUIT BREAKER SYSTEM

UP TO 40 MODULES / 80 CHANNELS MOUNTABLE SIDE BY SIDE

The requirements for the tripping behavior of electronic circuit breakers in machines and systems are diverse. Loads with high starting and inrush currents, such as drives and contactors, require different tripping characteristics compared to sensors and controls that are sensitive to drops in system voltage.

To always provide the user with the optimal solution for each application, we have expanded the EasyB range with a fast tripping characteristic. This allows for safe tripping in the event of a short circuit within 2 ms and the ability to switch on capacitive loads with up to 40 mF, which is no contradiction for EasyB.

The new single-channel and dual-channel variants are fully UL 508, UL 2367 certified, and certified as NEC Class 2 from 1 A to 4 A. Additionally, internal fuses customized to the rated current from 1 A to 16 A meet the requirements for circuit protection according to EN 60204-1.

FEATURES & HIGHLIGHTS

- > Tripping currents from 1 16 A
- > Thermomagnetic, thermomagnetic fast, or current-limiting characteristics
- > Up to 40 protection modules mountable side by side
- Common or single feedback contact for tripped/switched off channels
- > Reliable switching of high capacities (>40,000 μ F)
- > Automatic channel assignment
- > Flexible adaptation to specific conditions
- > Status LED
- > Available in 1- and 2-channel variants
- Circuit breaker modules with communication capability
- > 48 V variants also available







EASYB MODULE VARIETY CIRCUIT BREAKERS & ADDITIONAL MODULES

Nearly 90 % of all systems operate with a 24 V control voltage. A reliable and selective protection of the control voltage level is a fundamental requirement for the availability and operational safety of these systems. After all, a persistent overload can damage cable insulation and cause system downtime. It is also important that the protection concept can be flexibly adapted to specific conditions and integrates optimally into the overall system. The required number of protected channels varies depending on the application – if necessary, individual channels can be added later. If the detailed status of individual loads is to be monitored remotely, existing products on the market quickly reach their limits. Our modular circuit breaker system EasyB demonstrates that there is a better solution.

CIRCUIT BREAKERS

Circuit breakers with thermomagnetic, thermomagnetic fast or current limiting characteristic provide a cost-effective alternative to conventional circuit breakers. The wide range of shutdown characteristics guarantees reliable tripping for any application, even with high line impedances.





COMMUNICATION MODULES

The use of communication modules enables the full range of functions of the communicationcapable circuit breaker modules to be applied. All information can be requested in real time through the connection to a higher-level PLC via IO-Link or Modbus RTU.



ACCESSORIES

In addition to the circuit breaker modules, the accessory modules output expander and ground module complete the flexibility and usability of the EasyB system.

ALL EASYB CIRCUIT BREAKERS **OVERVIEW**

	I STATE					ALLE II HO AL							
	EB-2724-XX0-Y*	EB-2724-XX0-0F	EB-2724-2XX0-0	EB-2724-2XX0-0F	EB-0724-100-0F	EB-1724-XX0-0F	EB-3724-100-0F	EB-3724-2160-0F	EB-1724-2XXX-0F	EB-2824-XX0-Y*	EB-0824-100-Y*	EB-1824-XX0-0	EB-3824-100-0
Thermomagnetic characteristic	•		•										
Thermomagnetic fast characteristic		•		-	•	•	•	•	•				
Current limiting 1.25 x rated current										•	•	•	-
Two protected channels			•	-				•	•				
Second load output	•	•								•			
Pre-set tripping currents	•	•	-	•		•			•	•		•	
Adjustable tripping currents via rotary switch or interface					•						•		
Adjustable tripping currents via interface							•	•					•
Undervoltage switch-off as group					•	•	-	•	•		•	•	•
Undervoltage switch-off on individual basis	•	•	•	•						•			
NEC Class 2 up to 4 A		•		•		•			•	•			
Communication interface					•	•	•	•	•		•	•	-
Automatic addressing of channels					•	•	-	•	•		•	•	-
Common reset					•	•	•	•	•		•	•	-
Selective activation at Uin > 18 V, load-dependent					•	•	-	-	-		•	•	-
Detection and signaling of current > 90 % of rated current	•	•	-	-	•	•	-	-	-		•	•	-
Rechargeable capacity > 40,000 μF	•	•	-	-	•	•	-	-	-				
Rechargeable capacity > 70,000 μF										•	•	-	-
Collective reporting for tripped and switched-off channels	•*	•	-	-	•	•	-	-	-	•*	•*	-	-
ON/OFF button	-	-	-	-	-	-	-	-	-	•	-	-	-
Labeling options	•	•	-	-	•	•	-	-	-	•	-	-	-
Status indicator in color on button	•	•	-	-	•	•	-	-	-	•	•	•	-

 * Variants with a common status signal (-0) and single status signal (-4)

TYPES ACCORDING TO SERIES **EASYB**

	1-Channel thermomagnetic	1-Cha thermoma	annel gnetic fast	1-Ch current	annel -limiting	2-Channel thermomagnetic	2-Channel thermomagnetic fast
Dimensions A C	A: 99 mm B: 12 mm C: 60 mm	A: 99 mm B: 12 mm C: 60 mm	A: 99 mm B: 12 mm C: 60 mm	A: 99 mm B: 12 mm C: 60 mm	A: 99 mm B: 12 mm C: 60 mm	A: 99mm B: 12mm C: 60 mm	A: 99 mm B: 12 mm C: 60 mm
24 Vdc/1A	EB-2724-010-X	<i>NEC Class 2</i> EB-2724-010-0F	NEC Class 2 EB-1724-010-0F	<i>NEC Class 2</i> EB-2824-010-X	EB-1824-010-0		
24 Vdc/2A	EB-2724-020-X	NEC Class 2 EB-2724-020-0F	NEC Class 2 EB-1724-020-0F	NEC Class 2 EB-2824-020-X	EB-1824-020-0		
24 Vdc/3A	EB-2724-030-X	<i>NEC Class 2</i> EB-2724-030-0F	NEC Class 2 EB-1724-030-0F	NEC Class 2 EB-2824-030-X	EB-1824-030-0		
24 Vdc/4A	EB-2724-040-X	<i>NEC Class 2</i> EB-2724-040-0F	NEC Class 2 EB-1724-040-0F	NEC Class 2 EB-2824-040-X	EB-1824-040-0		
24 Vdc/6A	EB-2724-060-X	EB-2724-060-0F	EB-1724-060-0F	EB-2824-060-X	EB-1824-060-0		
24 Vdc/8A	EB-2724-080-X	EB-2724-080-0F	EB-1724-080-0F	EB-2824-080-X	EB-1824-080-0		
24 Vdc/10 A	EB-2724-100-X	EB-2724-100-0F	EB-1724-100-0F	EB-2824-100-X	EB-1824-100-0		
24 Vdc/16 A			EB-1724-160-0F				
24 Vdc/			Adjustable tripping currents via interface EB-3724-100-0F		Adjustable tripping currents via interface EB-3824-100-0		
1×0.5-10A			Adjustable tripping currents via rotary switch & interface EB-0724-100-0F		Adjustable tripping currents via rotary switch & interface EB-0824-100-0		
24 Vdc/2×1A						EB-2724-2020-0	NEC Class 2 EB-2724-2020-0F
24 Vdc/2×2A						EB-2724-2040-0	NEC Class 2 EB-2724-2040-0F
24 Vdc/2×3A						EB-2724-2060-0	NEC Class 2 EB-2724-2060-0F
24 Vdc/2×4A						EB-2724-2080-0	NEC Class 2 EB-2724-2080-0F
24 Vdc/2×6A						EB-2724-2120-0	EB-2724-2120-0F
24 Vdc/2×8A						EB-2724-2160-0	EB-2724-2160-0F
48 Vdc/1x0.5-10 A			Adjustable tripping currents via rotary switch & interface EB-0748-100-0				
48 Vdc/1x6 A			EB-1748-060-0				
48 Vdc/1x10 A			EB-1748-100-0	- 4			
X = -0: Common statu -4: Single status s	s signal ignal				1		
Preset tripping c (cannot be chan	urrents ged)			4			

ACCESSORIES EASYB



CIRCUIT BREAKERS TRIPPING FUNCTIONS AT A GLANCE

The electronic circuit breakers from BLOCK are designed for various requirements in machines and systems. Three tripping functions can be selected. Circuit breakers with thermomagnetic, thermomagnetic fast, and current limiting characteristics provide an economical alternative to conventional circuit breakers. The wide range of shutdown characteristics guarantees reliable tripping for any application, even with high line impedances.





FOR INDUCTIVE LOADS

Modules with thermomagnetic tripping characteristics utilize the tripping behavior of conventional circuit breakers. In operation, these modules also temporarily allow high inrush or starting currents of the loads. They are ideal for inductive loads such as contactors, drives, and valves.




FOR CAPACITIVE LOADS

These modules limit the overcurrent of each circuit to a maximum of 1.7 times the set rated current. In the case of a sustained overcurrent, only the faulty circuit is selectively switched off. A voltage drop in unaffected circuits is reliably prevented. Ideal for capacitive loads > 70 mF, which can be charged with a constant current without any issues at the moment of switching on.

FOR SENSITIVE LOADS

The fast alternative to the standard characteristic, especially for rated currents < 6 A. These universally applicable modules safely trip within 2 ms in the event of a short circuit, thus limiting a drop in system voltage. Ideal for sensitive loads such as controllers and sensors. The integrated soft-start behavior allows for safe differentiation between short circuits and high inrush currents, preventing false tripping.

NOTE

In conventional circuit breakers, as well as in electronic circuit breakers with thermomagnetic characteristics, the DC supply voltage may drop for a few milliseconds during a short circuit until the faulty path is switched off. The magnitude of the voltage drop depends on the line resistance and the overcurrent capacity of the supplying switched mode power supply. Only through active current limiting can a voltage drop be reliably prevented.



COMPARISON OF TRIPPING CHARACTERISTICS

6A Economy Smart (thermomagnetic characteristic) 6A Basic Smart (current limiting characteristic) 6A Circuit breaker (B characteristic) at 24 V DC

GENERAL ADVANTAGES OF BLOCK ELECTRONIC CIRCUIT BREAKERS

- > Reliable tripping even with high line impedances
- > Universally suitable due to individual rated current settings per channel
- > Remote reset of tripped channels is possible
- > The sequential switching on of channels distributes the inrush current of the system

EASYB ELECTRONIC CIRCUIT BREAKERS, THERMOMAGNETIC

1-CHANNEL & 2-CHANNEL CIRCUIT BREAKERS, THERMOMAGNETIC

Modules with thermomagnetic tripping characteristics utilize the tripping behavior of conventional circuit breakers. In operation, these modules also temporarily allow high inrush or starting currents of the loads. They are ideal for inductive loads such as contactors, drives, and valves.

> Fixed rated currents: 1 - 10 A / 2 x 1 - 8 A



FUSE CHARACTERISTICS





EASYB **ELECTRONIC CIRCUIT BREAKERS,** THERMOMAGNETIC FAST

1-CHANNEL & 2-CHANNEL CIRCUIT BREAKERS, THERMOMAGNETIC FAST

The fast alternative to the standard characteristic, especially for rated currents < 6 A. These universally applicable modules safely trip within 2 ms in the event of a short circuit, thus limiting a drop in system voltage. They are ideal for sensitive loads such as controllers and sensors.

- > Fixed rated currents: 1 10 A / 2 x 1 8 A
- > With adapted internal fuse
- > With soft-start behavior

FUSE CHARACTERISTICS





1-CHANNEL & 2-CHANNEL CIRCUIT BREAKERS, THERMOMAGNETIC FAST - COMMUNICATIVE

These circuit breakers combine the advantages of the fast tripping behavior, meaning significantly faster tripping than the standard characteristic, and tripping in the event of a short circuit within 2 ms with a communicative platform. Detailed power supply parameters can thus be easily read according to the principles of Industry 4.0, allowing active control of channels.

- > EB-07: Adjustable rated currents via rotary switch or interface: 0.5 10 A
- > EB-17: Fixed rated currents: 1 16 A
- > EB-37: Adjustable rated currents via interface: 0.5 10 A
- > With soft-start behavior

FUSE CHARACTERISTICS





Output current (A)

EASYB ELECTRONIC CIRCUIT BREAKERS, CURRENT LIMITING

1-CHANNEL CIRCUIT BREAKER, CURRENT-LIMITING

These modules limit the overcurrent of each circuit to a maximum of 1.7 times the set rated current. In the case of a sustained overcurrent, only the faulty circuit is selectively switched off. A voltage drop in unaffected circuits is reliably prevented. Ideal for capacitive loads > 70 mF, which can be charged with a constant current without any issues at the moment of switching on.



> Current limiting characteristic

FUSE CHARACTERISTICS



1-CHANNEL PROTECTIVE SWITCH, CURRENT-LIMITING - COMMUNICATIVE

These modules limit the overcurrent of each circuit to a maximum of 1.7 times the set rated current. In the case of a sustained overcurrent, only the faulty circuit is selectively switched off. A voltage drop in unaffected circuits is reliably prevented. Ideal for capacitive loads > 70 mF, which can be charged with a constant current without any issues at the moment of switching on.

- > EB-08: Adjustable rated currents via rotary switch or interface: 0.5 10 A
- > EB-18: Fixed rated currents: 1 10 A
- > EB-38: Adjustable rated currents via interface: 0.5 10 A



FUSE CHARACTERISTICS



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EASYB ADDITIONAL MODULES



GROUND MODULE

Ground module to feed back the 0 V signal to the power supply as a replacement for the terminal block.

OUTPUT EXPANDER

Output expander for right-side mounting to circuit breaker channels. Provides eight additional output contacts per circuit breaker module.

COMMUNICATION MODULES

The communication modules serve as an interface for connecting to a higher-level control system. They are compatible with circuit breakers of the variants EB-08, EB-18 und EB-38 as well as EB-07, EB-17 and EB-37. Collection and transmission of individual operational and fault states, as well as parameterization and remote switching of up to 40 circuit breaker channels, are possible with this module.

- > Interface standards: MODBUS RTU & IO-Link
- > Parameterization and remote switching of up to 40 circuit breaker channels
- > Reporting of operational and fault states
- > Reading of input voltage and output currents
- > Setting of tripping currents
- > Switching and resetting of circuit breaker channels
- > Two potential-free signal contacts (only EB-MODBUS-RTU)

INTELLIGENT COMMUNICATION

When connecting a circuit breaker channel, the signal contacts are automatically connected to the preceding channel. This allows individual channels to exchange important information and pass it on to a connected communication module. The communication module can then relay this information to a higher-level control system as part of Industry 4.0.

- > Channel status
- > Individual channel switching
- Present current
- > Input voltage
- > Tripping currents can also be set/read via the communication module





INDUSTRY 4.0 /IOT ADVANCING KNOWLEDGE

SETTING THE TRIPPING CURRENT

As the first modular circuit breaker system, EasyB also offers the option to set the tripping current via the interface (applies to EB-07, EB-08, EB-37, EB-38). This significantly simplifies inventory management and eliminates a potential source of error during system startup. Particularly for series machine manufacturers, the automatic adjustment of the tripping current also offers substantial cost savings during system commissioning. However, the digital adjustment of the tripping current is not a necessity. Variants with preset tripping currents or mechanical adjustment switches are also available.

AUTOMATIC ADDRESSING

The channels are automatically addressed at startup through a method developed by BLOCK and protected by patent. An additional and time-consuming step for manual addressing is eliminated – a crucial advantage, especially during system downtime and the required exchange of components.

1	2	3 4	4 5	C		6	
[]		••			••		
(sei		•• !	•• !	ee i	22]	••!	122
••						22	

- > Addressing occurs automatically upon switch-on
- > Counting begins on the left at 1
- Simplification compared to existing solutions for expansion and replacement
- Addressing possible for up to 3 output expanders per channel







COMMON STATUS SIGNAL

The "OK" signal of all connected circuit breaker modules (ending in -0 / -0F) is "LOW" as soon as a connected circuit breaker has tripped or been switched off.

SINGLE STATUS SIGNAL

Only the "OK" signal of the tripped or switched-off connected circuit breaker (ending in -4) is "LOW." This information is not passed on to the other connected circuit breakers.

EXTENDED **EASYB INSTALLATION**





SELECTIVE LOAD-DEPENDENT SWITCH ON

- > The subsequent channel only switches on when the tripping current of the present channel is undershot
- > The power supply no longer needs to be oversized

ELECTRONIC CIRCUIT BREAKERS ECONOMY SMART, BASIC SMART & BASIC FIX

ECONOMY SMART

BASIC SMART

BASIC FIX

INTELLIGENT SPACE SAVERS

The intelligent multi-channel circuit breakers can be easily integrated into the higher-level control system via a 2-wire interface or IO-Link, securing up to 8 channels. They offer the possibility of individual parameterization and monitoring and can be optimally and space-savingly integrated into a system. As a guarantee of maximum system availability, they enable selective protection of loads for use in any application.



TYPES ACCORDING TO SERIES ECONOMY SMART



TYPES ACCORDING TO SERIES BASIC SMART & BASIC FIX

				Ĩ					
		Basic S with curre	Smart** ent limiting	Basic Fix*** with current limiting					
		8-channel	4-channel	4-channel	2-channel				
Dimensions A C B		A: 127mm B: 42mm C: 116.5mm	A: 90 mm B: 45 mm C: 91.5 mm	A: 90 mm B: 45 mm C: 91.5 mm	A: 90 mm B: 45 mm C: 91.5 mm				
24 Vdc	×0.5-6A	PC-0824-480-0							
	×0.5-6A		PM-0824-240-0						
	×2-12 A		PM-0824-480-0						
	×3.8A			NEC Class 2 PM-9824-152-0	NEC Class 2 PM-9824-076-0				

* Adjustable tripping currents via current selector switch: $1-4A = \frac{1}{2}/\frac{3}{46}$; $1-6A = \frac{1}{2}/\frac{3}{45}$; $1-10A = \frac{1}{2}/\frac{3}{46}$; $10A = \frac{2}{3}/\frac{4}{6}$; $2-10A = \frac{2}{3$

** Adjustable tripping currents via current selector switch: 0.5-6 A = 0.5/1/2/3/4/6 A; 2-12 A = 2/4/6/8/10/12 A
*** Preset tripping currents according to NEC Class 2: 3.8 A

ELECTRONIC CIRCUIT BREAKERS ECONOMY SMART – WITH THERMOMAGNETIC CHARACTERISTIC

Economy Smart circuit breakers with a thermomagnetic characteristic provide an economical alternative to conventional circuit breakers. They ensure safe tripping, even at high line resistances, and are ideally suited for equipment and series machine engineering.



FEATURES

- > Adjustable rated current: 1 6 A, 2 10 A, and 1 4 A, 1 10 A
- > Sequential and load-dependent switching of channels
- > Number of output channels: 8/4/2 per circuit breaker
- > Narrow channel width
- > Variants with IO-Link interface

TRIPPING CHARACTERISTIC



The tripping time depends on the level of the overcurrent. In the event of a short circuit, the faulty circuit is reliably disconnected within a few milliseconds. The amount of the short-circuit current depends on the current limiting of the power supply as well as the line resistance.

ELECTRONIC CIRCUIT BREAKERS BASIC SMART – WITH ACTIVE CURRENT LIMITING

The Basic Smart circuit breakers guarantee maximum system availability. In the event of an overload in one circuit, thanks to active current limiting to 1.7 times the rated current, only the faulty current path is reliably disconnected without affecting the other circuits.

FEATURES

- > Adjustable rated current: 0.5 6 A and 2 12 A
- > Number of output channels: 8/4/2 per circuit breaker
- > Active current limiting, typically 1.7 x IN
- > Disconnection of faulty circuits in the event of critical supply voltage
- > Transmission of output currents
- > Adjustable rated current per channel

TRIPPING CHARACTERISTIC



The constant current limiting to 1.7 times the rated current allows switching on particularly high capacities. Two trip points within the tripping characteristic tolerate a short-term increased current flow, for example, caused by startups, braking processes, speed changes, and direction changes of DC motors.

EXTENSIVE DIAGNOSTICS

The current value per channel is transmitted in addition to the set rated currents and the input voltage. General operating states ("on" or "off") and fault conditions ("tripped" or "overcurrent") are also available. By visualizing this data, the system can provide information before critical system failures occur.

SELECTIVE IMMEDIATE SHUTDOWN IN THE EVENT OF UNDERVOLTAGE

To protect sensitive loads from undervoltage during a temporary overload of the power supply, all circuits that are currently carrying more than 100 % of the set rated current are selectively and immediately shut down if the supply voltage drops below 20 V.





ELECTRONIC CIRCUIT BREAKERS BASIC FIX – WITH ACTIVE CURRENT LIMITING

When circuits are designed with the same protection values for many applications, the circuit breakers in the Basic Fix version provide the most economical solution. The NEC Class 2 circuit breakers limit the output current to a maximum of 100 W through self-adjusting current limiting.



FEATURES

- > NEC Class 2
- > Fixed rated currents
- > Number of output channels: 4/2 per circuit breaker
- > Disconnection of faulty circuits in the event of critical supply voltage

TRIPPING CHARACTERISTIC





EQUIPMENT AT A GLANCE

	ECONOMY SMART	BASIC SMART	BASIC FIX
Current limiting characteristic		•	•
Thermomagnetic characteristic	•		
Potential-free signal contact	*		
Data transmission of "present output currents" per channel		•	
Active current limiting typ. 1.7 x IN		•	
NEC Class 2			•
Reading and parameterizing via IO-Link	•		
Adjustable tripping currents per channel via current selector switch	•	•	
Status transmission of "overcurrent" per channel	•	•	
Remote switching on/off of any channel	•	•	•
Status transmission of "On" / "Off" / "Tripped" per channel	•	•	•
Data transmission of "present input voltage" / "set tripping current" per channel	•	•	-
Group alarm signal for tripped channels	•	•	-
Remote reset of tripped channels	•	•	•

* Variants available



MULTI-CHANNEL CIRCUIT BREAKERS COMMUNICATION WITH CENTRAL CONTROL VIA ONLY TWO WIRES

The electronic circuit breakers from BLOCK are designed for different requirements in machines and systems. Two tripping functions can be selected.

INTELLIGENT OVERCURRENT PROTECTION

Integrable into the entire control and monitoring process.



The circuit breakers, in combination with a higher-level control system, offer the possibility to activate or deactivate any output channel via a digital input and output, reset tripped circuits, and simultaneously send current operating and error states.



SHORT PROTOCOL

17-bit data – minimum transmission time 1.2 seconds

- > Operating states = "On" or "Off" per channel
- > Fault states = "Overcurrent" or "Tripped" per channel

EXTENDED PROTOCOL

89-bit data – minimum transmission time 6.3 seconds

- > Present input voltage
- > Set rated currents per channel
- Present current per channel (applies only to Basic Smart version)



Channel 1 Channel 2 Channel 3 Channel 4

SEQUENTIAL SWITCHING

The integrated output channels are switched on with time delays and depending on the load. Once the set tripping current of an output channel is undershot, the next channel is switched on with optimized timing. The inrush current of the entire system is leveled, so the power supply does not need to be oversized.

ADVANTAGES

In many applications, switching from conventional circuit breakers to electronic solutions is not only technically beneficial but also economically interesting. The reduced wiring effort and the smaller space requirements allow for significant cost savings. Thanks to signaling and communication capabilities, all essential information can be passed on to a higher-level control system as part of Industry 4.0.

OPERATING AND CONNECTION ELEMENTS



TEMPERATURE RANGE

The modules operate over a wide temperature range and are suitable for extreme conditions in harsh industrial environments.

- > Reliable cold start at -40°C
- > Wide temperature range from -25°C to +70°C
- > No temperature derating is required for current loads up to 6 A per channel

MULTI-CHANNEL CIRCUIT BREAKERS COMMUNICATION WITH CENTRAL CONTROL VIA ONLY TWO WIRES

CONVENTIONAL CIRCUIT BREAKERS



BLOCK CIRCUIT BREAKERS



* Thanks to optimal distribution of inrush current

** No current spikes needed to trigger conventional circuit breakers

ELECTRONIC CIRCUIT BREAKERS SLIM DESIGN CREATES SPACE IN THE CONTROL CABINET

A comparison for eight protected circuits clearly shows the reduced space requirement. Only 5.25 mm per channel for the POWER COMPACT electronic circuit breaker and 6.5 mm for the modular EasyB circuit breaker system.



CIRCUIT BREAKER POWER COMPACT

Width: 5.25 mm / channel Space required: 8 channels





⊢ 144 mm −

CIRCUIT BREAKER

Width: 18 mm / channel Space required: 8 channels





CIRCUIT BREAKER WITH AUXILIARY SWITCH

Width: 18 + 9 mm / channel Space required: 8 channels

Factor: 5.1

••	••	••	••	
••	••	••	••	
0	0	0	0	C

•••

EASYB CIRCUIT BREAKER

Width: 12 mm / module Space required: 8 channels

1-channel	2-channel
100 mm*	52 mm*



CIRCUIT BREAKER

Width: 18 mm / channel Space required: 8 channelse





CIRCUIT BREAKER WITH AUXILIARY SWITCH

Width: 18 + 9 mm / channel Space required: 8 channels





UNINTERRUPTIBLE POWER SUPPLIES PROTECT AGAINST POWER FAILURES

Uninterruptible power supplies (UPS) protect the 24 V supply voltage against unexpected power failures. In our portfolio, capacitive UPS solutions provide 24 V supply voltage for durations extending up to several minutes. Equipped with ultra-capacitors, they are designed for long service life. For longer buffer periods, we offer uninterruptible power supplies with battery modules, also available as space-saving combination modules. The intelligent battery management system and short charging times ensure maximum system availability.

Discover our uninterruptible power supplies here



UNINTERRUPTIBLE POWER SUPPLIES **PORTFOLIO OVERVIEW**

POWER COMPACT POWER ADVANCED

SOLUTIONS FOR AN UNINTERRUPTIBLE POWER SUPPLY

Choose the uninterruptible power supply that best fits your application. Optimally tailored to the needs of various industries, the POWER COMPACT and POWER ADVANCED series offer maximum system availability for your DC applications.



TYPE OVERVIEW BY DEVICE CLASS

		Switched mode power supply + integrated charge & control unit	Charge & d	control unit	Capa	ecitive PS
Dimens C,	a A B	A: 127mm B: 55 mm / 60 mm / 62 mm C: 118.5mm	A: 127 mm B: 45 mm C: 128.5 mm	A: 127 mm B: 30 mm / 32,5 mm C: 128.5 mm	A: 127mm B: 55mm C: 131.5mm	A: 89 mm B: 72 mm C: 55 mm
24 Vdc	5A	PC-1024-050-0* PCC-1024-050-20** PCC-1024-050-2U***				PEL-0424-050-01
	10 A	PCC-1024-100-20** PCC-1024-100-2U***		PCC-0524-100-00** PCC-0524-100-0U***		
	20 A			PCC-0524-200-00** PCC-0524-200-0U***	PC-0424-017-0 PC-0424-050-0 PC-0424-010-00**	
	40 A		PC-0524-400-0			



UNINTERRUPTIBLE POWER SUPPLY COMBINED UPS: SWITCHED-MODE POWER SUPPLY & CHARGE AND CONTROL UNIT

The combined uninterruptible power supplies of the PCC-1024 series include an economical DC 24 V/5 A or 10 A switched mode power supply as well as a charge and control unit for optimal battery management. The combined UPS manages and monitors the battery module and provides early warnings when the battery's remaining service life is low. Also available as variants with adjusted functionality.



FEATURES

- > Reliable early warning signal for battery replacement
- > Fast tripping of standard circuit breakers
- Comprehensive function monitoring
- > Long battery life due to optimal charging management
- > Push-in technology
- > Safe supply of industrial PCs with the BLOCK IPC mode
- > 150 % power boost and 110 % continuous overload capability

UNINTERRUPTIBLE POWER SUPPLY CHARGE AND CONTROL UNIT

The PC(C)-0524 charge and control units offer maximum system availability through intelligent battery management and short charging times – even for large battery capacities. Usable in 12 V* and 24 V grids, they provide uninterrupted power up to 40 A during a power failure. Continuous monitoring of connected batteries enables early warnings when service life is low. In addition to parameterization, the powerful UPS Control Software allows real-time monitoring of UPS operating statuses.

* only PC-0524-400-0



Custom

00

Mode

FEATURES

- > Up to 40 A output current
- > Up to 5 A charging current for fast charging times
- Start from battery
- > Three potential-free signal contacts
- > Potential-isolated USB interface
- > Decoupled output
- Reliable early warning signal for battery replacement
- > Long battery life due to optimal charging management
- > Safe supply of industrial PCs with the BLOCK IPC mode

ADJUSTMENT OPTIONS VIA ROTARY SWITCH

Fixed buffer times

"Custom": Individually configurable via the UPS Control Software Control Software is fully discharged "PC-Mode": Configuration of an industrial PC

UNINTERRUPTIBLE POWER SUPPLY CAPACITIVE UPS

The capacitive UPS based on ultracapacitors offers a long service life even at high ambient temperatures, providing greater safety in 24 V grids. With the basic module, uninterrupted currents of up to 20 A are available in the event of a power failure. Thanks to flexible expansion options, the output current can be increased to up to 40 A by connecting additional capacity modules, and the buffer time can be scaled according to requirements. All relevant data can be accessed at any time via a potential-isolated USB interface.

FEATURES

- > Up to 40 A output current with capacity module
- > Expandable with up to three capacity modules
- > High service life of capacitors
- > 3 A charging current for short charging times
- > High power density
- > Long buffer times
- > Two potential-free signal contacts
- > Potential-isolated USB interface
- > Decoupled output
- > Constant output voltage during buffer operation
- > Automatic load detection (PC-0424-010-00)



UNINTERRUPTIBLE POWER SUPPLY CAPACITY MODULE

The capacity module PC-0424-115-0 serves as an expansion module for the basic module PC-0424-017-0. By using the capacity modules, the output current of the basic module can be increased to 40 A. Additionally, significantly longer buffer times can be achieved. Information about the operating parameters and service life of the individual capacity modules can be accessed through the interface of the basic module.

FEATURES

- > Input voltage: 24 Vdc
- > Extension of buffer time from PC-0424-017-0
- > Communication via system bus line
- > Automatic addressing
- > Temperature and service life monitoring



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UNINTERRUPTIBLE POWER SUPPLIES **BUFFER MODULES**

POWER ADVANCED POWER VISION

RELIABLE PROTECTION AGAINST SHORT-TERM POWER OUTAGES

A buffer module reliably compensates for short power interruptions. The power supply's backup times are extended, increasing the operational safety of machines and systems. Buffer modules include an electronic switching unit and a capacitive energy storage.







TYPES ACCORDING TO SERIES POWER ADVANCED & POWER VISION





UNINTERRUPTIBLE POWER SUPPLIES **BATTERY MODULES**

POWER STORAGE POWER VISION

BATTERY MODULES FOR SAFE 24 VDC SUPPLY

The maintenance-free lead AGM batteries guarantee a long service life, high quality and reliability. They are suitable for longer backup times in the range of minutes and hours.



TYPES ACCORDING TO SERIES **BATTERY MODULES**







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BATTERY MODULES POWER VISION WITH INTEGRATED TEMPERATURE MEASUREMENT

The ambient temperature is measured in the battery module and incorporated into the calculation of the optimal final charging voltage and the remaining lifespan. The battery modules are automatically recognized, allowing the charging characteristic to be optimized without further adjustments to the control unit. Gentle charging and a long battery life are ensured, minimizing service costs.

THE RIGHT BATTERY MODULE

The battery modules are designed for wall mounting. They can be installed either vertically or horizontally. If your application requires the use of the energy storage between the horizontal cable ducts in the control cabinet, the height-reduced design PVAF is suitable. Here, both the height and depth dimensions are nearly identical to those of the charge and control modules.





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	PC-04 Capacitive UPS	PC-0424-115-0 Capacity module	PC(C)-05 Charge and control unit	Power Vision Charge and control unit	PC(C)-1024 Switched mode power supply + Charge and control unit	Power Advanced Buffer modules	Power Vision Battery modules	Power Storage Battery modules
Replaceable fuses							•	•
Decoupled 24 V output			•	•		•		
Can be connected in parallel for power increase						•	•	•
Functional monitoring via potential-free contacts	•		•	•	•	•		
Functional monitoring via 24 V signal contacts				•				
Display for current and voltage indication				•				
RS-232 interface				•	•			
USB interface	•		•		•			
Multicolored status LED	•		•	•	•	•		
Push-in technology	•		•		•			
Plug-in spring-load connection technology		•		•		•	•	•
UL approval	•	•	•	•	•	•	•	
DNV approval					-			
Pre-installed connection wires								•

4		Туре	12 Vdc / 40 A	24Vdc / 1,3A	24Vdc / 4A	24Vdc / 5A	24Vdc / 10 A	24Vdc / 20A	24Vdc / 40A	24Vdc / 0.8Ah	24Vdc / 1.2Ah	24Vdc / 3.2Ah	24Vdc / 7Ah	24Vdc / 12Ah
()		Power Vision Charge and control unit					•	•						
	Power Advanced Buffer modules	Power Advanced Buffer modules						•	•					
		Power Vision PVA(F) / PVA Battery modules								•	•	•	•	•
	24 Vdc	Power Storage PST Battery modules										•	•	•
		PC-04 Capacitive UPS						•						
		PC-0424-115-0 Capacity module							•					
		PC(C)-05 / PCC-05 Charge and control unit	•				•	•	•					
	400 04017	PC(C)-1024 Power supply + Charge and control unit				•	-							
	100 - 240 Vac	PEL41 / PCC-41 Power supplies with integrated buffering		•	•									

RELIABLE 24 VDC SUPPLY VOLTAGE EVEN DURING POWER FAILURE

We offer UPS components tailored to your requirements. Whether maintenance-free capacitor-based buffer modules for short power interruptions or intelligent UPS systems with external battery modules for extended buffer times, BLOCK's UPS components minimize the risk of costly and time-intensive downtime.

PRINCIPAL STRUCTURE OF AN UNINTERRUPTIBLE POWER SUPPLY





Power supply with integrated buffering



Buffer modules and capacitive UPS solutions can store a significant amount of energy thanks to their double-layer capacitors, offering a long service life even at higher ambient temperatures.

They bridge power failures lasting up to minutes while also protecting the 24 V supply voltage from unwanted voltage drops – often caused by high-energy switching operations within a system.











With Battery modules



Battery module

Power supply + Charge and control unit +

Battery module



Variants without interfaces are also available. Parameter setting via front rotary switches or automatic load detection.



Maintaining the supply voltage over a longer period or high buffer currents requires the use of a battery-supported UPS system.

Such a system typically consists of a power supply, an electronic charge and control unit, and a battery module with integrated batteries for energy storage.

Another option is the combination devices. BLOCK's Combined UPS combines power supply and charge and control unit in a single device, significantly reducing space requirements and wiring efforts.



RELIABLE STARTUP OF INDUSTRIAL-PCS

In order to ensure the proper supply of an industrial PC, both a controlled shutdown and a reliable restart of the IPC must be possible. It is essential to deliberately interrupt the output voltage of the UPS module to provide the necessary restart impulse to the IPC after shutdown, even when the power voltage has long since returned.

All BLOCK UPS modules support this function.





BATTERY CONTROL TECHNOLOGY ENSURES ADVANCED SAFETY

Through a continuous data exchange between the charge and control unit and the battery module, reliable battery management can be achieved. The batteries are charged in an optimal and protective manner. At the same time, the higher-level control system receives a reliable signal as soon as the batteries need to be replaced due to aging.

YOUR ADVANTAGES

- Automatic detection of connected battery modules for an individual charging characteristic
- > Reliable early warning signal for low remaining battery life
- Maximum service life through temperature-controlled battery management

UPS CONTROL SOFTWARE

The powerful visualization and control software allows for easy integration with an industrial PC. You can download the software for free at **block.eu**.

YOUR ADVANTAGES

- > Visualization and recording of relevant data
- > Individual configuration of devices
- > Sending emails and starting any programs without user login
- Software and firmware updates





REDUNDANCY MODULES FOR ESTABLISHING A FAIL-SAFE POWER SUPPLY SYSTEM

To ensure the operational safety of machines and systems in the event of a power supply failure, two equally rated power supplies guarantee availability. Redundancy modules provide decoupling and further enhance system availability.



REDUNDANCY MODULES POWER COMPACT & POWER MINI

POWER COMPACT

POWER MINI

REDUNDANCY MODULES FOR MAXIMUM SYSTEM AVAILABILITY

Redundancy modules prevent a power supply failure from causing a system shutdown and ensure the decoupling of two power supplies.



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ERROR MESSAGE VIA RELAY CONTACT AND LEDS

ACTIVE OPERATION FOR MINIMAL POWER LOSS EVEN IN THE EVENT OF A SHORT CIRCUIT ON THE SECONDARY SIDE

FULLY COMPATIBLE WITH TOP BOOST AND POWER BOOST







HIGH EFFICIENCY

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SAFE PARALLEL OPERATION TO **INCREASE POWER**

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TYPES ACCORDING TO SERIES **POWER COMPACT & POWER MINI**

			Redund		
Dimensions A C	В	A: 127 mm B: 42 mm C: 112.5 mm		A: 90 mm B: 22 mm C: 94 mm	
12-24 Vdc	2×5 A 1×10 A				PM-0624-100-0
	2×10 A 1×20 A		PC-0624-200-0		
12-24 Vac	2×20 A 1×40 A		PC-0624-400-0		
	2×5 A 1×10 A				PM-0648-100-0
48 Vdc	2×10 A 1×20 A		PC-0648-200-0		
	2×20 A 1×40 A		PC-0648-400-0		

ACCESSORIES POWER COMPACT



Item number

PV-WB2

PC-TS35Z

REDUNDANCY MODULES WITH HIGHEST SYSTEM AVAILABILITY

Redundancy modules ensure the decoupling of two power supplies to create a fail-safe power system. Redundant circuits are used in machines and systems where high operational safety requirements must be met.



FEATURES

- > Input voltage of 12-48 Vdc
- > Output current up to 40 A
- > Optionally based on MOSFET technology

FEATURES

- > Input voltage of 12-48 Vdc
- > Output current up to 10 A
- > Simple decoupling with diodes


PRINCIPLE STRUCTURE

To ensure the operational safety of machines and systems in the event of a power supply failure, two equally rated power supplies – decoupled by MOSFETs or diodes – guarantee availability.

For power supplies >20 A, a redundancy module must be used for each switched mode power supply and connected with dual inputs.







WE DEVELOP THOUSANDS OF PRODUCTS EVERY YEAR.

WHICH ONE WILL WE DEVELOP FOR YOU?



BLOCK Transformatoren-Elektronik GmbH Max-Planck-Straße 36-46 27283 Verden • Germany Phone: +49 4231 678-0 • Fax: +49 4231 678-177 info@block.eu • www.block.eu

