

BLOCK COMPACT

Transformers / Power supplies /
Circuit breakers / Reactors / EMI filters

Over 1200 standard products
directly available

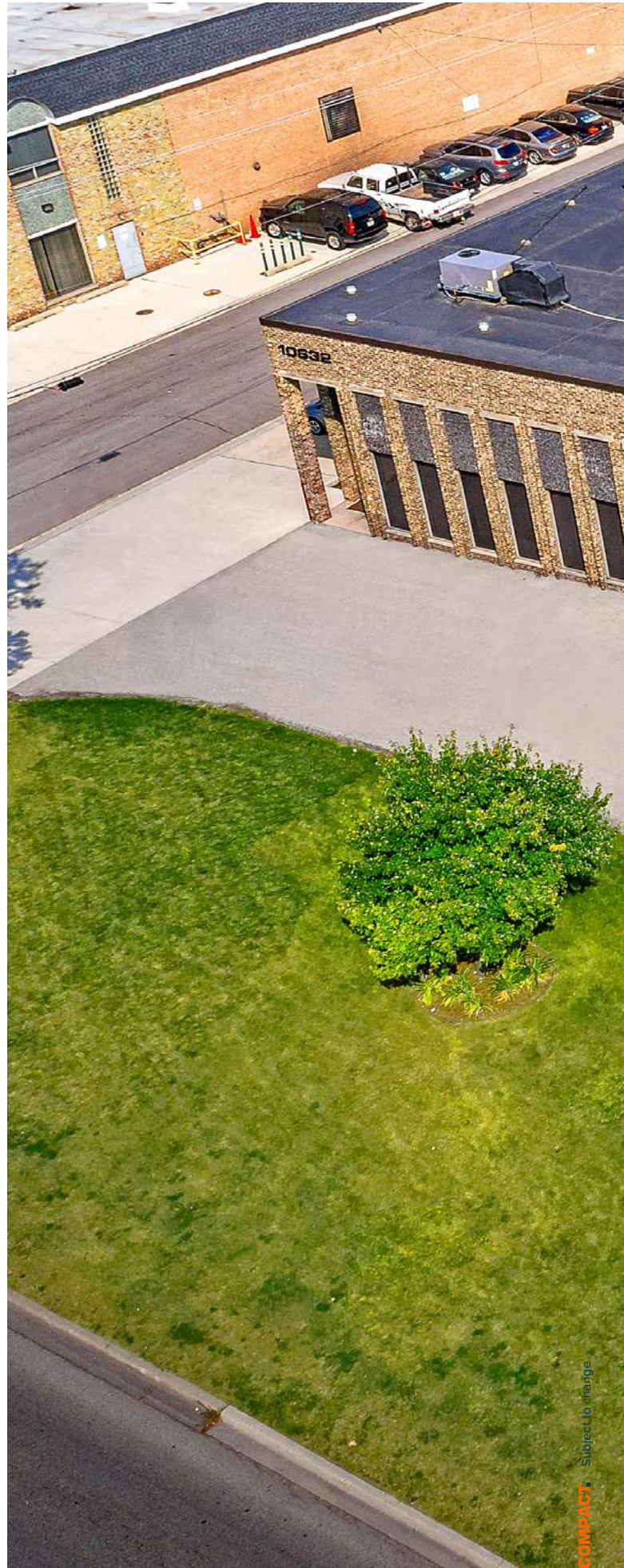




Factory 1, Verden, Germany



Factory 2, Verden, Germany





PERFECTING POWER

Success needs space to grow: at a production facility of 419 800 ft² and with 1000 employees worldwide, BLOCK develops products and solutions with optimum voltage and power quality in every single area of business and industry. Maximum precision and highly intelligent solutions are what we strive for day in, day out. We guarantee maximum power quality with sophisticated, energy-efficient solutions.

In our latest edition of BLOCK Compact, you will find details of over 1200 products for all requirements around the interface to the mains. Experience all this for yourself, we look forward to receiving your order.

Your BLOCK USA team

HOW DO I PLACE AN ORDER?

Our plant in Franklin Park, IL, also accommodates the sales department and warehouse for the US. Furthermore, we offer extensive warehousing in Germany. Hence, our products arrive at your desired location within a short period of time. Information relating to products and their fields of application you can obtain via:



blockusa.com



+1 847 260 9050



[Distributors/wholesalers \(see back of the catalog\)](#)



FRANKLIN PARK

Factory Franklin Park, USA
27 000 ft² production area



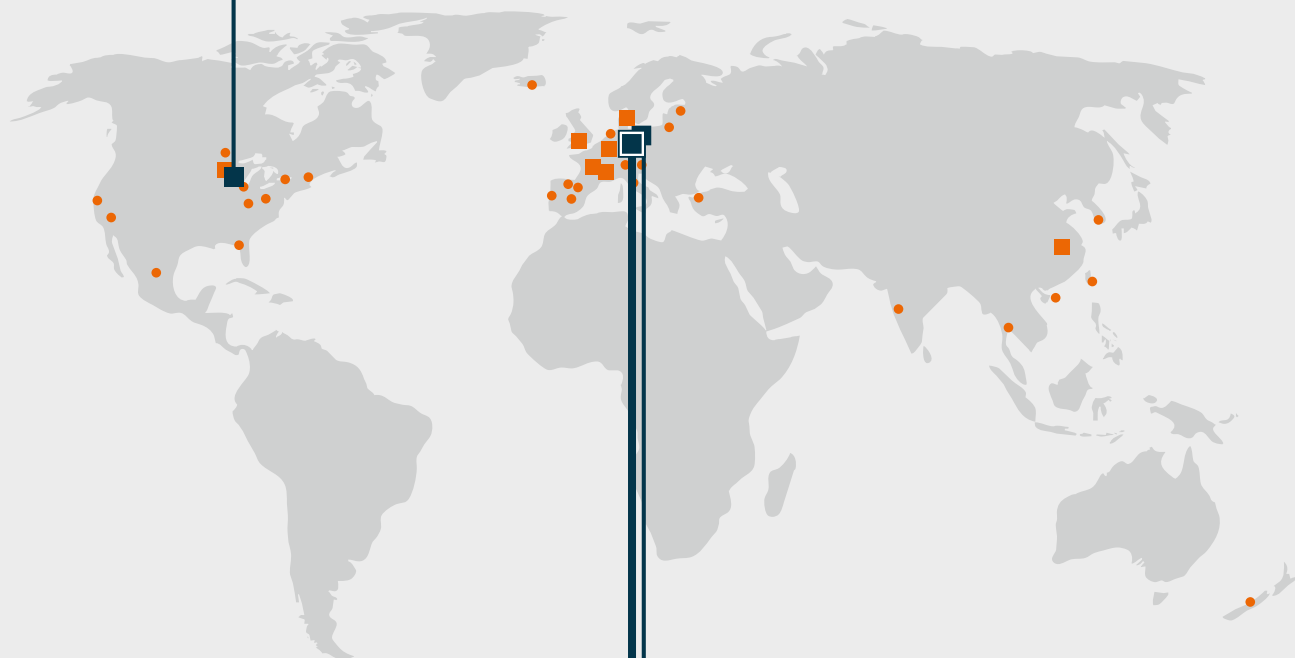
VERDEN

Factory 1, Verden, Germany
323 000 ft² production area



VERDEN

Factory 2, Verden, Germany
27 000 ft² production area



CONTENT

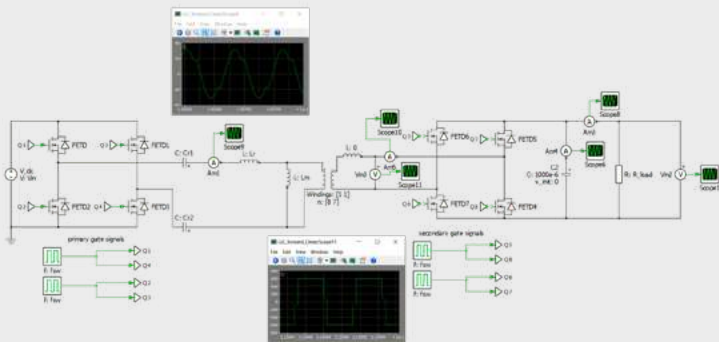
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BLOCK SIMULATION TECHNOLOGIES

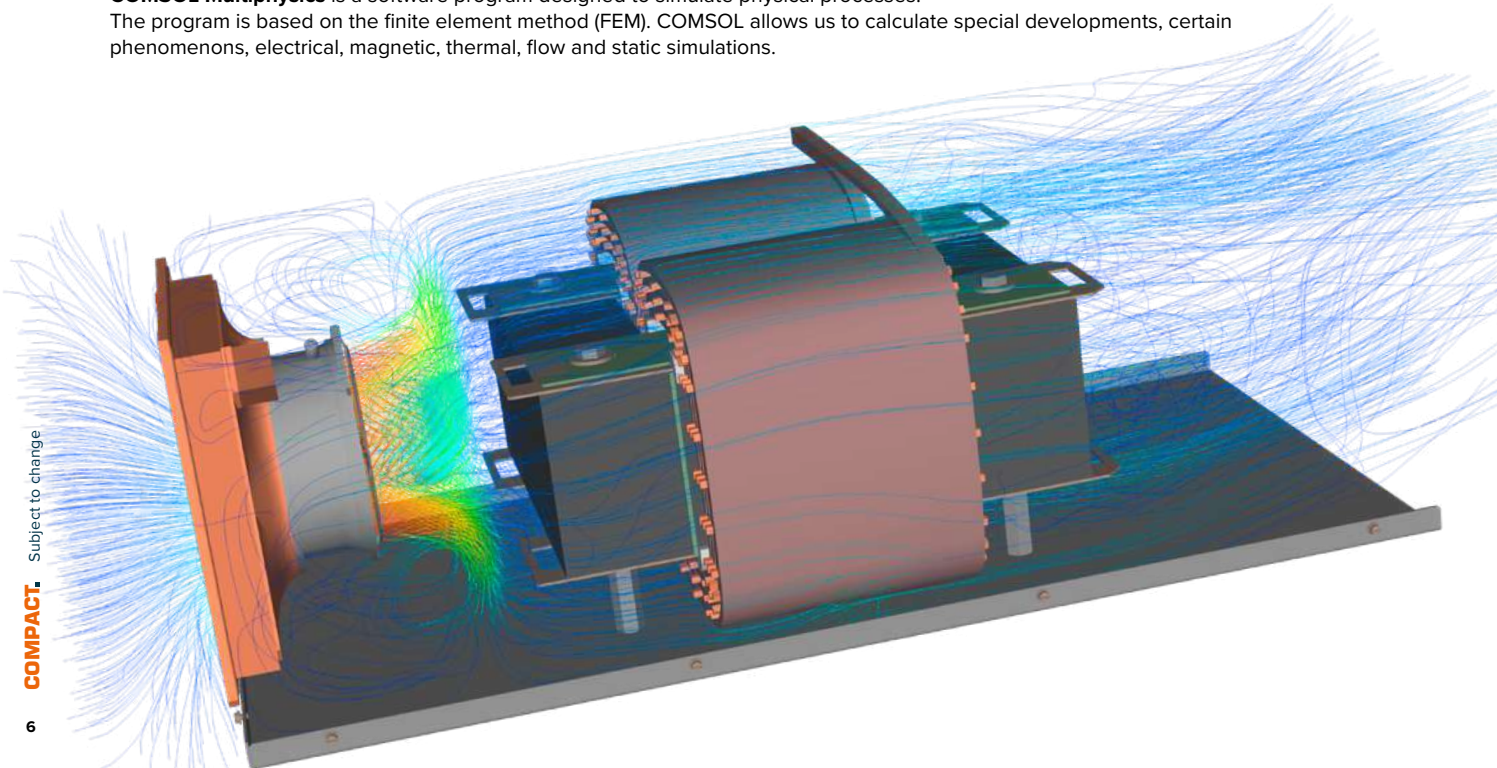
taid is BLOCK's proprietary calculation system and enables inductive winding products to be magnetically, electrically and thermoanalytically calculated and dimensioned. The calculation algorithms were developed by BLOCK with this in mind, allowing our customers to benefit from our unique theoretical expertise and technologically advanced knowledge.



PLECS allows us to simulate the electrical behavior of a magnetic passive component within its circuit, providing significant added value in digital prototyping. The models used are exclusively available at BLOCK.



COMSOL Multiphysics is a software program designed to simulate physical processes. The program is based on the finite element method (FEM). COMSOL allows us to calculate special developments, certain phenomenons, electrical, magnetic, thermal, flow and static simulations.

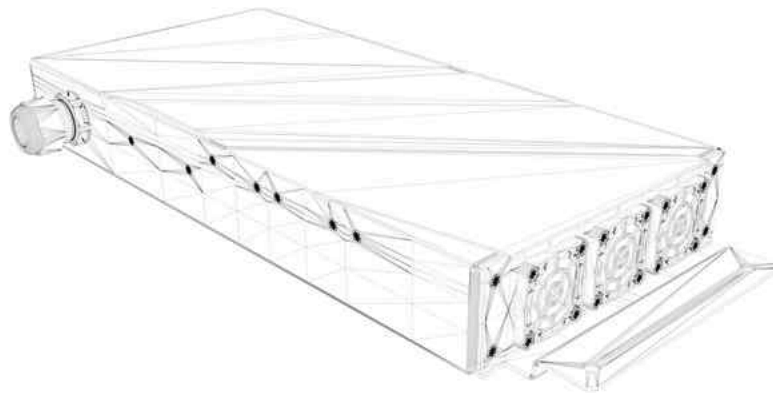


BLOCK SOLUTIONS – COMPLEX IDEAS, SIMPLE SOLUTIONS

With BLOCK Solutions, we are your partner for customized, technical complete solutions from a single source. Thanks to our extensive development expertise, we can bring your visions of integrated system solutions to life in close collaboration with you. We combine electrical and mechanical components from our portfolio – whether standard or customized – along with components from selected third-party providers. Upon request, we package your „electrical life“ in a custom-designed enclosure, precisely tailored to your environmental conditions. This results in a cohesive system that can be easily integrated into your application. Our objective is to create the optimal solution for your requirements and to support you throughout the entire project cycle – from development to manufacturing.

SYSTEM SOLUTION WITH A FOCUS ON ELECTRONICS

Partnering with a leading provider in process automation, we developed a decentralized power supply with enhanced IP protection. In intralogistics, braking processes demand robust power supplies. Our systems handle high feedback voltages and can include braking choppers to prevent downtime. Whether it's power supplies with output power ratings of 5 kW or higher, decentralized power supplies with high IP protection degree, or complete systems for 19-inch racks, we provide the right solution. Voltage adjustment with high boost functionality is also possible, ensuring optimal power for your application, including charging high-performance capacitors (Ultra Caps) or battery modules.



SYSTEM SOLUTION WITH A FOCUS ON TRANSFORMERS

Together with one of our customers, we developed an autotransformer in an enclosure with a capacity of 330 kVA to supply a shaker table for demanding test applications. The single-phase autotransformer is installed between the amplifier and the shaker table. The amplifier voltage of 110 V at 3022 A is transformed to the voltages required for the shaker table. Using remote control via a PLC or a key switch, the output busbars can be switched to voltages of 151.8 V, 159.5 V, or 181.5 V as needed. Assembled in a robust IP23 enclosure with dimensions of 1510x1620x1460 mm (WxHxD) and a total weight of 2.4 tons, this product is one of the largest in our portfolio.



SYSTEM SOLUTION WITH A FOCUS ON FILTERS/REACTORS

Working closely with our customer STABL, we developed an innovative EMI filter with an integrated motor reactor – customized in a specially adapted enclosure. This solution is used in state-of-the-art large-scale energy storage systems. STABL's inverter technology sets new standards for future viability and offers clear advantages over conventional market solutions. Together, we are advancing applications in solar technology and creating future-proof energy solutions.

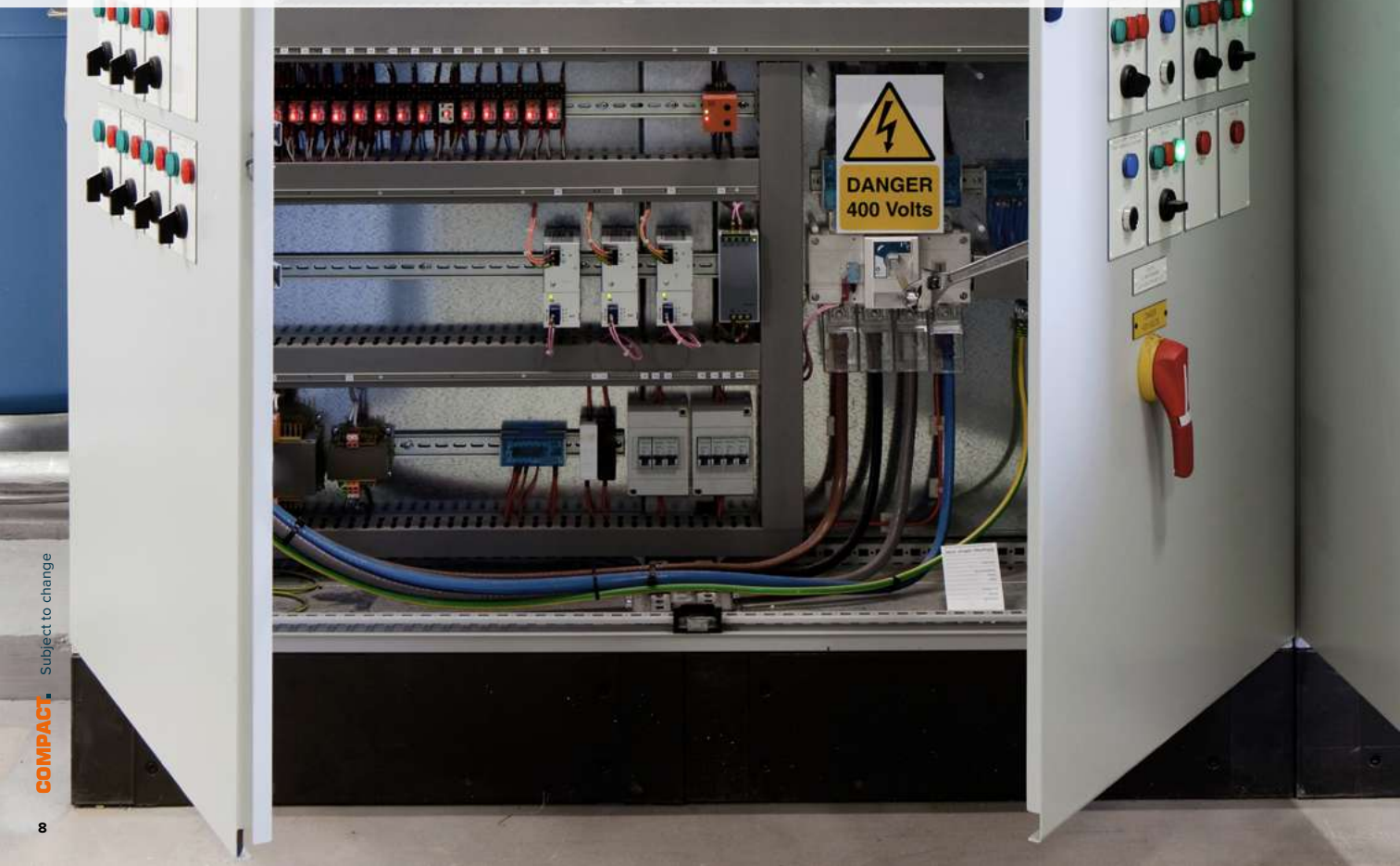




OPTIMAL PLANNING WITH THE BLOCK EPLAN SELECTOR

The BLOCK device data in the EPLAN Data Portal supports you in fast project planning and optimizing your workflow. To ensure the perfect voltage not only during application but also during the planning stage, BLOCK now offers its own selector in the EPLAN Data Portal.

Here, you can explore our extensive standard portfolio and customize your search with numerous filters and search criteria to always find the right products for your individual requirements. Nearly all of our products contain datasets that meet the EPLAN Data Standard and even go beyond it, providing additional information such as logic macros, 2D graphic data, as well as connection and drilling diagrams. The datasets can be directly added from the selector to the EPLAN Data Portal and used for planning, enabling optimal and efficient planning with the BLOCK EPLAN Selector.



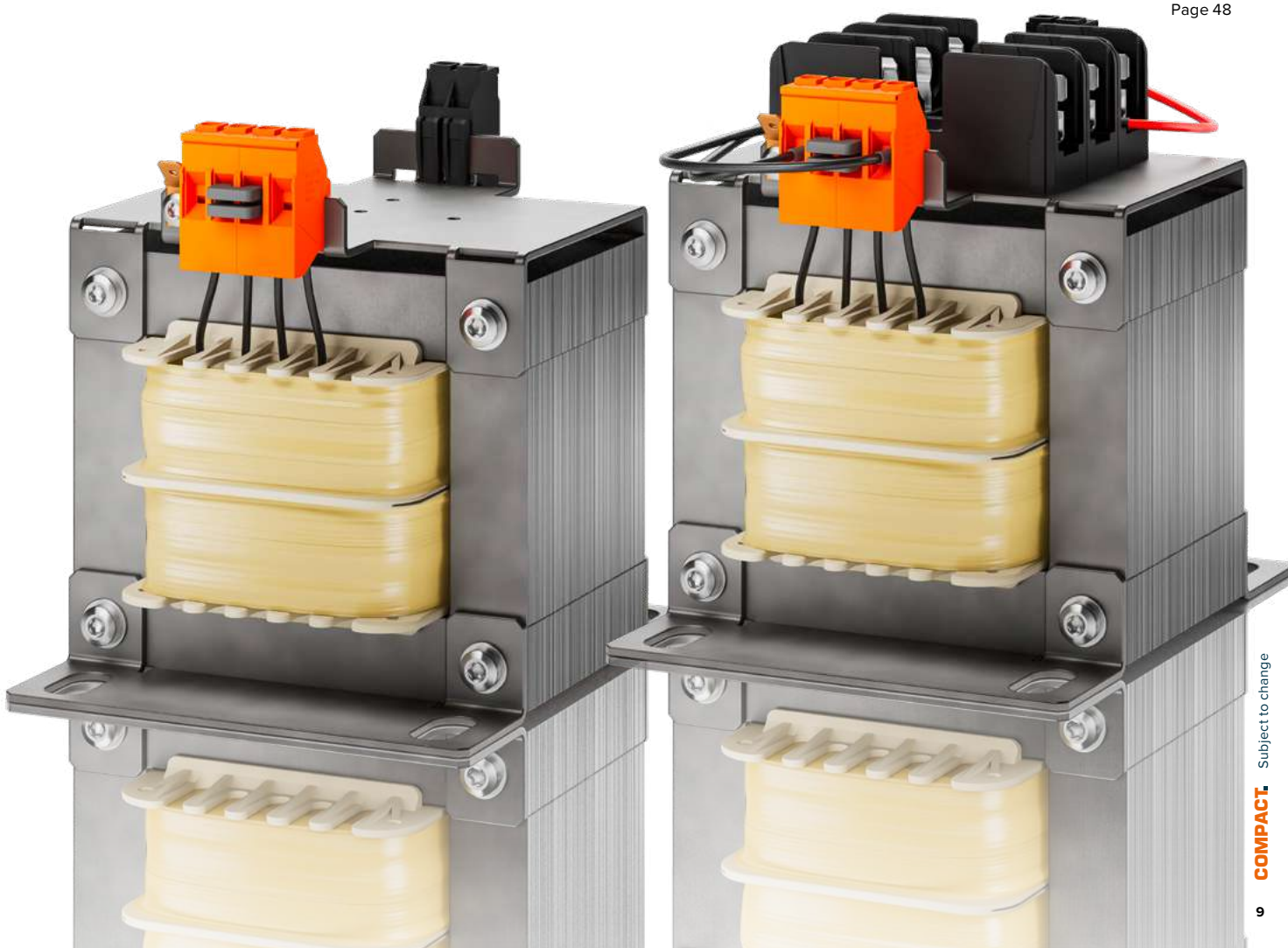
RELIABLE AND EFFICIENT, CT INDUSTRIAL CONTROL TRANSFORMERS

Our new CT series of industrial control transformers is the perfect choice for general purpose and industrial applications. Primarily engineered for isolation, lighting or signal systems, the CT series provides an economical and efficient solution under regular and even under abnormal conditions. It ensures a continuous supply of your control circuits combined with a robust design.

- Jumpers included for primary voltage selection
- Up to 2500 VA
- Frequency 50-60 Hz
- Ambient temperature 40 °C
- Fused versions available



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DESIGNED FOR MAXIMUM FLEXIBILITY

USTE TRANSFORMERS

Our USTE control and safety or isolation transformer (Protection Class 1, IPxxB) is designed for maximum safety and reliability in industrial applications. With double insulation between the primary and secondary windings, it meets all national and international standards, ensuring seamless integration into control cabinets and enclosures.

The USTE series stands out with its wide range of input voltages and UL-Listed certification. Unlike standard components, these transformers can be used without additional restrictions, simplifying compliance with the NEC (National Electrical Code - NFPA 70). This marks another significant step toward enhanced customer safety. Our exclusive BLOCK IMPEX vacuum impregnation ensures effective protection against external influences while significantly reducing noise levels – thus ensuring a durable, quiet, and long-lasting solution.

- Push-in terminals for quick installation
- Additional mounting rail assembly with combined footplate up to 250 VA
- Large input voltage range 208 V – 600 V
- UL Listed approval

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THE WORLD'S FIRST FOR TRANSFORMERS: OUR PUSH-IN TERMINAL

BLOCK introduces the first transformer terminal in push-in technology. Wiring in the field of transformers has never been so easy.

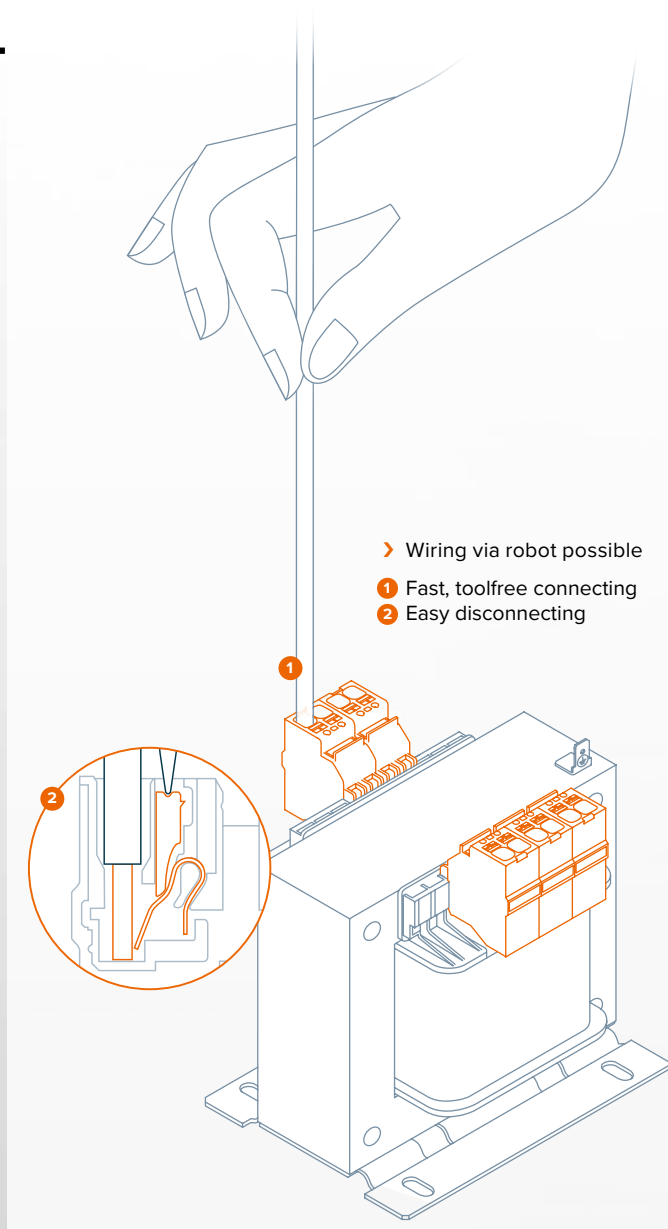
The push-in terminals are particularly safe and can be used under adverse conditions, as nothing can come loose even when subjected to shock and vibration. The spring mechanism of our push-in terminal withstands these stresses and the contacting remains constant.

ONE OF A KIND

Our new push-in terminal offers numerous convincing advantages. Whether it's simple handling or time savings during assembly – it makes a significant contribution to increasing efficiency and safety. The push-in terminal can be easily fitted with connecting wire from above and contacting takes only seconds. Connecting neighboring terminals is just as quick and convenient using the appropriate accessory bridges. The connection of conductors with and without wire end ferrules is guaranteed and for disconnection of the wire, only the orange button has to be pressed.

SIMPLIFIED WIRING FOR TRANSFORMERS

The innovative strength here lies in the simple – so uncomplicated in handling that one would not want to miss this new type of terminal. Our world innovation for the transformer market. Because it has never been easier to wire your transformer and integrate it into your application.



STRONG AND FLEXIBLE IN ANY APPLICATION – POWER ADVANCED – PCC

**MAXIMUM SYSTEM AVAILABILITY, STRONG AND FLEXIBLE IN ANY APPLICATION, YET LIGHT AND COMPACT –
OUR NEW POWER SUPPLIES POWER ADVANCED.**

Universally applicable, single-phase or three-phase power supplies have to meet the most demanding requirements: challenging environmental conditions in terms of temperature range, shock and vibration, mains fluctuations and high-energy overvoltage pulses. With our POWER ADVANCED series, the focus is on the core functionality of a power supply – reliable supply even under demanding conditions. POWER ADVANCED combines all the features required to meet the demands of a wide range of applications and industries – a compact design with above-average electrical and mechanical robustness.

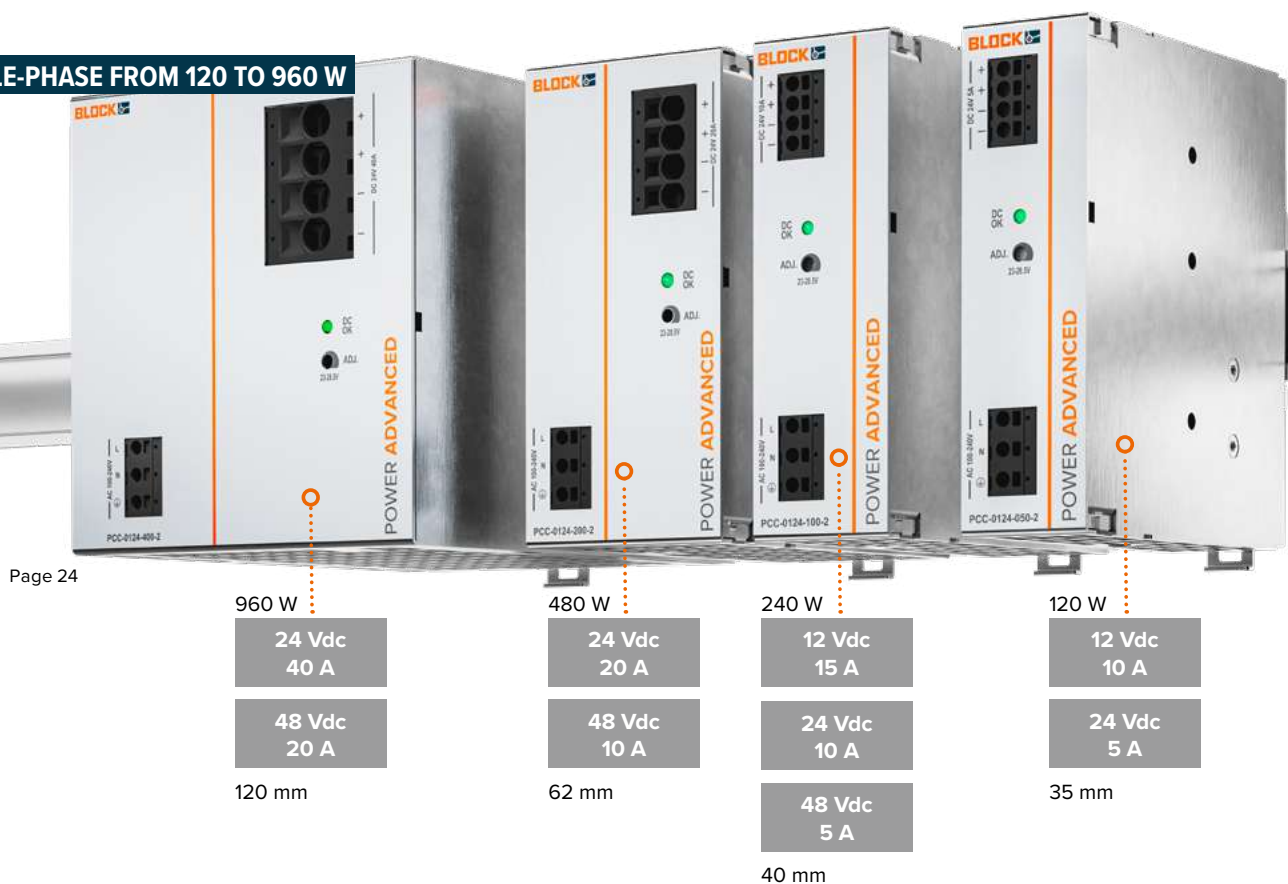
- › High reliability and service lifetime
- › High efficiency and compact design
- › Protection against shock and vibration
- › Protection against transient mains overvoltage events
- › Wide range of safety standards and approvals
- › Complies with the latest EMC standards
- › Best-in-class solution



NEW

POWER ADVANCED – PCC 1AC

SINGLE-PHASE FROM 120 TO 960 W



POWER ADVANCED – PCC 3AC

THREE-PHASE FROM 120 TO 960 W



UNINTERRUPTIBLE AND SPACE-SAVING 24 V DC POWER SUPPLY

With four new combined UPS units and two new capacitive uninterruptible power supplies, as well as new charge and control units, we are expanding our portfolio in the field of powerful 24 V DC UPS systems. Improving system availability for each individual application remains the core function of these smart new products.

Page 40

With output currents of 5 A and 10 A, the four switched-mode power supplies with integrated charge and control units and widths of only 55 mm and 62 mm respectively, guarantee maximum system availability for 24 V DC loads. Available in different variants with and without communication interface, the combined UPS of the series PCC-1024 offer maximum safety in case of power interruptions by connecting different battery modules. In the starting torque up to 150 % for 5 s and a static power reserve of permanently 110 % are available.

With the PC-0424-010-00 and PEL-0424-050-01 capacitive uninterruptible power supplies based on maintenance-free ultracapacitors, a rated output current of up to 5 A or 20 A, bridging times of up to minutes are possible in the event of a power failure. These new stand-alone solutions offer the optimal alternative to our existing expandable capacitive UPS. The new charge and control units of the PCC-0524 series offer the optimal solution for output currents of 10 A or 20 A. In combination with various battery modules, your application will continue to be reliably supplied with 24 V DC in the event of a power failure.

The new UPS can be parameterized either via the rotary switches on the front or via a shock- and vibration-proof USB interface with the free UPS Control Software.



FUTURE-PROOF DC/DC POWER SUPPLY FOR INDUSTRY AND RENEWABLE ENERGIES

EFFICIENT, FLEXIBLE AND WITH MAXIMUM ROBUSTNESS

In modern industry, the importance of direct current (DC) grids is continuously growing. This trend is primarily driven by the in-creasing integration of renewable energy sources, such as photovoltaic systems and battery storage systems, which generate or store direct current. The ability to integrate renewable energies directly and efficiently into the existing DC grid reduces conversion losses and enables a more environmentally friendly energy distribution.

Moreover, DC power supplies play a key role in optimizing energy consumption. The reduced power loss during voltage adjustments and the ability to use high currents directly lead to improved efficiency, reducing heat generation and thus cooling requirements. Especially in industrial energy management, the shift to DC grids is becoming increasingly relevant with a strong focus on sustainability.

INPUT VOLTAGES FROM 100 TO 850 VDC AND OUTPUT VOLTAGES FROM 12 TO 60 V

Our existing power supply portfolio meets the specific requirements of modern DC grids, offering a flexible, future-proof solution for a wide range of applications. With input voltages from 100 to 850 Vdc and various output voltages (12 V, 24 V, 48 V, and 60 V), our power supplies cover a broad application spectrum and can also function as DC/DC converters. Their adaptability allows for versatile integration across applications.

The 60 V version additionally includes integrated output decoupling, significantly enhancing the robustness and stability of the application. This feature is particularly important in intralogistics and industrial machinery, where increased demands are placed on the robustness and reliability of power supplies. BLOCK's DC/DC converters are ideal for demanding environments where a stable and reliable power supply is essential.

THE FUTURE LIES IN DC GRIDS

In the future, DC grids will gain significant importance and already show steady growth potential. Driven by the increasing share of electric vehicles, battery storage, and autonomous energy systems, DC infrastructure is constantly increasing. The development toward „smart grids,“ which use renewable energies and efficient storage solutions directly and ensure optimal energy distribution within the grid, further supports the expansion of DC grids. They provide a stable and resilient foundation for modern, sustainable energy management.

BLOCK is already offering the right solutions for a reliable and versatile DC power supply. Our products are specifically designed to meet the demanding requirements for efficiency, safety, and flexibility in our future markets.

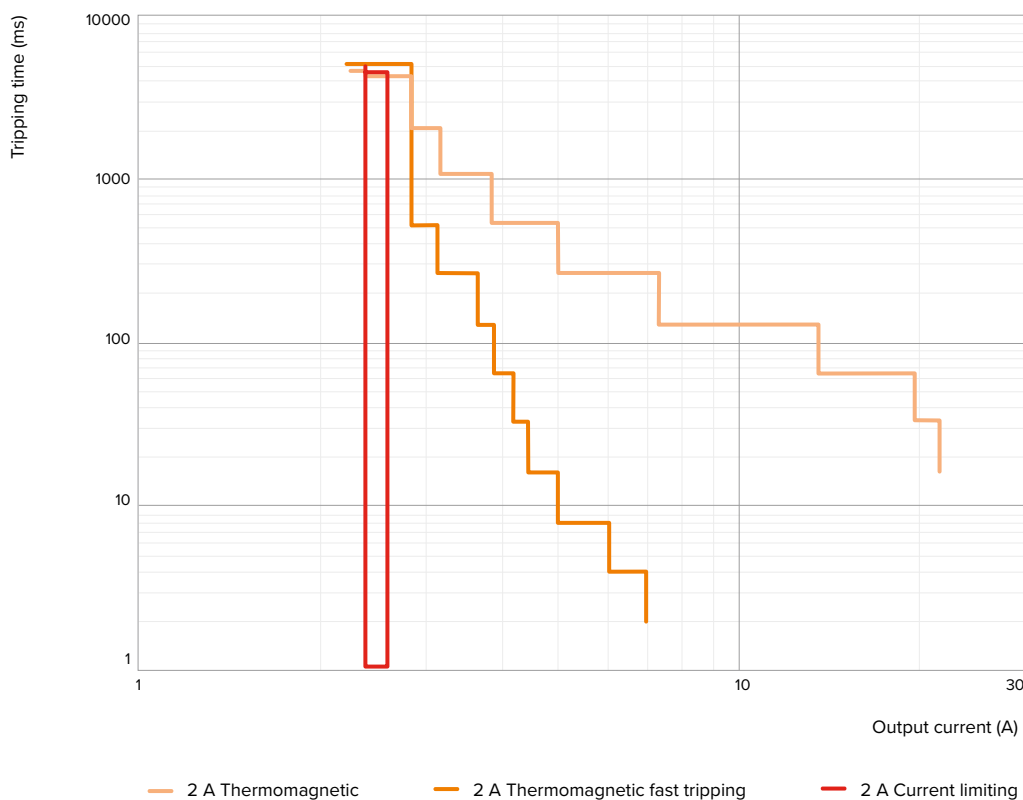


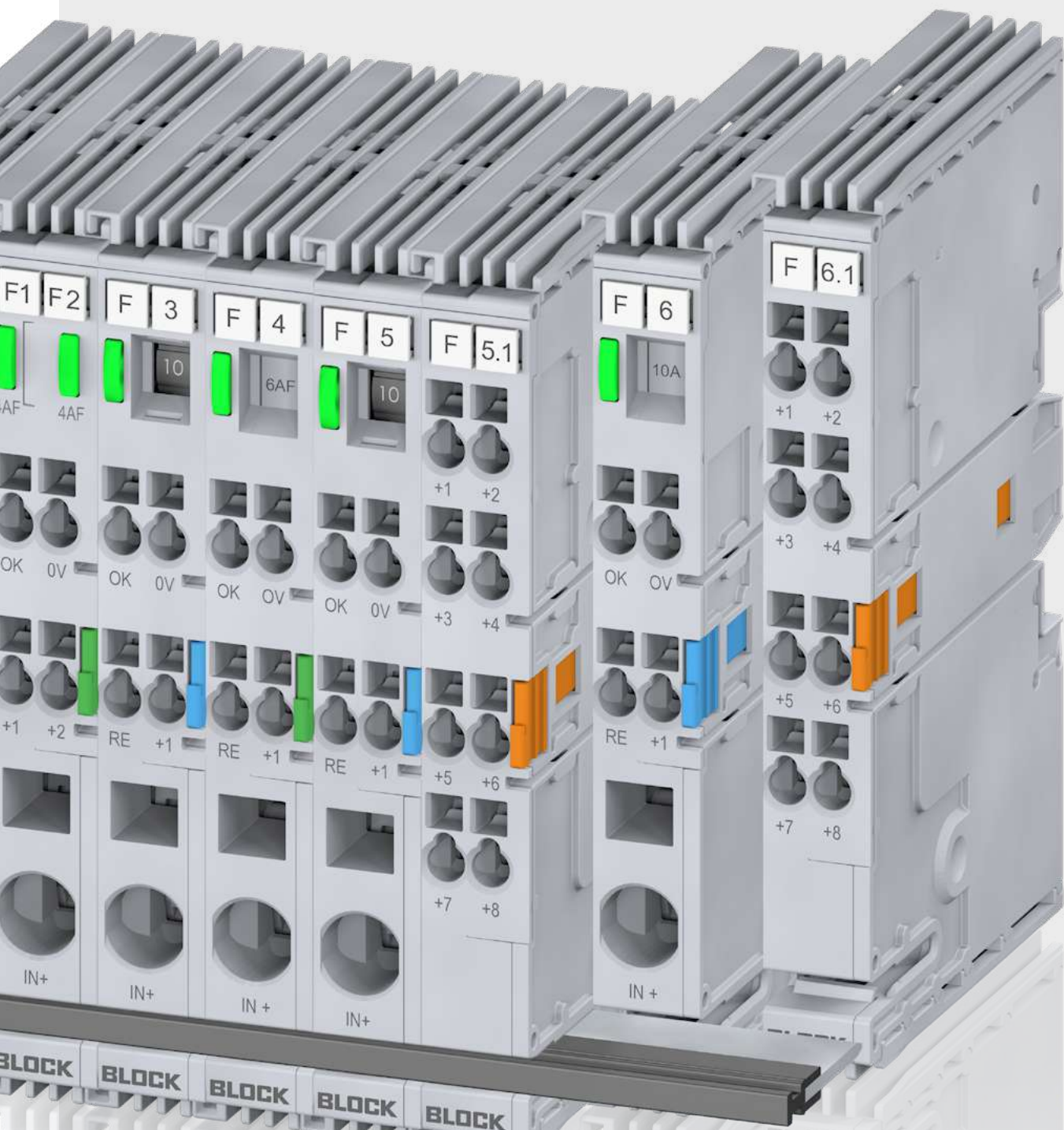
THE RIGHT TRIPPING CHARACTERISTIC FOR ANY APPLICATION – EASYB

The requirements regarding the tripping behavior of electronic circuit breakers in machines and systems are manifold: loads with high starting and inrush currents such as drives and contactors, for instance, require different tripping characteristics to sensors and controls which react sensitively to system voltage drops. We are expanding the EasyB range to include a fast tripping characteristic so that it can provide the optimum solution to the user for the relevant application in all cases. This means that safe tripping following a short circuit within 2 ms and the switching on of capacitive loads with up to 40 mF is no contradiction when it comes to EasyB. The new single-channel and dual-channel versions are all UL 508 and UL 2367 certified. NEC Class 2 certification is available from 1 - 4 A. The requirements for line protection according to EN 60204-1 are also met with internal fuses individually adapted to the rated current from 1 - 16 A.

ADDED VALUE:

With the new addition of 48 V variants, EasyB is the first modular solution worldwide that meets all requirements for setting up Industry 4.0-capable systems in condition monitoring and predictive maintenance for 48 V systems.





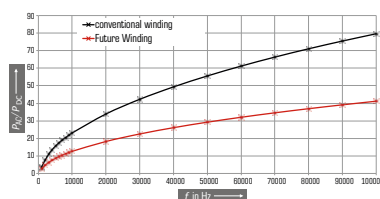
NEW

NOW NEW with 16 A per channel, more communication and adapted internal fuse.

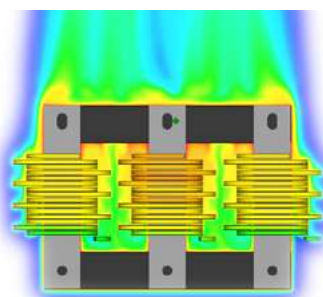
FOR NEXT POWER GENERATION FUTURE WINDING

THE NEW DIMENSION OF PERFORMANCE OPTIMIZATION OF INDUCTIVE WINDING PRODUCTS

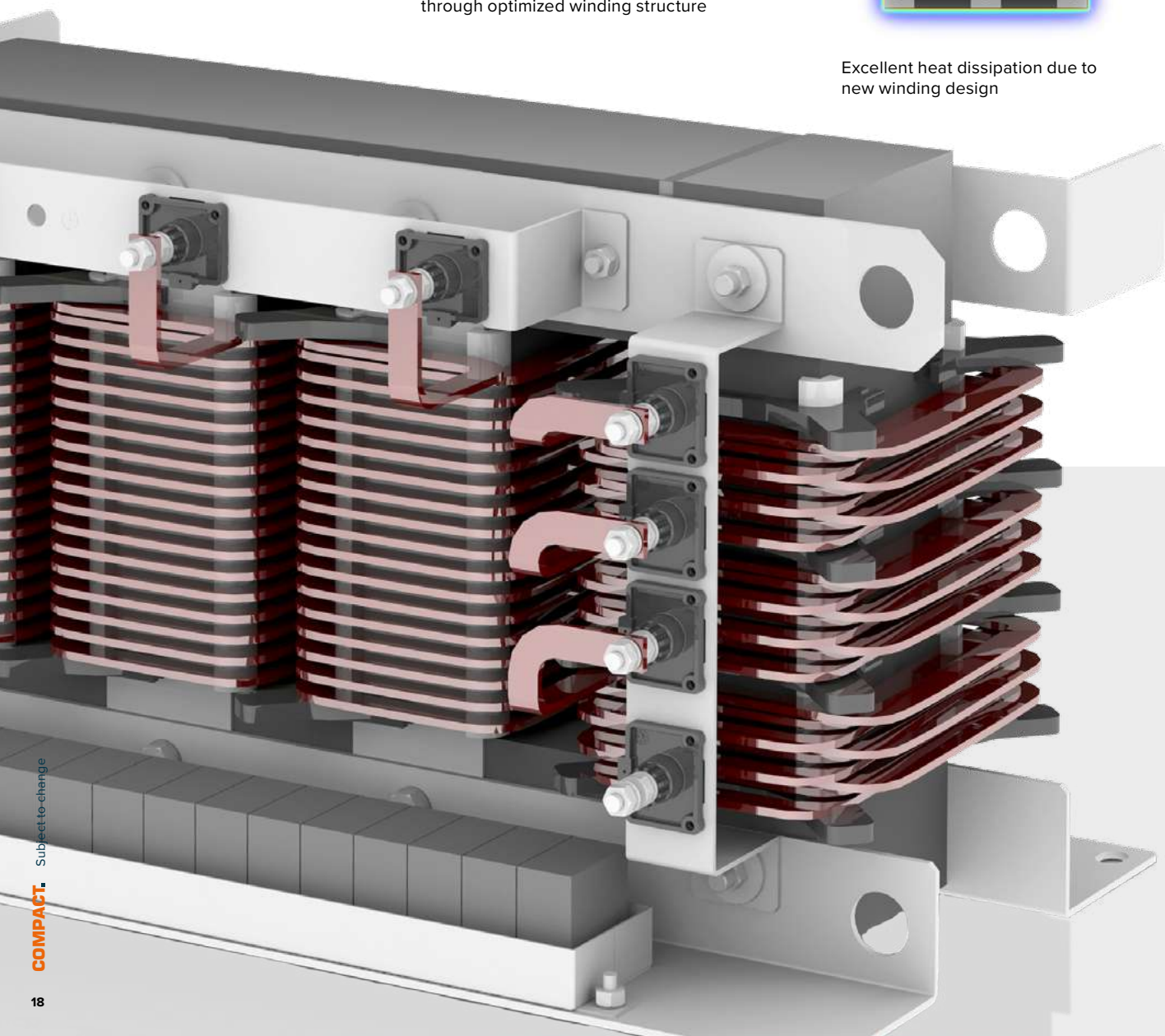
BLOCK's in-house developed Future Winding technology is taking performance optimization of inductive winding products into a new dimension. The extraordinary variability in the design of the winding structure comes with a number of benefits for winding products: Optimal cooling by maximizing the heat emitting conductor surface while also creating cooling ducts via the winding structure and minimal proximity losses with rising switching frequencies are just some of the strengths of this state-of-the-art technology.



Minimized proximity effect
through optimized winding structure



Excellent heat dissipation due to
new winding design



PERFORMANCE-OPTIMIZED LINE REACTORS FUTURE WINDING LR3-AE

Now
UL-listed

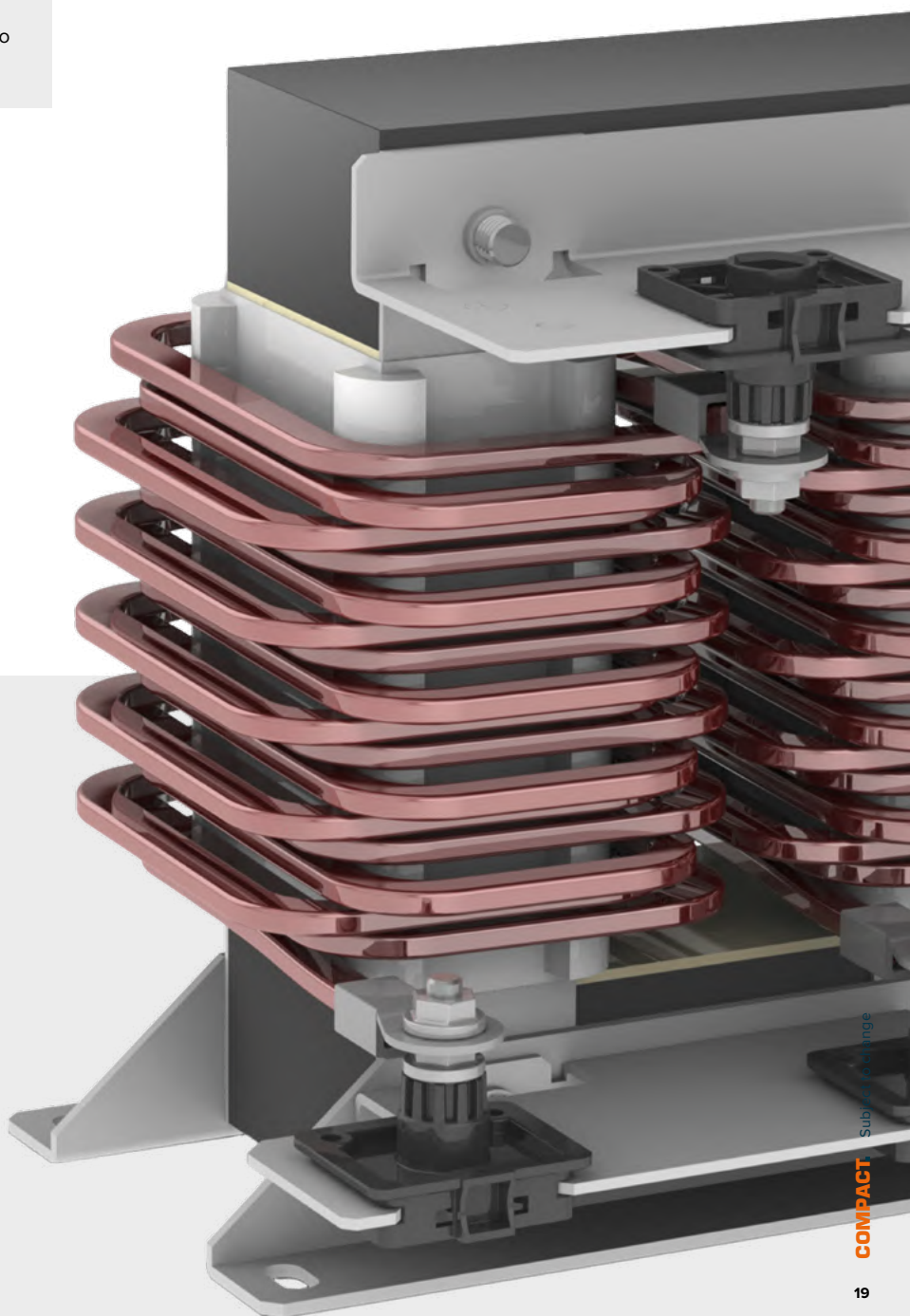


The line reactors of the LR3-AE series combine all the advantages of Future Winding technology. Their use minimizes system perturbation and bridges voltage dips, thus protecting the system. Reducing the reactive power percentage contributes to improving the power factor. Thanks to the state-of-the-art winding and production technologies in combination with the latest scientific findings, the line reactors offer a best-in-class price-performance ratio.

- › Exceptional heat dissipation
- › Reduced proximity effect
- › Maximum reliability with a minimum of insulation materials
- › Controllable field distribution for low partial discharge
- › Highest current densities achievable due to expanded winding surface in the airflow

NEW

LR3-AE
63 - 900 A
3 - 5 % uk



NEWS

POWER SUPPLIES/CIRCUIT BREAKERS

Switched mode power supplies

Electronic circuit breakers

Redundancy modules

Uninterruptible power supplies

Battery modules

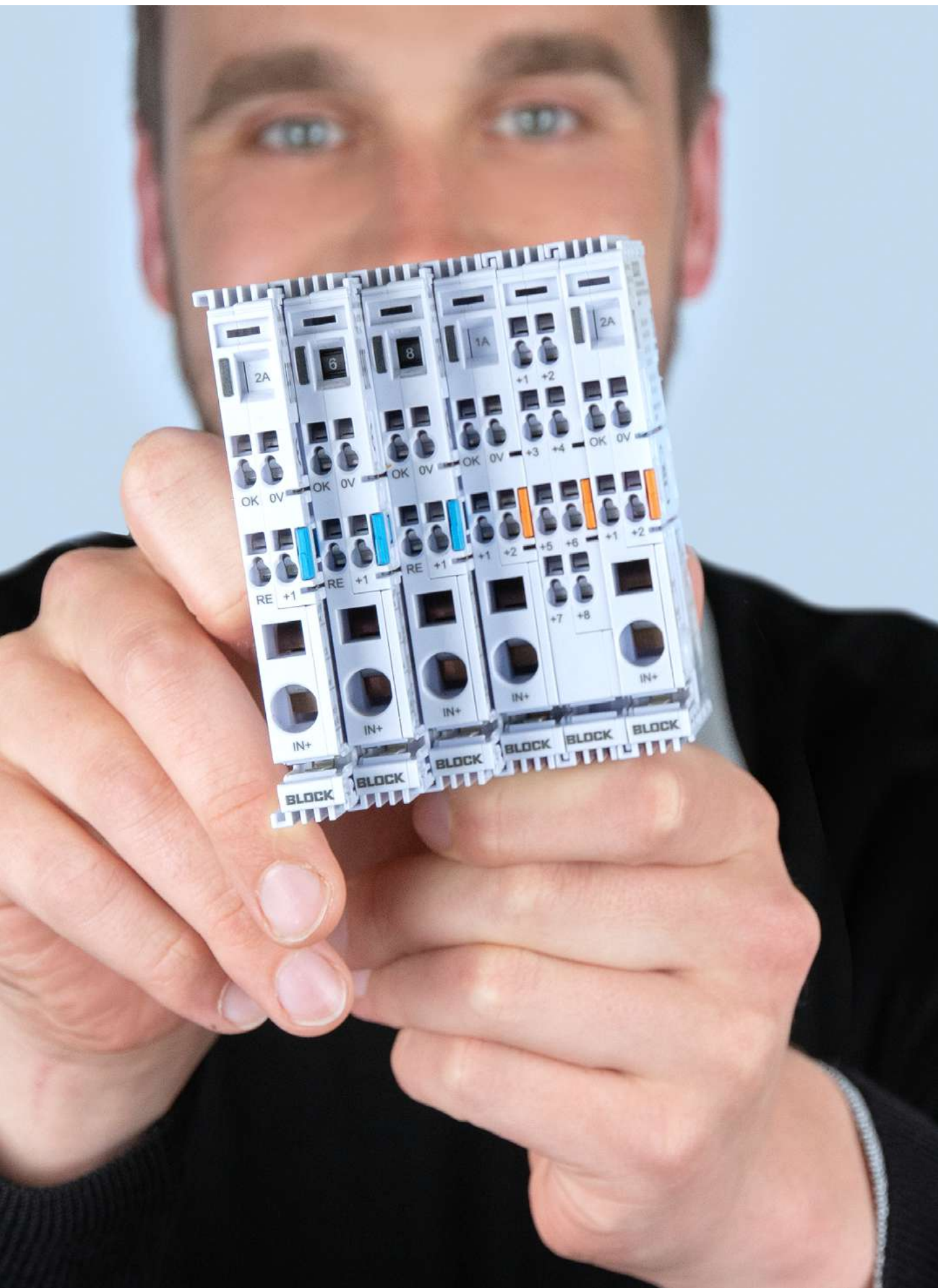
Buffer modules

TRANSFORMERS

INDUCTIVE COMPONENTS FOR POWER ELECTRONICS

REACTORS/EMI FILTERS

SERVICES



OVERVIEW

SWITCHED MODE POWER SUPPLIES

Discover our entire
standard range here



	Output rated voltage	Output voltage range	Type	Input voltage range	0 - 20 W	20 - 30 W	40 - 60 W	70 - 100 W	120 W	180 - 240 W	450 - 480 W	750 - 960 W
Single-phase	5 V	4.5 - 8.5 Vdc	Power Eco Line	85 - 264 Vac		5.5 A						
	12 V	11.5 - 18 Vdc	Power Vision Economy	85 - 264 Vac				6 A		15 A		
		11.5 - 15 Vdc	Power Compact	85 - 264 Vac						15 A		
		11.5 - 15 Vdc	Power Advanced	90 - 264 Vac					10 A	15 A		
		11.5 - 14.5 Vdc	Power Mini	85 - 264 Vac		2 A	4 A	7 A				
		10.5 - 15.5 Vdc	Power Eco Line	85 - 264 Vac		2 A	4 A	6.5 A				
	18 V	15.5 - 19 Vdc	Power Eco Line	85 - 264 Vac	1.1 A		2.5 A					
	24 V	22 - 29.5 Vdc	Power Vision Economy	85 - 264 Vac					5 A	10 A	20 A	
		23 - 28.5 Vdc	Power Advanced	90 - 264 Vac					5 A	10 A	20 A	40 A
		23 - 28.5 Vdc	Power Compact	85 - 264 Vac					5 A	10 A	20 A	
		23 - 28.5 Vdc	Power Mini	85 - 264 Vac		1 A	2 A	3.8 A				
		22.8 - 26.4 Vdc	Power Eco Line	85 - 264 Vac		1.3 A	2.5 A	4 A				
	30.5 V	23 - 28.5 Vdc	Power Ultimate	90 - 264 Vac						10 A	20 A	
		29 - 32 Vdc	Power Mini	85 - 264 Vac				3 A				
		33 - 52 Vdc	Power Vision Economy	85 - 264 Vac						5 A	10 A	
	48 V	40 - 56 Vdc	Power Compact	90 - 264 Vac						5 A	10 A	
		46 - 56 Vdc	Power Advanced	90 - 264 Vac						5 A	10 A	20 A
		40 - 56 Vdc	Power Mini	85 - 264 Vac				2 A				
2ph	24 V	23 - 28.5 Vdc	Power Compact	180 - 550 Vac					5 A	10 A		
		23 - 28.5 Vdc	Power Mini	180 - 575 Vac				3.8 A				
Three-phase	24 V	22.8 - 28.8 Vdc	Power Vision Economy	340 - 550 Vac						10 A	20 A	40 A
		23 - 28.5 Vdc	Power Advanced	320 - 575 Vac					5 A	10 A	20 A	40 A
		23 - 28.5 Vdc	Power Compact	320 - 575 Vac						10 A	20 A	40 A
		22.8 - 28.8 Vdc	Power Vision Basic	340 - 550 Vac						10 A	20 A	40 A
		22.8 - 28.8 Vdc	Power Vision Line	340 - 550 Vac						10 A	20 A	40 A
	30 V	27 - 43 Vdc	Power Vision Economy	340 - 550 Vac								25 A
	48 V	37 - 51 Vdc	Power Vision Economy	340 - 550 Vac							10 A	20 A
		40 - 56 Vdc	Power Compact	320 - 575 Vac								20 A
	60 V	40 - 61 Vdc	Power Compact	320 - 575 Vac								16 A

SINGLE-PHASE, PRIMARY SWITCHED MODE POWER SUPPLY PEL 230



BENEFITS

- › Stabilized and adjustable output voltage
- › DC OK signalling via LEDs
- › Parallel connection option
- › Service-friendly spring-loaded connector system
- › Panel installation on mounting rails
- › 3 years warranty

TECHNICAL DATA

- › Input voltage range 85 - 264 Vac
- › Output rated voltage 5 - 24 Vdc
- › Output rated current 1.3 - 6.5 A
- › Ambient temperature -25 °C to +55 °C
- › Efficiency up to 88 %
- › Protection index IP 20

APPLICATIONS

- › Primary switched mode power supply is concentrated on the core task of voltage and current supply. Flat step profile optimised for installation in control panels in the building automation.

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PEL 230/5-5,5	100 - 240	5	5,5	72/89/59
PEL 230/12-2	100 - 240	12	2	54/89/59
PEL 230/12-6,5	100 - 240	12	6,5	90/89/59
PEL 230/18-2,5	100 - 240	18	2,5	72/89/59
PEL 230/24-1,3	100 - 240	24	1,3	54/89/59
PEL 230/24-2,5	100 - 240	24	2,5	72/89/59
PEL 230/24-4	100 - 240	24	4	90/89/59

SINGLE-PHASE, PRIMARY SWITCHED MODE POWER SUPPLY PM 1AC



BENEFITS

- › Stabilized and adjustable output voltage
- › Low stand-by consumption <1 W
- › Constant current limiting without overload shutdown
- › DC OK signalling
- › Push-in terminals
- › Panel installation on mounting rails
- › In compliance with EN 60335-1
- › 3 years warranty

TECHNICAL DATA

- › Input voltage range 85 - 264 Vac
- › Nominal output voltage: DC 12 - 48 V
- › Nominal output current: 1 - 7 A
- › Ambient temperature -25 °C to +70 °C
- › Conform to domestic appliances EN 60335-1
- › Protection index IP 20
- › Plastic enclosure

APPLICATIONS

- › Efficient primary switched mode power supplies in a rugged plastic enclosure. The power supplies cover the lower power requirements in the range from 25 W to 100 W.

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PM-0112-020-0	100 - 240	12	2	22,50/90/98
PM-0112-040-0	100 - 240	12	4	45/90/98
PM-0112-070-0	100 - 240	12	7	52/90/111
PM-0124-010-0	100 - 240	24	1	22,50/90/98
PM-0124-020-0	100 - 240	24	2	45/90/98
PM-0124-038-0	100 - 240	24	3,8	52/90/111
PM-0124-038-5	100 - 240	24	3,8	52/90/111
PM-0124-040-0	100 - 240	24	4	52/90/111
PM-0130-030-0	100 - 240	30	3	52/90/111
PM-0148-020-0	100 - 240	48	2	52/90/111

TWO-PHASE, PRIMARY SWITCHED MODE POWER SUPPLY PM 2AC



NEC Class 2 variants



BENEFITS

- › Stabilized and adjustable output voltage
- › Low stand-by consumption <1 W
- › Constant current limiting without overload shutdown
- › DC OK signalling
- › Parallel operation option
- › Push-in terminals
- › Panel installation on mounting rails
- › 3 years warranty

APPLICATIONS

- › Efficient primary switched mode power supplies in a rugged plastic enclosure. The device meets the requirements of NEC Class 2.

TECHNICAL DATA

- › Input voltage range 200 - 500 Vac
- › Nominal output voltage: DC 24 V
- › Nominal output current: 3.8 A
- › Ambient temperature: -25 °C to +70 °C
- › Protection index IP 20
- › Plastic enclosure

SINGLE-PHASE, PRIMARY SWITCHED MODE POWER SUPPLY POWER ADVANCED 1AC



BENEFITS

- › Stabilized and adjustable output voltage
- › Protected against transient mains overvoltage events
- › Protected against shock and vibration

APPLICATIONS

- › Power Advanced combines a compact design with above-average electrical and mechanical robustness at the same time. The universally applicable, single-phase power supply for the most demanding environmental conditions.

*Pending

TECHNICAL DATA

- › Nominal input voltage: AC 100 - 240 V
- › Nominal output voltage: 12 Vdc, 24 Vdc, 48 Vdc
- › Nominal output current: 5 - 40 A
- › Ambient temperature -25 °C to +70 °C
- › Efficiency up to 94,3 %
- › Protection index IP 20

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PM-0224-038-0	200 - 500	24	3,8	52/90/111

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PCC-0112-100-0	100 - 240	12	10	35/127/124
PCC-0112-150-2	100 - 240	12	15	62/127/134
PCC-0124-050-2	100 - 240	24	5	35/127/124
PCC-0124-100-2	100 - 240	24	10	40/127/134
PCC-0124-200-2	100 - 240	24	20	62/127/134
PCC-0124-400-2	100 - 240	24	40	120/127/165,5
PCC-0148-050-2	100 - 240	48	5	40/127/134
PCC-0148-100-2	100 - 240	48	10	62/127/134
PCC-0148-200-2	100 - 240	48	20	120/127/165,5

SINGLE-PHASE, PRIMARY SWITCHED MODE POWER SUPPLY POWER ULTIMATE 1AC



BENEFITS

- › Integrated output-side decoupling
- › DC-OK signal contact
- › Protective-coated PCB

APPLICATIONS

- › Designed for demanding applications in extreme environmental conditions, Power Ultimate combines a compact design with maximum system availability.

*Pending

TECHNICAL DATA

- › Nominal input voltage: AC 100 - 240 V
- › Nominal output voltage: 24 Vdc
- › Nominal output current: 10 - 20 A
- › Ambient temperature -25 °C to +70 °C
- › Efficiency up to 93,6 %
- › Protection index IP 20

SINGLE-PHASE, PRIMARY SWITCHED MODE POWER SUPPLY PC 1AC



BENEFITS

- › Stabilized and adjustable output voltage
- › Fast tripping of conventional circuit breakers
- › DC OK signalling
- › Parallel operation
- › Push-in terminals
- › Robust DIN rail mounting
- › Resistant to transient overvoltages up to 4 kV
- › 3 years warranty

APPLICATIONS

- › Power Compact combines the basic functionality of an economic power supply with the essential features to maximise the availability of your system.

TECHNICAL DATA

- › Nominal input voltage: AC 100 - 240 V
- › Nominal output voltage: DC 12 - 48 V
- › Nominal output current: 5 - 20 A
- › Ambient temperature -25 °C to +70 °C
- › Efficiency up to 93 %
- › Protection index IP 20

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PCE-0124-100-2D	100 - 240	24	10	40/127/134
PCE-0124-200-2D	100 - 240	24	20	62/127/134

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PC-0112-150-0	100 - 240	12	15	55/127/161
PC-0124-050-0	100 - 240	24	5	42/127/126
PC-0124-050-4	100 - 240	24	5	42/127/136
PC-0124-100-0	100 - 240	24	10	55/127/161
PC-0124-100-4	100 - 240	24	10	42/127/136
PC-0124-200-0	100 - 240	24	20	95/127/159
PC-0148-050-0	100 - 240	48	5	55/127/161
PC-0148-100-0	100 - 240	48	10	95/127/159

SINGLE- AND TWO-PHASE,
PRIMARY SWITCHED MODE
POWER SUPPLY
PC 2AC



BENEFITS

- › Stabilized and adjustable output voltage
- › Fast tripping of conventional circuit breakers
- › DC OK signalling
- › Parallel operation
- › Push-in terminals
- › Robust DIN rail mounting
- › Resistant to transient overvoltages up to 4 kV
- › Optional with 50 % Power Boost (PC-0224-xxx-2)
- › 3 years warranty

APPLICATIONS

- › Power Compact combines the basic functionality of an economic power supply with the essential features to maximise the availability of your system.

TECHNICAL DATA

- › Nominal input voltage: 200 - 500 Vac
- › Nominal output voltage: 24 Vdc
- › Nominal output current: 5 - 10 A
- › Ambient temperature -25 °C to +70 °C
- › Protection index IP 20

THREE-PHASE, PRIMARY
SWITCHED MODE POWER SUPPLY
POWER ADVANCED 3AC



BENEFITS

- › Stabilized and adjustable output voltage
- › Fast tripping of conventional circuit breakers
- › DC OK signalling
- › Parallel operation
- › Push-in terminals
- › Robust DIN rail mounting
- › Resistant to transient overvoltages up to 4 kV
- › With 50 % Power Boost
- › 3 years warranty

APPLICATIONS

- › Power Advanced combines a compact design with above-average electrical and mechanical robustness at the same time. The universally applicable, three-phase power supply for the most demanding environmental conditions.

*Pending

TECHNICAL DATA

- › Nominal input voltage: 3 x 400 - 500 Vac
- › Nominal output voltage: 24 Vdc
- › Nominal output current: 5 - 40 A
- › Ambient temperature -25 °C to +70 °C
- › Protection index IP 20

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PC-0224-050-0	200 - 500	24	5	42/127/126
PC-0224-050-2	200 - 500	24	5	42/127/126
PC-0224-100-0	200 - 500	24	10	55/127/137
PC-0224-100-2	200 - 500	24	10	55/127/137

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PCC-0324-050-2	400 - 500	24	5	35/127/115
PCC-0324-100-2	400 - 500	24	10	40/127/125
PCC-0324-200-2	400 - 500	24	20	55/127/125
PCC-0324-400-2	400 - 500	24	40	90/127/155

THREE-PHASE, PRIMARY SWITCHED MODE POWER SUPPLY PC 3AC



BENEFITS

- Stabilized and adjustable output voltage
- Fast tripping of conventional circuit breakers
- DC OK signalling
- Parallel operation
- Push-in terminals
- Robust DIN rail mounting
- Resistant to transient overvoltages up to 4 kV
- Optional with 50 % Power Boost (PC-03xx-xxx-2)
- 3 years warranty

TECHNICAL DATA

- Nominal input voltage: 3 x 400 - 500 Vac
- Nominal output voltage: 24 Vdc, 48 Vdc, 60 Vdc
- Nominal output current: 10 - 40 A
- Ambient temperature -25 °C to +70 °C
- Protection index IP 20

APPLICATIONS

- Power Compact combines the basic functionality of an economic power supply with the essential features to maximise the availability of your system.

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PC-0324-100-0	400 - 500	24	10	55/127/161
PC-0324-100-2	400 - 500	24	10	55/127/161
PC-0324-200-0	400 - 500	24	20	80/127/160
PC-0324-200-2	400 - 500	24	20	80/127/160
PC-0324-400-2	400 - 500	24	40	126/127/170
PC-0324-400-2	400 - 500	24	40	126/127/170
PC-0348-200-0	400 - 500	48	20	126/127/178
PC-0348-200-2	400 - 500	48	20	126/127/178
PC-0360-160-2D	400 - 500	60	16	126/127/178



SINGLE-PHASE, PRIMARY SWITCHED MODE POWER SUPPLY, ECONOMY

PVSE 230



THREE-PHASE, PRIMARY SWITCHED MODE POWER SUPPLY, ECONOMY

PVSE 400



BENEFITS

- › Stabilized and adjustable output voltage
- › Up to 200 % Real Power Boost for 4 seconds
- › Top Boost to trip conventional circuit breakers
- › DC OK signalling
- › Stand-by-input
- › Parallel connection option
- › Service-friendly spring-loaded connector system
- › Optional with active inrush current limiter

TECHNICAL DATA

- › Input rated voltage 100 - 240 Vac
- › Output rated voltage 12 - 48 Vdc
- › Output rated current 3 - 20 A
- › Ambient temperature -25 °C to +70 °C
- › Efficiency up to 92 %

APPLICATIONS

- › Primary switched mode power supply with massive power reserves focussing on the key task of power supply.

BENEFITS

- › Stabilized and adjustable output voltage
- › Up to 200 % Real Power Boost for 4 seconds
- › Top Boost to trip conventional circuit breakers
- › DC OK signalling
- › Parallel connection option
- › Service-friendly spring-loaded connector system
- › Can be supplied with isolated DC OK signalling function
- › Panel installation on mounting rails

TECHNICAL DATA

- › Input rated voltage 3 x 400 - 500 Vac
- › Output rated voltage 24 - 48 Vdc
- › Output rated current 10 - 40 A
- › Ambient temperature -25 °C to +70 °C
- › Efficiency up to 95 %
- › Protection index IP 20

APPLICATIONS

- › Primary switched mode power supply with massive power reserves focussing on the key task of power supply.

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PVSE 230/12-15	100 - 240	12	10	35/127/124
PVSE 230/24-5	100 - 240	24	5	57/127/163,5
PVSE 230/24-10	110 - 240	24	10	57/127/179,5
PVSE 230/24-20	110 - 240	24	20	97/127/187,5
PVSE 230/48-10	110 - 240	48	10	97/127/187,5

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PVSE 400/24-10	400 - 500	24	10	57/127/179,5
PVSE 400/24-20	400 - 500	24	20	77/127/179,5
PVSE 400/24-40	400 - 500	24	40	128/127/205,5
PVSE 400/30-25	400 - 500	30	25	128/127/205,5
PVSE 400/48-10	400 - 500	48	10	77/127/179,5
PVSE 400/48-20	400 - 500	48	20	128/127/205,5

THREE-PHASE, PRIMARY SWITCHED MODE POWER SUPPLY, BASIC PVSB 400



BENEFITS

- › LCD
- › Output current and output voltage monitoring
- › RS-232 interface
- › Stabilized and adjustable output voltage
- › Up to 200 % Real Power Boost for 4 seconds
- › Top Boost to trip conventional circuit breakers
- › 3 LEDs and active signal outputs to indicate operating status
- › Parallel connection option
- › Service-friendly spring-loaded connector system
- › Can be supplied with active inrush current limiting option
- › Panel installation on mounting rails

APPLICATIONS

- › Primary switched mode power supply with high power reserves for all automation requirements with a variety of parameter setting and display functions, including output current and output voltage monitoring.

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PVSB 400/24-10	400 - 500	24	10	57/127/179,5
PVSB 400/24-20	400 - 500	24	20	77/127/179,5
PVSB 400/24-40	400 - 500	24	40	128/127/205,5

THREE-PHASE, PRIMARY SWITCHED MODE POWER SUPPLY, LINE PVSL 400



BENEFITS

- › Power input monitoring
- › LCD
- › Output current and output voltage monitoring
- › RS-232 interface
- › Stabilized and adjustable output voltage
- › Up to 200 % Real Power Boost for 4 seconds
- › Top Boost to trip conventional circuit breakers
- › 3 LEDs and active signal outputs to indicate operating status
- › Parallel connection option
- › Service-friendly spring-loaded connector system
- › Panel installation on mounting rails

APPLICATIONS

- › Primary switched mode power supply with high power reserves for all automation requirements with a variety of parameter setting and display functions, including output current and output voltage monitoring.

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PVSL 400/24-10	400 - 500	24	10	57/127/179,5
PVSL 400/24-20	400 - 500	24	20	77/127/179,5
PVSL 400/24-40	400 - 500	24	40	128/127/205,5

OVERVIEW

ELECTRONIC CIRCUIT BREAKERS

Discover our entire
standard range here



Economy Smart	Basic Smart	Basic Fix	EasyB	
•			•	Thermomagnetic characteristic
			•	Thermomagnetic with fast tripping characteristic
	•			Active current limiting typ. $1.7 \times I_{rated}$
			•	Active current limiting typ. $1.25 \times I_{rated}$
		•	*	Active current limiting according to NEC Class 2 (100 W)
•	•		•	Adjustable tripping current via current selector switch
•			•	Adjustable tripping current via IO-Link-interface
•	•	•	•	Status LED
•	•	•	•	Remote switching “On”/“Off” for each channel
•	•	•	•	Status transmission “On”/“Off”/“Tripped” per channel
•	•	•	•	Status transmission “Overcurrent” per channel
•	•	•	•	Transmission of “actual input voltage”/“adjusted tripping current” per channel
**	•		•	Transmission of “actual tripping current” per channel
•	•	•	•	Group alarm message for tripped channels
•	•	•	•	Remote reset of tripped channels
•	•	•		Push-in connection technology
•	•	•	•	UL/DNV (GL) certification
		•	•	NEC Class 2

* Only for specific circuit breakers

** Only with IO-Link

OVERVIEW

ADDITIONAL MODULES

Discover our entire
standard range here



Uninterruptible
power supplies

Redundancy modules		Uninterruptible power supplies				Buffer modules	
PM RE	PC RE	PC-04	PC-05	PVUA	KOMBI USV	PVUC	
•	•	•	•	•		•	Decoupled 24 V output
•	•					•	Parallel-switching for increased power
	•	•	•	•	•	•	Function monitoring through isolated contacts
				•			Function monitoring through 24 V signal contacts
				•			Display for current and voltage indicator
				•	•		RS-232 interface
		•	•		•		USB interface
•	•	•	•	•	•	•	Status LED
•	•	•	•		•		Push-in connection technology
				•		•	Spring-loaded plug-in connection technology
•	•	•	•	•	•	•	UL certification
	•				•		DNV-GL certification

EASYB THERMOMAGNETIC EB-27



EASYB THERMOMAGNETIC FAST EB-27F



NEC Class 2 variants

BENEFITS

- Automatic channel assignment
- Optional undervoltage shutdown in combined network
- Additional load outputs through output expanders mountable side by side
- 3 years warranty

APPLICATIONS

- EasyB offers a flexible solution for protecting switching circuits at the 24V control voltage level. Thanks to the single-channel concept, this protection can be adapted to the requirements of the system and enhanced with it.

TECHNICAL DATA

- 24 Vdc circuit breaker system
- Efficiency up to 99 %
- Multi-coloured LED and status display button
- Up to 40 fuse channels stackable side by side
- Thermomagnetic characteristic
- Collective notification signal or single notification signal
- Ambient temperature -25 °C to +70 °C
- Protection index IP 20

BENEFITS

- Automatic channel assignment
- Undervoltage shutdown per channel
- Additional load outputs through output expanders mountable sidewise
- Internal fuse adapted to the tripping current
- 3 years warranty

APPLICATIONS

- EasyB offers a flexible solution for protecting switching circuits at the 24 V control voltage level. Thanks to the single-channel concept, this protection can be adapted to the requirements of the system and enhanced with it.

TECHNICAL DATA

- 24 Vdc circuit breaker system
- Efficiency up to 99 %
- Multi-coloured LED and status display button
- Up to 40 fuse channels stackable side by side
- Thermomagnetic characteristic
- Collective notification signal
- Ambient temperature -25 °C to +70 °C
- Protection index IP 20

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
EB-2724-010-0	24	24	1	12/99/60
EB-2724-010-4	24	24	1	12/99/60
EB-2724-020-0	24	24	2	12/99/60
EB-2724-020-4	24	24	2	12/99/60
EB-2724-030-0	24	24	3	12/99/60
EB-2724-030-4	24	24	3	12/99/60
EB-2724-040-0	24	24	4	12/99/60
EB-2724-040-4	24	24	4	12/99/60
EB-2724-060-0	24	24	6	12/99/60
EB-2724-060-4	24	24	6	12/99/60
EB-2724-080-0	24	24	8	12/99/60
EB-2724-080-4	24	24	8	12/99/60
EB-2724-100-0	24	24	10	12/99/60
EB-2724-100-4	24	24	10	12/99/60
EB-2724-2020-0	24	24	2 x 1	12/99/60
EB-2724-2040-0	24	24	2 x 2	12/99/60
EB-2724-2060-0	24	24	2 x 3	12/99/60
EB-2724-2080-0	24	24	2 x 4	12/99/60
EB-2724-2120-0	24	24	2 x 6	12/99/60
EB-2724-2160-0	24	24	2 x 8	12/99/60

EB-...-0: Collective alarm signal
EB-...-4: Single alarm signal

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
EB-2724-010-0F	24	24	1, NEC Class 2	12/99/60
EB-2724-020-0F	24	24	2, NEC Class 2	12/99/60
EB-2724-030-0F	24	24	3, NEC Class 2	12/99/60
EB-2724-040-0F	24	24	4, NEC Class 2	12/99/60
EB-2724-060-0F	24	24	6	12/99/60
EB-2724-080-0F	24	24	8	12/99/60
EB-2724-100-0F	24	24	10	12/99/60
EB-2724-2020-0F	24	24	2 x 1, NEC Class 2	12/99/60
EB-2724-2040-0F	24	24	2 x 2, NEC Class 2	12/99/60
EB-2724-2060-0F	24	24	2 x 3, NEC Class 2	12/99/60
EB-2724-2080-0F	24	24	2 x 4, NEC Class 2	12/99/60
EB-2724-2120-0F	24	24	2 x 6	12/99/60
EB-2724-2160-0F	24	24	2 x 8	12/99/60

EASYB THERMOMAGNETIC FAST, COMMUNICATIVE

EB-17F



EASYB CURRENT LIMITING

EB-28



BENEFITS

- Additional load outputs through output expanders mountable sideways
- Automatic channel assignment
- Internal fuse adapted to the tripping current

APPLICATIONS

- EasyB offers a flexible solution for protecting switching circuits at the 24 V control voltage level. Thanks to the single-channel concept, this protection can be adapted to the requirements of the system and enhanced with it.

TECHNICAL DATA

- 24 Vdc circuit breaker system
- Efficiency up to 99 %
- Multi-coloured LED and status display button
- Up to 40 fuse channels stackable side by side
- Thermomagnetic characteristic
- Collective notification signal
- Ambient temperature -25 °C to +70 °C
- Protection index IP 20

BENEFITS

- Automatic channel assignment
- Optional undervoltage shutdown in combined network
- Additional load outputs through output expanders mountable side by side
- NEC Class 2 up to 4A
- 3 years warranty

APPLICATIONS

- EasyB offers a flexible solution for protecting switching circuits at the 24 V control voltage level. Thanks to the single-channel concept, this protection can be adapted to the requirements of the system and enhanced with it.

TECHNICAL DATA

- 24 Vdc 1-channel circuit breaker system
- Efficiency up to 99 %
- Multi-coloured LED and status display button
- Up to 40 fuse channels stackable side by side
- Active current limiting
- Collective notification signal or single notification signal
- Ambient temperature -25 °C to +70 °C
- Protection index IP 20

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
EB-0724-100-0F	24	24	0,5/1/2/3/4/5/6/8/10	12/99/60
EB-1724-010-0F	24	24	1, NEC Class 2	12/99/60
EB-1724-020-0F	24	24	2, NEC Class 2	12/99/60
EB-1724-030-0F	24	24	3, NEC Class 2	12/99/60
EB-1724-040-0F	24	24	4, NEC Class 2	12/99/60
EB-1724-060-0F	24	24	6 —	12/99/60
EB-1724-080-0F	24	24	8 —	12/99/60
EB-1724-100-0F	24	24	10 —	12/99/60
EB-1724-160-0F	24	24	16	12/99/60
EB-1724-2020-0F	24	24	2 x 1, NEC Class 2	12/99/60
EB-1724-2040-0F	24	24	2 x 2, NEC Class 2	12/99/60
EB-1724-2060-0F	24	24	2 x 3, NEC Class 2	12/99/60
EB-1724-2080-0F	24	24	2 x 4, NEC Class 2	12/99/60
EB-1724-2120-0F	24	24	2 x 6 —	12/99/60
EB-1724-2160-0F	24	24	2 x 8 —	12/99/60
EB-3724-100-0F	24	24	0,5/1/2/3/4/5/6/8/10	12/99/60
EB-3724-2160-0F	24	24	2 x 0,5/1/2/3/4/5/6/8/10	12/99/60

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
EB-2824-010-0	24	24	1, NEC Class 2	12/99/60
EB-2824-010-4	24	24	1, NEC Class 2	12/99/60
EB-2824-020-0	24	24	2, NEC Class 2	12/99/60
EB-2824-020-4	24	24	2, NEC Class 2	12/99/60
EB-2824-030-0	24	24	3, NEC Class 2	12/99/60
EB-2824-030-4	24	24	3, NEC Class 2	12/99/60
EB-2824-040-0	24	24	4, NEC Class 2	12/99/60
EB-2824-040-4	24	24	4, NEC Class 2	12/99/60
EB-2824-060-0	24	24	6 —	12/99/60
EB-2824-060-4	24	24	6 —	12/99/60
EB-2824-080-0	24	24	8 —	12/99/60
EB-2824-080-4	24	24	8 —	12/99/60
EB-2824-100-0	24	24	10 —	12/99/60
EB-2824-100-4	24	24	10 —	12/99/60

EB-...-0: Collective alarm signal
EB-...-4: Single alarm signal

EASYB CURRENT LIMITING, COMMUNICATIVE EB-18



BENEFITS

- Automatic channel assignment
- Communication via communication modules
- Optional undervoltage shutdown in combined network
- Optional settings for tripping current
- Additional load outputs through output expanders mountable side by side
- Selective load-dependent activation
- Collective reset input
- 3 years warranty

APPLICATIONS

- EasyB offers a flexible solution for protecting switching circuits at the 24 V control voltage level. Thanks to the single-channel concept, this protection can be adapted to the requirements of the system and enhanced with it.

TECHNICAL DATA

- 24 Vdc 1-channel circuit breaker system
- Efficiency up to 99 %
- Multi-coloured LED and status display button
- Up to 40 fuse channels stackable side by side
- Active current limiting
- Common signalling output for tripped and switched off channels
- Ambient temperature -25 °C to +70 °C
- Protection index IP 20

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
EB-0824-100-0	24	24	0,5/1/2/3/4/5/6/8/10	12/99/60
EB-0824-100-4	24	24	0,5/1/2/3/4/5/6/8/10	12/99/60
EB-1824-010-0	24	24	1	12/99/60
EB-1824-020-0	24	24	2	12/99/60
EB-1824-030-0	24	24	3	12/99/60
EB-1824-040-0	24	24	4	12/99/60
EB-1824-060-0	24	24	6	12/99/60
EB-1824-080-0	24	24	8	12/99/60
EB-1824-100-0	24	24	10	12/99/60
EB-3824-100-0	24	24	0,5/1/2/3/4/5/6/8/10	12/99/60

EB-...-0: Collective alarm signal
EB-...-4: Single alarm signal

EASYB THERMOMAGNETIC, COMMUNICATIVE, 48 V DC EB-48



BENEFITS

- Additional load outputs through output expanders mountable sideways
- Automatic channel assignment

APPLICATIONS

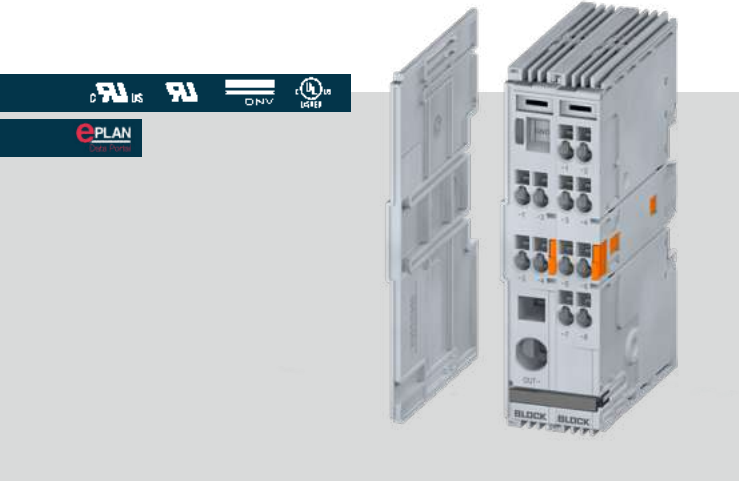
- EasyB now offers a flexible solution for protecting circuits at the 48 V voltage level. Thanks to the single-channel concept, this protection can be adapted to the requirements of the system and enhanced with it.

TECHNICAL DATA

- Efficiency up to 99 %
- Ambient temperature -25 °C to +70 °C
- Protection index IP 20

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
EB-0748-100-0	48	48	0,5/1/2/3/4/5/6/8/10	12/99/60
EB-1748-060-0	48	48	6	12/99/60
EB-1748-100-0	48	48	10	12/99/60

ACCESSORIES
EASYB



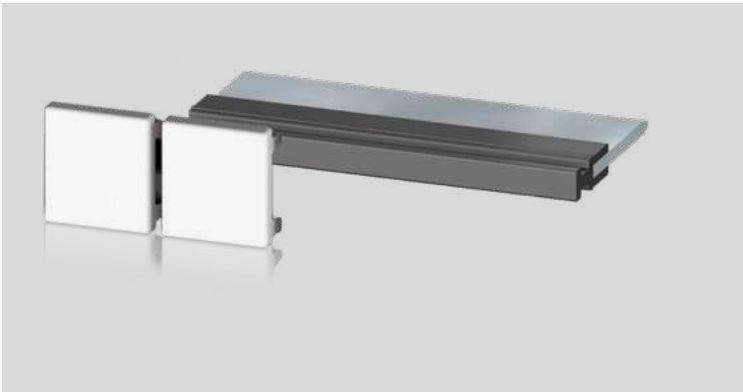
TECHNICAL DATA

- > Protection index IP 20
- > Ambient temperature -25 °C to +70 °C
- > EB-IO-LINK/-1, EB-MODBUS-RTU: Intelligent interface for reading and writing of information of connected EasyB modules
- > EB-GND4/8: Ground module to feed back the 0 V signal to the power supply as a replacement for the series terminal
- > EB-COV: Protection against unintentional touching of the lateral contacts
- > EB-PMM: Output expander, for mounting on right side of EasyB circuit breaker channel

APPLICATIONS

- > Accessories for product line EasyB

ACCESSORIES
EASYB



TECHNICAL DATA

- > Cross connection for distribution of 24 Vdc voltage to all contacted EasyB modules
- > EB-MARK1: 5 mm label plate for insertion into EasyB modules
- > EB-MARK20: Label brackets for insertion of 11 mm EB-MARK21 label strips
- > EB-MARK21: 11 mm label strips for insertion into EB-MARK20 label brackets

APPLICATIONS

- > EB-BARx: For bypassing up to 41 modules of the EasyB series
- > EB-MARK1: Simple labelling for EasyB
- > EB-MARK20: Enables the use of 11 mm-wide label strips in 5 mm labelling receptacle
- > EB-MARK21: 11 mm label strips for insertion into EB-MARK20 label brackets

Product Name Order No.	Width/Height/Depth in mm
EB-COV	4/96,50/59,7
EB-GND4	12/99/60
EB-GND8	12/99/60
EB-IO-LINK	12/99/60
EB-IO-LINK1	12/99/60
EB-MODBUS-RTU	12/99/60
EB-PMM	12/99/60

Product Name Order No.	
EB-BARX	
EB-MARK1	
EB-MARK20	
EB-MARK21	

ELECTRONIC CIRCUIT BREAKER

THERMOMAGNETIC

ECONOMY SMART



ELECTRONIC CIRCUIT BREAKER

CURRENT LIMITING

BASIC SMART



BENEFITS

- Adjustable tripping current for each output channel via current selector switch
- Ability to turn-on high load capacitance at each channel
- Sequential and load-dependent switching-on of channels
- Comprehensive single-channel-diagnostics and remote switching on/off of each output channel via 2-wire-interface, potential-free signal output or IO-Link
- LED signalisation and remote request for each output channel
- Group alarm contact
- 3 years warranty

APPLICATIONS

- **ECONOMY SMART** circuit breakers with a thermomagnetic characteristic represent an economical alternative to the classic circuit breaker. They also ensure reliable tripping even in the case of high line resistance. This makes the circuit breakers ideal for use in standard machine production.

TECHNICAL DATA

- Nominal input voltage 12 / 24 / 48 Vdc
- Output channels 2 / 4 / 8
- Tripping current 1 - 6 A / 1 - 10 A / 2 - 10 A
- Thermomagnetic characteristic
- Ambient temperature -25 °C to +70 °C
- Protection index IP 20
- Efficiency typ. 99 %

BENEFITS

- Adjustable tripping current for each output channel via current selector switch
- Selective immediate switch off of defective circuits in the event of critical supply voltage
- Sequential and load-dependent switching-on of channels
- Comprehensive single-channel-diagnostics and remote switching on/off of each output channel via 2-wire-interface
- Further diagnoses of input voltage and the current of each circuit
- Group alarm contact
- 3 years warranty

APPLICATIONS

- The **BASIC SMART** circuit breakers guarantee maximum system availability. In the event of overload, only the faulty current paths are reliably switched off without affecting the remaining circuits thanks to active current limiting to 1.7 times the rated current.

TECHNICAL DATA

- Nominal input voltage 24 Vdc
- Output channels 2 / 4 / 8
- Tripping current 0.5 - 6 A
- Active current limiting typ. 1,7 x Irated
- Ambient temperature -25 °C to +70 °C
- Protection index IP 20
- Efficiency typ. 99 %

Subject to change

COMPACT.

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PM-0712-400-0	12	12	4 x 2 - 10	45/90/91,5
PM-0724-120-0	24	24	2 x 1 - 6	45/90/91,5
PM-0724-200-0	24	24	2 x 2 - 10	45/90/91,5
PM-0724-240-0	24	24	4 x 1 - 6	45/90/91,5
PM-0724-400-0	24	24	4 x 2 - 10	45/90/91,5
PM-0724-400-0I1	24	24	4 x 1 - 10	45/90/91,5
PC-0724-480-0	24	24	8 x 1 - 6	42/127/116,5
PC-0724-800-0	24	24	8 x 2 - 10	42/127/116,5
PC-0724-800-0I1	24	24	8 x 1 - 10	42/127/116,5
PM-0748-200-0	48	48	2 x 2 - 10	45/90/91,5
PM-0748-400-0	48	48	4 x 2 - 10	45/90/91,5
PC-0748-800-0	48	48	8 x 2 - 10	42/127/116,5

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PM-0824-240-0	24	24	4 x 0,5 - 6	45/90/91,5
PC-0824-480-0	24	24	8 x 0,5 - 6	42/127/116,5

ELECTRONIC CIRCUIT BREAKER

BASIC FIX



NEC Class 2

BENEFITS

- Selective immediate switch off of defective circuits in the event of critical supply voltage
- Sequential and load-dependent switching-on of channels
- Comprehensive single-channel-diagnostics and remote switching on/off of each output channel via 2-wire-interface
- Group alarm contact
- 3 years warranty

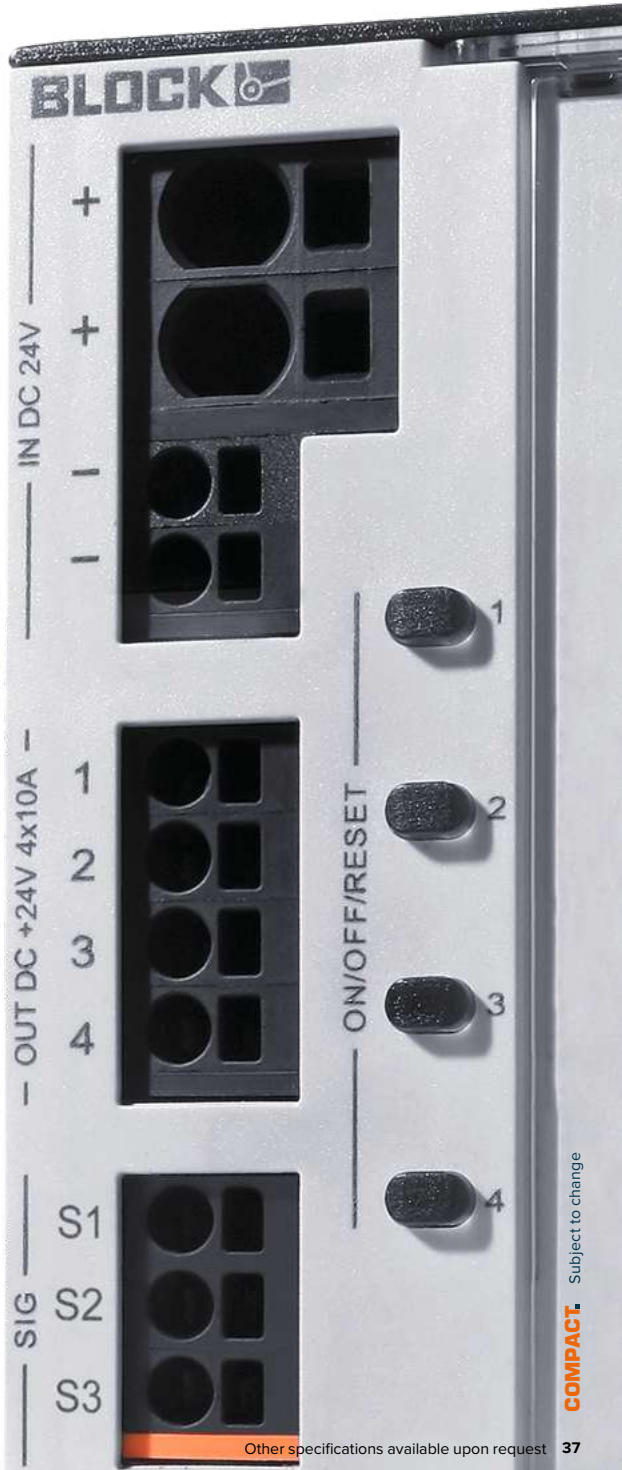
APPLICATIONS

- If circuits are designed with the same safety values in a number of applications, the BASIC FIX circuit breakers represent the most economical basis. Different rated current combinations enable use in a wide range of applications. Each channel features active current limiting to 1.3 times the fixed preset rated current.

TECHNICAL DATA

- Nominal input voltage 24 Vdc
- Output channels 2 / 4
- Preset tripping current
- Active current limiting typ. 1,3 x Irated
- Ambient temperature -25 °C to +70 °C
- Protection index IP 20
- Efficiency typ. 99 %

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PM-9824-152-0	24	24	4 x 3,8	45/90/91,5



Other specifications available upon request

REDUNDANCY MODULE POWER COMPACT PC RE



BENEFITS

- › High efficiency
- › Error message via relay contact and LEDs
- › Safe parallel operation to increase power
- › Fully compatible with Top and Power Boost for your power supplies
- › Active operation for minimal power loss even in the event of a short-circuit on the secondary side
- › Based on Mosfet technology
- › 3 years warranty

APPLICATIONS

- › Redundancy module for decoupling two power supplies when configuring a fail-safe supply system. For machines and systems which place high demands on operational safety.

TECHNICAL DATA

- › Input rated voltage 24 - 48 Vdc
- › Output rated voltage 24 - 48 Vdc
- › Output rated current 20 - 40 A
- › Ambient temperature -40 °C to +70 °C
- › Protection index IP 20

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PC-0624-200-0	24	24	20	42/127/112,5
PC-0624-400-0	24	24	40	42/127/112,5
PC-0648-200-0	48	48	20	42/127/112,5
PC-0648-400-0	48	48	40	42/127/112,5

REDUNDANCY MODULE POWER MINI PM RE



BENEFITS

- › High efficiency
- › Error message via relay contact and LEDs
- › Safe parallel operation to increase power
- › Fully compatible with Top and Power Boost for your power supplies
- › Active operation for minimal power loss even in the event of a short-circuit on the secondary side
- › 3 years warranty

APPLICATIONS

- › Redundancy module for decoupling two power supplies when configuring a fail-safe supply system. For machines and systems which place high demands on operational safety.

TECHNICAL DATA

- › Input rated voltage 24 Vdc
- › Output rated voltage 24 Vdc
- › Output rated current 10 A
- › Ambient temperature -40 °C to +70 °C
- › Protection index IP 20

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PM-0624-100-0	24	24	10	22/90/94

UNINTERRUPTIBLE POWER SUPPLY COMBINED UPS



BENEFITS

- › Combined power supply with charge and control unit
- › Fast tripping of conventional circuit breakers
- › Battery modules get detected automatically
- › Reliable signalling when there is low remaining life expectancy of connected battery modules
- › Extended life expectancy through temperature controlled battery management
- › Optional interface to visualise and adjust relevant data
- › Reliable supply of industrial PC's
- › 3 years warranty

TECHNICAL DATA

- › Rated input voltage 100 - 240 Vac
- › Rated output voltage 24 Vdc
- › Rated output current 5 A, 10 A
- › Recommended battery modules 1.2 - 12 Ah
- › Ambient temperature -25 °C to +70 °C
- › Protection index IP 20

APPLICATIONS

- › The uninterruptible power supply contains an economic DC 24V power supply and a charge and control unit for an ideal battery management. Requires a battery module (see following pages).

Product Name Order No.	Input voltage Vac	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PC-1024-050-0	100 - 240	24	5	60/127/136
PCC-1024-050-20	100 - 240	24	5	55/127/118
PCC-1024-050-2U	100 - 240	24	5	55/127/118
PCC-1024-100-20	100 - 240	24	10	62/127/128
PCC-1024-100-2U	100 - 240	24	10	62/127/128

CHARGE AND CONTROL UNIT PVUA / PC(C)-05



BENEFITS

- › Automatic detection of connected battery module
- › Reliable early warning signal when battery life expectancy is declining
- › Extended life expectancy through temperature controlled battery management
- › Reverse polarity protection
- › Interface to visualise and adjust relevant data
- › Current and voltage monitoring
- › Active signal outputs for function monitoring
- › USB interface / optional without interface
- › Reliable supply of industrial PC's

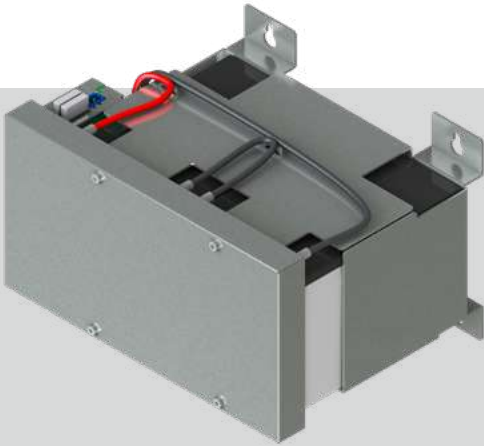
TECHNICAL DATA

- › Input rated voltage 24 Vdc
- › Output rated voltage 24 Vdc
- › Output rated current 10 - 40 A
- › Ambient temperature -25 °C to +70 °C
- › Efficiency up to 99 %
- › Protection index IP 20

APPLICATIONS

- › Load and control unit for building a secure 24 Vdc power supply in case of power failure.

BATTERY MODULE PVA / PVAF



BENEFITS

- › Automatic detection of battery modules at UPS control unit
- › Reliable early warning signal when battery life expectancy is declining
- › Extended life expectancy through temperature controlled battery management
- › Service-friendly spring-loaded connector system

TECHNICAL DATA

- › Input rated voltage 24 Vdc
- › Output rated voltage 24 Vdc
- › Capacity 0.8 - 12 Ah
- › Ambient temperature -10 °C to +40 °C
- › Protection index IP 20

APPLICATIONS

- › Battery module for building a secure 24 Vdc power supply in case of power failure.

COMPACT. Subject to change

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PVUA 24/24-10	24	24	10	40/127/163,5
PVUA 24/24-20	24	24	20	57/127/163,5
PC-0524-400-0	24	24	40	45/127/136
PCC-0524-100-00	24	24	10	30/127/117
PCC-0524-100-0U	24	24	10	30/127/117
PCC-0524-200-00	24	24	20	32,5/127/126
PCC-0524-200-0U	24	24	20	32,5/127/126

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PVAF 24/0,8Ah	24	24	5	72/97/107
PVAF 24/1,2Ah	24	24	7,5	55/131/136,5
PVA 24/3,2Ah	24	24	20	76/165/175,5
PVAF 24/7Ah	24	24	40	163/145/176
PVAF 24/12Ah	24	24	40	230/145/176

BATTERY MODULE PST



BENEFITS

- › Compact design
- › Easy wiring with pre-assembled connection cables
- › Integrated fuse holder

APPLICATIONS

- › Ideal for all charge and control units ending with -x0 for building a fail-safe 24 Vdc power supply.

TECHNICAL DATA

- › Input rated voltage 24 Vdc
- › Output rated voltage 24 Vdc
- › Capacity 3.2 - 12 Ah
- › Ambient temperature -10 °C to +40 °C
- › Protection index IP 20

ACCESSORIES PC-CON1 / PC-KOK1



BENEFITS

- › Allows the connection of a PV device to other industrial applications which have only an USB interface.
- › Applicable in line with other devices by cascading with hubs.
- › Applicable in line with other devices by cascading with hubs.
- › International standards
- › Asynchronous transmission only loads the system when necessary
- › PC-KOK1: Adapter cable with female plug for RS232 9-pole Sub-D
- › PC-CON1: Female plug, 4-pole

APPLICATIONS

- › For all Power Compact models that have integrated interface.

TECHNICAL DATA

- › For mounting sideways on a DIN rail. For serie Power Compact
- › For all PowerCompact Models that have integrated interface

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PST-0124-032-00	24	24	20	71/176/150
PST-0124-070-00	24	24	40	150/190/104
PST-0124-070-10	24	24	40	111/193/159
PST-0124-120-00	24	24	40	216/190/104
PST-0124-120-10	24	24	40	110/193/225

Product Name
Order No.

PC-CON1
PC-KOK1

CAPACITIVE UPS
CAP UPS



BENEFITS

- Up to 40 A output current
- Long buffer times up to the minute range
- Minimal maintenance due to long life of the ultra-capacitors
- Parameterization via rotary switch or via USB interface
- Shock and vibration-proof USB socket
- Stabilized output voltage
- Expandable by capacity modules (only PC-0424-017-0)
- 3 years warranty

APPLICATIONS

- Maintenance-free capacitive UPS to secure the power supply during short power interruptions.

TECHNICAL DATA

- Input rated voltage 24 Vdc
- Output rated voltage 24 Vdc
- Output rated current 5, 20 A
- Ambient temperature -25 °C to +70 °C
- Efficiency typ. 99 %
- Protection index IP 20

CAPACITY MODULE
PC-04



BENEFITS

- Extension of the buffer time of PC-0424-017-0
- Communication through system bus cable
- Automatic addressing
- Very long buffer times achievable
- 3 years warranty

APPLICATIONS

- In conjunction with the base module, the output current can be increased to 40A. By using the capacity module, the buffer time can be increased.

TECHNICAL DATA

- Rated voltage 24 Vdc
- Charging current max. 3 A
- Protection index IP 20
- Ambient temperature -25 °C to +70 °C

Product Name Order No.	Input voltage Vdc	Output volta- ge Vdc	Output current A	Capacity kWs	Width/Height/ Depth in mm
PC-0424-010-00	24	24	20	1	55/127/139
PC-0424-017-0	24	24	20	1,7	55/127/139
PC-0424-050-0	24	24	20	5	92/127/139
PEL-0424-050-01	24	24	5	0,6	72/89/55

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PC-0424-115-0	24	24	40	77/127/139

CAPACITIVE BUFFER MODULE

PCC-14 / PVUC



BENEFITS

- Electronic overcurrent and short-circuit protection
- Reverse polarity protection
- Configurable switch-in threshold
- LEDs for signalling purposes
- Isolated signal contact
- Parallel connection option

TECHNICAL DATA

- Input rated voltage 24 Vdc
- Output rated voltage 24 Vdc
- Output rated current 10 - 40 A
- Ambient temperature -10 °C to +70 °C
- Efficiency typ. 97 %
- Protection index IP 20

APPLICATIONS

- Maintenance-free buffer module to secure the power supply during short power interruptions.

Product Name Order No.	Input voltage Vdc	Output voltage Vdc	Output current A	Width/Height/Depth in mm
PVUC 24/24-10	24	24	10	57/127/179,6
PVUC 24/24-20	24	24	20	57/127/179,6
PCC-1424-400-0	24	24	40	55/127/141



NEWS

POWER SUPPLIES/CIRCUIT BREAKERS

TRANSFORMERS

Transformers

Metal enclosures

Toroidal transformers

PCB transformers

INDUCTIVE COMPONENTS FOR POWER ELECTRONICS

REACTORS/EMI FILTERS

SERVICES



OVERVIEW

TRANSFORMERS

Discover our entire
standard range here

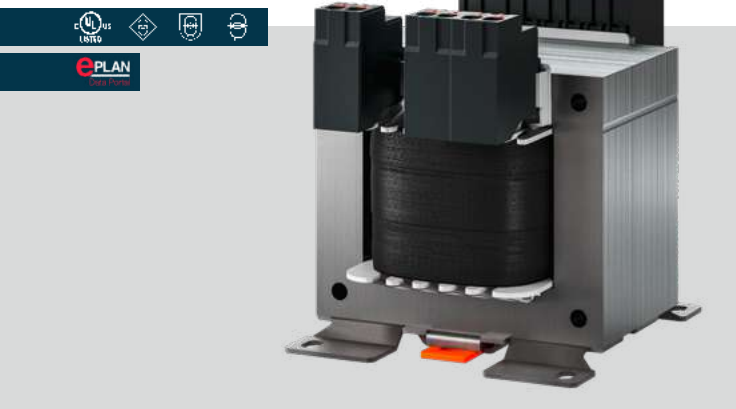


Type	Rated input voltage	Rated output voltage	Power	Push-in terminal	Screw terminals	Universal input voltage	Combination footplate*	Isolating transformer
USTE	208 - 600 V	2 x 12 V	40 - 630 VA	•		•	•	
		2 x 115 V	100 - 3200 VA	•		•	•	•
CT	2 x 240	24 V	50 - 350 VA		•			
	2 x 240	120 V	50 - 2500 VA		•			
	600	24 V	50 - 350 VA		•			
	600	120 V	50 - 2500 VA		•			
TT1	219/230/241 V	24 V	2000 VA		•			
	380/400/420 V	42 V	1600 VA		•			
		2 x 115 V	1000 - 25000 VA		•			•
	420/440/460 V	2 x 115 V	3000 - 10000 VA		•			•
	475/500/525 V	2 x 115 V	3000 - 10000 VA		•			•
TT3	3 x 400 V	3 x 400 V ± 5 %	1000 - 30000 VA		•			•
	3 x 800 V	3 x 400 V ± 5 %	2500, 6300 VA		•			•
JET	110 V	230 V	1000 VA					
E-JET	230 V	110 V	1000 VA					
AT3	3 x 200/208 - 3 x 690 V	3 x 400 V	2000 - 250000 VA		•			

* Only up to 250 VA



UNIVERSAL CONTROL TRANSFORMER USTE



BENEFITS

- › Universal input voltages 208 to 600 Vac
- › Very good switch-on behaviour thanks to reduced starting currents
- › High power density due to a compact construction design
- › Very good corrosion protection and low noise thanks to BLOCK IMPEX vacuum impregnation
- › Quick to cable up thanks to the use of push-in terminals
- › Contact protected screw connection terminals complying with UVV BGV A3
- › Simple mounting thanks to robust metal footplate with oval slots
- › Up to 250 VA with combination footplate for bolted and rail mounting

TECHNICAL DATA

- › Rated input voltage 208 - 600 Vac
- › Rated output voltage 2 x 12 or 2 x 115 Vac
- › Rated power 40 - 3,200 VA
- › Insulation class B
- › Maximum ambient temperature 40 °C
- › Efficiency up to 96 %
- › Degree of protection IP 00

APPLICATIONS

- › As a control transformer for the electrical isolation of the input and output sides.
- As an isolating transformer for the safe electrical isolation of the input and output sides.
- As a safety isolating transformer for the safe electrical isolation of the input and output sides.

Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Width/Height/Depth in mm
USTE 40/2x12	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 12	40	84/99/99
USTE 100/2x12	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 12	100	84/98/113
USTE 100/2x115	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 115	100	84/98/113
USTE 250/2x12	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 12	250	96/107/129
USTE 250/2x115	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 115	250	96/107/129
USTE 400/2x12	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 12	400	120/123/124
USTE 400/2x115	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 115	400	120/123/124
USTE 500/2x115	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 115	500	150/146/119
USTE 630/2x12	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 12	630	150/148/142
USTE 630/2x115	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 115	630	150/146/119
USTE 800/2x115	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 115	800	150/146/136
USTE 1000/2x115	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 115	1.000	150/146/162
USTE 1200/2x115	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 115	1.200	174/162/143
USTE 1600/2x115	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 115	1.600	192/183/145
USTE 2500/2x115	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 115	2.500	192/183/189
USTE 3200/2x115	208/230/380/400/ 415/440/460/480/500/ 525/550/575/600	2 x 115	3.200	231/248/217

INDUSTRIAL CONTROL TRANSFORMER CT



BENEFITS

- › Fused versions available
- › Versions with DIN rail for additional components available
- › Contact protected screw connection terminals
- › Jumpers included for primary voltage selection
- › Very good corrosion protection and low noise thanks to BLOCK IMPEX vacuum impregnation
- › Up to 2,500 VA

TECHNICAL DATA

- › Rated input voltage 2 x 240 V or 600 V
- › Rated output voltage 24 V, 120 V
- › Rated power 50 - 2,500 VA
- › Insulation class B
- › Maximum ambient temperature 40 °C
- › Efficiency up to 95 %
- › Degree of protection IP 00

APPLICATIONS

- › As a separating transformer for adjustment of the voltage and simple electrical isolation.

Product Name Order No.	Input voltage	Output voltage	Power VA	Width/Height/Depth in mm
CT-005-048-12-0	2 x 240	120	50	66/92,7/120
CT-005-048-24-0	2 x 240	24	50	66/92,7/120
CT-005-060-12-0	600	120	50	66/92,7/120
CT-005-060-24-0	600	24	50	66/92,7/120
CT-007-048-12-0	2 x 240	120	75	78/102,7/112,8
CT-007-048-24-0	2 x 240	24	75	78/102,7/112,8
CT-007-060-12-0	600	120	75	78/102,7/112,8
CT-007-060-24-0	600	24	75	78/102,7/112,8
CT-010-048-12-0	2 x 240	120	100	78/102,7/121,8
CT-010-048-24-0	2 x 240	24	100	78/102,7/121,8
CT-010-060-12-0	600	120	100	78/102,7/121,8
CT-010-060-24-0	600	24	100	78/102,7/121,8
CT-015-048-12-0	2 x 240	120	150	96/117,7/117
CT-015-048-24-0	2 x 240	24	150	96/117,7/117
CT-015-060-12-0	600	120	150	96/117,7/117
CT-015-060-24-0	600	24	150	96/117,7/117
CT-020-048-12-0	2 x 240	120	200	96/117,7/125
CT-020-048-24-0	2 x 240	24	200	96/117,7/125
CT-020-060-12-0	600	120	200	96/117,7/125
CT-020-060-24-0	600	24	200	96/117,7/125
CT-025-048-12-0	2 x 240	120	250	96/117,7/123
CT-025-048-24-0	2 x 240	24	250	96/117,7/123
CT-025-060-12-0	600	120	250	96/117,7/123
CT-025-060-24-0	600	24	250	96/117,7/123
CT-030-048-12-0	2 x 240	120	300	120/137,7/121
CT-030-048-24-0	2 x 240	24	300	120/137,7/121
CT-030-060-12-0	600	120	300	120/137,7/121
CT-030-060-24-0	600	24	300	120/137,7/121
CT-035-048-12-0	2 x 240	120	350	120/137,7/127
CT-035-048-24-0	2 x 240	24	350	120/137,7/127
CT-035-060-12-0	600	120	350	120/137,7/127
CT-035-060-24-0	600	24	350	120/137,7/127
CT-050-048-12-0	2 x 240	120	500	120/137,7/137
CT-050-060-12-0	600	120	500	120/137,7/137
CT-075-048-12-0	2 x 240	120	750	150/162,7/132
CT-075-060-12-0	600	120	750	150/162,7/132
CT-100-048-12-0	2 x 240	120	1,000	174/183,2/122
CT-100-060-12-0	600	120	1,000	174/183,2/122
CT-150-048-12-0	2 x 240	120	1,500	192/198,2/130
CT-200-048-12-0	2 x 240	120	2,000	192/202,4/162,1

AUTOTRANSFORMER JET



BENEFITS

- › Integrated short-circuit and overload protection
- › Very high efficiency
- › Very good moisture protection and low noise thanks to XtraDenseFill resin encapsulation
- › Carrying handle, mains connecting lead NEMA5-15 (USA) and socket for portable application

APPLICATIONS

- › Autotransformer for portable application for the adjustment of the voltage in 110 Vac networks to 230 Vac equipment when no electrical isolation is required.

TECHNICAL DATA

- › Rated input voltage 110 Vac
- › Rated output voltage 230 Vac
- › Rated power 1,000 VA
- › Insulation class A
- › Maximum ambient temperature 40 °C
- › Efficiency up to 96 %
- › Degree of protection IP 22

AUTOTRANSFORMER E-JET



BENEFITS

- › Electronic potential monitoring by not connecting the output voltage until the protected contact plug is inserted correctly
- › Integrated short-circuit and overload protection
- › Very high efficiency
- › Very good moisture protection and low noise thanks to XtraDenseFill resin encapsulation
- › Carry handle, mains cable with safety plug, socket NEMA5-15 (USA) for portable application

APPLICATIONS

- › Autotransformer for portable application for the adjustment of the voltage in 230 V networks to 110 V equipment when no electrical isolation is required.

TECHNICAL DATA

- › Rated input voltage 230 Vac
- › Rated output voltage 110 Vac
- › Rated power 1,000 VA
- › Insulation class A
- › Maximum ambient temperature 40 °C
- › Efficiency up to 96 %
- › Degree of protection IP 22

Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Width/Height/Depth in mm
JET 1000	110	230	1.000	143/197/244

Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Width/Height/Depth in mm
E-JET 1000	230	110	1.000	143/197/244

AUTOTRANSFORMER

AT3



BENEFITS

- Reverse mode possible
- Very high efficiency
- Patented assembly technology to lower heat losses
- Very good corrosion protection and low noise thanks to BLOCK IMPEX vacuum impregnation
- Fixed, contact protected screw connection terminals complying with UVV BGV A3
- Multifunctional fixing rails with 12 oval slots
- Enlarged fixing rail for easy installation from above
- Integrated crane eyes

TECHNICAL DATA

- Rated input voltage
3 x 200/208 - 3 x 690 Vac
- Rated output voltage 3 x 400 Vac
- Rated power 2,000 - 70,000 VA
- Insulation class F
- Maximum ambient temperature 40 °C
- Efficiency up to 98 %
- Degree of protection IP 00
- Adapted enclosures for higher degrees of protection available as an option

APPLICATIONS

- Autotransformer for adjustment of the voltage on the input and output sides with no requirement for electrical isolation.

Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Width/Height/Depth in mm
AT3 2-20/21-4	3 x 200/208	3 x 400	2.000	219/176/127
AT3 2-22/23-4	3 x 220/230	3 x 400	2.000	219/176/127
AT3 2-44/46-4	3 x 440/460	3 x 400	2.000	155/151/95
AT3 2-48/50-4	3 x 480/500	3 x 400	2.000	155/151/110
AT3 2-58/60-4	3 x 575/600	3 x 400	2.000	219/176/107
AT3 2-69-4	3 x 600/690	3 x 400	2.000	220/175/155
AT3 3,5-20/21-4	3 x 200/208	3 x 400	3.500	267/216/146
AT3 3,5-22/23-4	3 x 220/230	3 x 400	3.500	267/216/146
AT3 3,5-24/35-4	3 x 240/346	3 x 400	3.500	267/216/122
AT3 3,5-38/42-4	3 x 380/415	3 x 400	3.500	155/151/95
AT3 3,5-44/46-4	3 x 440/460	3 x 400	3.500	155/151/110
AT3 3,5-48/50-4	3 x 480/500	3 x 400	3.500	219/176/117
AT3 3,5-58/60-4	3 x 575/600	3 x 400	3.500	267/216/122
AT3 3,5-69-4	3 x 600/690	3 x 400	3.500	267/216/122
AT3 10-20/21-4	3 x 200/208	3 x 400	10.000	352/281/191
AT3 10-22/23-4	3 x 220/230	3 x 400	10.000	352/281/191
AT3 10-38/42-4	3 x 380/415	3 x 400	10.000	219/176/107
AT3 10-44/46-4	3 x 440/460	3 x 400	10.000	267/216/122
AT3 10-48/50-4	3 x 480/500	3 x 400	10.000	267/216/146
AT3 10-58/60-4	3 x 575/600	3 x 400	10.000	316/246/166
AT3 10-69-4	3 x 600/690	3 x 400	10.000	352/278/162
AT3 15-20/21-4	3 x 200/208	3 x 400	15.000	412/372/170
AT3 15-22/23-4	3 x 220/230	3 x 400	15.000	412/345/187
AT3 15-24/35-4	3 x 240/346	3 x 400	15.000	412/345/172
AT3 15-38/42-4	3 x 380/415	3 x 400	15.000	219/176/127
AT3 15-44/46-4	3 x 440/460	3 x 400	15.000	267/216/146
AT3 15-48/50-4	3 x 480/500	3 x 400	15.000	315/250/165
AT3 15-58/60-4	3 x 575/600	3 x 400	15.000	352/278/174
AT3 25-20/21-4	3 x 200/208	3 x 400	25.000	480/440/198
AT3 25-22/23-4	3 x 220/230	3 x 400	25.000	480/440/198
AT3 25-44/46-4	3 x 440/460	3 x 400	25.000	316/249/183
AT3 25-48/50-4	3 x 480/500	3 x 400	25.000	352/281/191
AT3 25-58/60-4	3 x 575/600	3 x 400	25.000	480/397/181
AT3 45-20/21-4	3 x 200/208	3 x 400	45.000	552/494/272
AT3 45-22/23-4	3 x 220/230	3 x 400	45.000	552/494/242
AT3 45-44/46-4	3 x 440/460	3 x 400	45.000	412/382/155
AT3 45-48/50-4	3 x 480/500	3 x 400	45.000	480/430/173
AT3 70-44/46-4	3 x 440/460	3 x 400	70.000	480/440/173
AT3 70-48/50-4	3 x 480/500	3 x 400	70.000	552/477/215

UNIVERSAL CONTROL- AND ISOLATING TRANSFORMER

TT1



Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Width/Height/Depth in mm
TT1 1-4-23	219/230/241	2 x 115	1.000	156/219/124
TT1 1,6-4-23	380/400/420	2 x 115	1.600	160/227/141
TT1 1,6-4-42	380/400/420	42	1.600	160/256/157
TT1 2-23-24	219/230/241	24	2.000	174/244/140
TT1 2-4-23	380/400/420	2 x 115	2.000	174/244/140
TT1 2,5-4-23	380/400/420	2 x 115	2.500	197/274/152
TT1 2,5-4-42	380/400/420	2 x 115	2.500	197/306/164
TT1 3-4-23	380/400/420	2 x 115	3.000	197/275/165
TT1 3-44-23	418/440/462	2 x 115	3.000	197/275/165
TT1 3-5-23	475/500/525	2 x 115	3.000	197/275/165
TT1 4-4-23	380/400/420	2 x 115	4.000	240/331/163
TT1 4-44-23	420/440/460	2 x 115	4.000	240/331/163
TT1 4-5-23	475/500/525	2 x 115	4.000	240/331/163
TT1 5-4-23	380/400/420	2 x 115	5.000	240/331/194
TT1 5-44-23	420/440/460	2 x 115	5.000	240/331/194
TT1 5-5-23	475/500/525	2 x 115	5.000	240/331/194
TT1 6,3-4-23	380/400/420	2 x 115	6.300	240/331/209
TT1 6,3-44-23	420/440/460	2 x 115	6.300	240/331/209
TT1 6,3-5-23	475/500/525	2 x 115	6.300	240/331/209
TT1 8-4-23	380/400/420	2 x 115	8.000	280/382/214
TT1 8-44-23	420/440/460	2 x 115	8.000	280/382/214
TT1 8-5-23	475/500/525	2 x 115	8.000	280/382/214
TT1 10-4-23	380/400/420	2 x 115	10.000	280/382/229
TT1 10-44-23	420/440/460	2 x 115	10.000	280/382/229
TT1 10-5-23	475/500/525	2 x 115	10.000	280/382/229
TT1 12,5-4-23	380/400/420	2 x 115	12.500	320/458/250
TT1 15-4-23	380/400/420	2 x 115	15.000	320/463/250
TT1 25-4-23	380/400/420	2 x 115	25.000	320/487/324

BENEFITS

- › Safe galvanic isolation
- › Patented assembly technology
- › Very good corrosion protection and low noise thanks to BLOCK IMPEX vacuum impregnation
- › Primary side $\pm 5\%$ tapplings for voltage adjustment
- › Fixed, contact protected screw connection terminals complying with UVV BGV A3
- › Multifunctional fixing rail with 8 oval slots
- › Space saving, thanks to horizontal design
- › Integrated crane eyes
- › Non-slip terminals

TECHNICAL DATA

- › Rated input voltage 230, 400, 440, 500 Vac $\pm 5\%$
- › Rated output voltage 24, 42, 2 x 115 Vac
- › Rated power 1,000 - 25,000 VA
- › Insulation class F
- › Maximum ambient temperature 40 °C
- › Efficiency up to 98 %
- › Degree of protection IP 00
- › Adapted enclosures for higher degrees of protection available as an option

APPLICATIONS

- › As a control transformer for the electrical isolation of the input and output sides.
- › Isolating transformer for the safe electrical isolation of the input and output sides.
- › As a safety isolating transformer for the safe electrical isolation of the input and output sides.

ISOLATING TRANSFORMER TT3



BENEFITS

- Safe galvanic isolation
- Patented assembly technology to lower heat losses
- Very good corrosion protection and low noise thanks to BLOCK IMPEX vacuum impregnation
- Secondary side $\pm 5\%$ tapplings for voltage adjustment
- Fixed, contact protected screw connection terminals complying with UVV BGV A3
- Multifunctional fixing rails with 12 oval slots
- Enlarged fixing rail for easy installation from above
- Integrated crane eyes

TECHNICAL DATA

- Rated input voltage 3 x 400 Vac or 3 x 800 Vac
- Rated output voltage 3 x 400 Vac $\pm 5\%$
- Rated power 1,000 - 30,000 VA
- Insulation class F
- Maximum ambient temperature 50 °C
- Efficiency up to 97.5 %
- Degree of protection IP 00
- Adapted enclosures for higher degrees of protection available as an option

APPLICATIONS

- Isolating transformer for the safe electrical isolation of the input and output sides.

Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Width/Height/Depth in mm
TT3 1-4-4	3 x 400	3 x 400	1.000	267/216/122
TT3 2,5-4-4	3 x 400	3 x 400	2.500	316/246/166
TT3 2,5-8-4	3 x 800	3 x 400	2.500	315/250/165
TT3 5-4-4	3 x 400	3 x 400	5.000	412/340/155
TT3 6,3-4-4	3 x 400	3 x 400	6.300	412/344/172
TT3 6,3-8-4	3 x 800	3 x 400	6.300	412/340/155
TT3 8-4-4	3 x 400	3 x 400	8.000	412/344/187
TT3 10-4-4	3 x 400	3 x 400	10.000	480/397/191
TT3 12,5-4-4	3 x 400	3 x 400	12.500	480/397/221
TT3 16-4-4	3 x 400	3 x 400	16.000	552/452/242
TT3 20-4-4	3 x 400	3 x 400	20.000	552/452/272
TT3 25-4-4	3 x 400	3 x 400	25.000	552/452/272
TT3 30-4-4	3 x 400	3 x 400	30.000	552/470/302

METAL ENCLOSURES BGE



BENEFITS

- Variable foot angle for easy installation
- Excellent corrosion protection and high abrasion resistance through powder-coated surface RAL 5008
- With cooling fins for optimal heat extraction

TECHNICAL DATA

- Degree of protection IP 23
- For floor mounting
- Not to be used as empty enclosure!

APPLICATIONS

- Universal metal enclosure for degree of protection IP23.

Product Name Order No.	Protection type	Width/Height/Depth in mm
BGE-050	IP 23	480/444/410
BGE-065	IP 23	630/579/435
BGE-070	IP 23	680/635/520
BGE-080	IP 23	780/703/655
BGE-085	IP 23	860/814/710
BGE-095	IP 23	950/964/810
BGE-115	IP 23	1150/1070/920
BGE-130	IP 23	1310/1225/1040
BGE-150	IP 23	1490/1325/1040

Find suitable enclosures at block.eu.

METAL ENCLOSURES BGUK



BENEFITS

- › Integrated rail system for the installation of different product sizes (BGUK 30 - BGUK 60)
- › Excellent corrosion protection and high abrasion resistance through powder-coated surface RAL 5008
- › Ventilation openings for optimized cooling
- › Integrated crane eyes

APPLICATIONS

- › Universal metal enclosure with ventilation openings for degree of protection IP20/IP23.

TECHNICAL DATA

- › Degree of protection IP 20 - IP 23
- › For wall mounting (BGUK 1 - BGUK 3)
- › For wall and floor mounting (BGUK 10 - BGUK 60)

Product Name Order No.	Protection type	Width/Height/Depth in mm
BGUK 1	IP 20	140/150/130
BGUK 2	IP 20	190/200/170
BGUK 3	IP 20	230/250/210
BGUK 10	IP 23	320/250/195
BGUK 20	IP 23	420/322/230
BGUK 30	IP 23	470/423/265
BGUK 40	IP 23	580/472/325
BGUK 50	IP 23	700/572/420
BGUK 60	IP 23	950/744/570

METAL ENCLOSURES BG



BENEFITS

- › Excellent corrosion protection and high abrasion resistance through powder-coated surface RAL 5008/9006
- › With cooling fins for optimal heat extraction
- › Optionally available in degree of protection IP 54

APPLICATIONS

- › Universal metal enclosure for degree of protection IP23.

TECHNICAL DATA

- › Degree of protection IP 23
- › For floor mounting

Product Name Order No.	Protection type	Width/Height/Depth in mm
BG 240	IP 23	798/699/620
BG 270	IP 23	858/809/690
BG 300	IP 23	940/898/792
BG 450	IP 23	1260/1141/991

TOROIDAL SAFETY ISOLATING AND ISOLATING TRANSFORMER RKD



BENEFITS

- Minimum size at high power
- Low weight
- Dual input and dual output voltage for series or parallel connection
- Minimal no-load losses
- Outstanding temperature behaviour thanks to low magnetic leakage field
- Very low noise field

TECHNICAL DATA

- Rated input voltage 2 x 115 Vac
- Rated output voltage 2 x 6 - 2 x 115 Vac
- Power 15 - 3,000 VA
- Insulation class B
- Maximum ambient temperature 40 °C
- Efficiency up to 98 %
- Degree of protection IP 00

APPLICATIONS

- *As a mains transformer for adjustment of the voltage and simple electrical isolation.
- **As an isolating transformer for the safe electrical isolation of the input and output sides.
- As a safety isolating transformer for the safe electrical isolation of the input and output sides.

Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Diameter in mm
RKD 40/2x6	2 x 115	2 x 6	40	74
RKD 40/2x9	2 x 115	2 x 9	40	74
RKD 40/2x12	2 x 115	2 x 12	40	74
RKD 40/2x15	2 x 115	2 x 15	40	74
RKD 40/2x18	2 x 115	2 x 18	40	74
RKD 40/2x24*	2 x 115	2 x 24	40	74
RKD 50/2x12	2 x 115	2 x 12	50	77
RKD 50/2x18	2 x 115	2 x 18	50	77
RKD 50/2x24**	2 x 115	2 x 24	50	77
RKD 60/2x6	2 x 115	2 x 6	60	80
RKD 60/2x9	2 x 115	2 x 9	60	80
RKD 60/2x12	2 x 115	2 x 12	60	80
RKD 60/2x15	2 x 115	2 x 15	60	80
RKD 60/2x18	2 x 115	2 x 18	60	80
RKD 60/2x24**	2 x 115	2 x 24	60	80
RKD 60/2x30**	2 x 115	2 x 30	60	80
RKD 80/2x12	2 x 115	2 x 12	80	88
RKD 80/2x15	2 x 115	2 x 15	80	88
RKD 80/2x18	2 x 115	2 x 18	80	88
RKD 80/2x24**	2 x 115	2 x 24	80	88
RKD 100/2x9	2 x 115	2 x 9	100	92
RKD 100/2x12	2 x 115	2 x 12	100	92
RKD 100/2x15	2 x 115	2 x 15	100	92
RKD 100/2x18	2 x 115	2 x 18	100	92
RKD 100/2x24**	2 x 115	2 x 24	100	92
RKD 100/2x30**	2 x 115	2 x 30	100	92
RKD 120/2x9	2 x 115	2 x 9	120	94
RKD 120/2x12	2 x 115	2 x 12	120	94
RKD 120/2x15	2 x 115	2 x 15	120	94
RKD 120/2x18	2 x 115	2 x 18	120	94
RKD 120/2x24**	2 x 115	2 x 24	120	94
RKD 120/2x30**	2 x 115	2 x 30	120	94
RKD 160/2x12	2 x 115	2 x 12	160	105
RKD 160/2x15	2 x 115	2 x 15	160	105
RKD 160/2x18	2 x 115	2 x 18	160	105
RKD 160/2x24**	2 x 115	2 x 24	160	105
RKD 160/2x30**	2 x 115	2 x 30	160	105
RKD 160/2x35	2 x 115	2 x 35	160	105
RKD 200/2x12	2 x 115	2 x 12	200	113
RKD 200/2x15	2 x 115	2 x 15	200	113
RKD 200/2x18	2 x 115	2 x 18	200	113
RKD 200/2x24**	2 x 115	2 x 24	200	113
RKD 225/2x12	2 x 115	2 x 12	225	115
RKD 225/2x15	2 x 115	2 x 15	225	115
RKD 225/2x24**	2 x 115	2 x 24	225	115
RKD 225/2x30**	2 x 115	2 x 30	225	115
RKD 250/2x12	2 x 115	2 x 12	250	114
RKD 250/2x18	2 x 115	2 x 18	250	114
RKD 250/2x24**	2 x 115	2 x 24	250	114
RKD 250/2x30**	2 x 115	2 x 30	250	114
RKD 300/2x12	2 x 115	2 x 12	300	122
RKD 300/2x18	2 x 115	2 x 18	300	122
RKD 300/2x24**	2 x 115	2 x 24	300	126
RKD 330/2x18	2 x 115	2 x 18	330	124
RKD 400/2x18	2 x 115	2 x 18	400	128
RKD 400/2x24**	2 x 115	2 x 24	400	128
RKD 400/2x30**	2 x 115	2 x 30	400	128
RKD 500/2x24**	2 x 115	2 x 24	500	140
RKD 500/2x30**	2 x 115	2 x 30	500	140
RKD 500/2x35**	2 x 115	2 x 35	500	140
RKD 625/2x30**	2 x 115	2 x 30	625	152
RKD 625/2x115**	2 x 115	2 x 115	625	152
RKD 800/2x40**	2 x 115	2 x 40	800	170
RKD 800/2x115**	2 x 115	2 x 115	800	170
RKD 1000/2x50**	2 x 115	2 x 50	1.000	168
RKD 1000/2x115**	2 x 115	2 x 115	1.000	168
RKD 1200/2x115**	2 x 115	2 x 115	1.200	167
RKD 1600/2x115**	2 x 115	2 x 115	1.600	202
RKD 2000/2x115**	2 x 115	2 x 115	2.000	203
RKD 3000/2x115**	2 x 115	2 x 115	3.000	216

OVERVIEW

PCB TRANSFORMERS

Discover our entire
standard range here



Type	Rated input voltage	Rated output voltage	Power	Short-circuit proof	Ambient temperature ta 70 °C, Cl.B	Double input voltage	With fixing points	Potting compound with mounting holes
VB	230 Vac	6 - 48 Vac	0,35 - 3,2 VA	•	•			
AVB	2 x 115 Vac	6 - 48 Vac	0,35 - 3,2 VA	•	•	•		
VC	230 Vac	6 - 48 Vac	3,2 - 16 VA					
PT	230 Vac	8 - 36 Vac	4,5 - 22 VA	•				•
FL	2 x 115 Vac	2 x 6 - 2 x 24 Vac	2 - 52 VA			•	•	



SHORT-CIRCUIT PROOF PCB TRANSFORMER VB



The color of the product may vary.

BENEFITS

- Minimum size at high output
- Inherently short-circuit proof
- Also with dual output voltage for series or parallel connection
- Designed for high ambient temperatures
- Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation
- Self-extinguishing potting material

TECHNICAL DATA

- Rated input voltage 230 Vac
- Rated output voltage 6 - 2 x 18 Vac
- Rated power 0.35 - 3.2 VA
- Insulation class B
- Efficiency up to 58 %
- Degree of protection IP 00

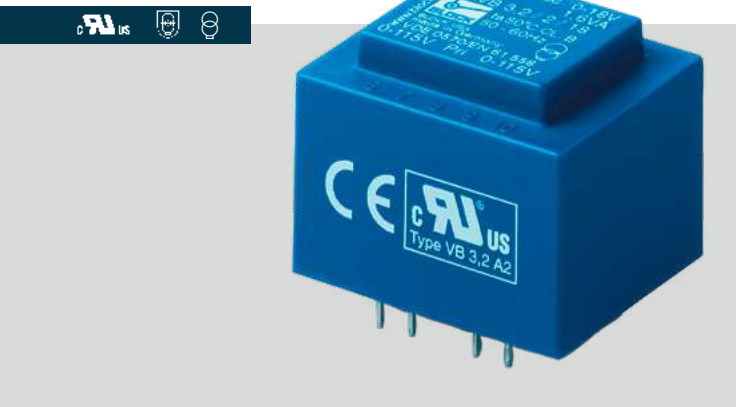
APPLICATIONS

- *As a mains transformer for adjustment of the voltage and simple electrical isolation.
- As a safety isolating transformer for the safe electrical isolation of the input and output sides.

Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Width/Height/Depth in mm (typ.)
VB 0,35/1/6	230	6	0,35	22,70/15/22
VB 0,35/1/9	230	9	0,35	22,70/15/22
VB 0,35/1/12	230	12	0,35	22,70/15/22
VB 0,35/1/15	230	15	0,35	22,70/15/22
VB 0,35/1/18	230	18	0,35	22,70/15/22
VB 0,35/2/6	230	2 x 6	0,35	22,70/15/22
VB 0,35/2/9	230	2 x 9	0,35	22,70/15/22
VB 0,35/2/12	230	2 x 12	0,35	22,70/15/22
VB 0,35/2/15*	230	2 x 15	0,35	22,70/15/22
VB 0,5/1/6	230	6	0,5	22,70/19/22
VB 0,5/1/9	230	9	0,5	22,70/19/22
VB 0,5/1/12	230	12	0,5	22,70/19/22
VB 0,5/1/15	230	15	0,5	22,70/19/22
VB 0,5/1/18	230	18	0,5	22,70/19/22
VB 0,5/2/6	230	2 x 6	0,5	22,70/19/22
VB 0,5/2/9	230	2 x 9	0,5	22,70/19/22

Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Width/Height/Depth in mm (typ.)
VB 0,5/2/12	230	2 x 12	0,5	22,70/19/22
VB 0,5/2/15*	230	2 x 15	0,5	22,70/19/22
VB 1,0/1/6	230	6	1	27,30/21,80/32,3
VB 1,0/1/9	230	9	1	27,30/21,80/32,3
VB 1,0/1/12	230	12	1	27,30/21,80/32,3
VB 1,0/1/15	230	15	1	27,30/21,80/32,3
VB 1,0/1/18	230	18	1	27,30/21,80/32,3
VB 1,0/1/24	230	24	1	27,30/21,80/32,3
VB 1,0/2/6	230	6	1	27,30/21,80/32,3
VB 1,0/2/9	230	9	1	27,30/21,80/32,3
VB 1,0/2/12	230	2 x 12	1	27,30/21,80/32,3
VB 1,0/2/15	230	2 x 15	1	27,30/21,80/32,3
VB 1,5/1/6	230	6	1,5	27,30/23,80/32,3
VB 1,5/1/9	230	9	1,5	27,30/23,80/32,3
VB 1,5/1/12	230	12	1,5	27,30/23,80/32,3
VB 1,5/1/15	230	15	1,5	27,30/23,80/32,3
VB 1,5/1/18	230	18	1,5	27,30/23,80/32,3
VB 1,5/1/24	230	24	1,5	27,30/23,80/32,3
VB 1,5/2/6	230	2 x 6	1,5	27,30/23,80/32,3
VB 1,5/2/9	230	2 x 9	1,5	27,30/23,80/32,2
VB 1,5/2/12	230	2 x 12	1,5	27,30/23,80/32,3
VB 1,5/2/15	230	2 x 15	1,5	27,30/23,80/32,2
VB 2,0/1/6	230	6	2	27,30/26,80/32,3
VB 2,0/1/9	230	9	2	27,30/26,80/32,3
VB 2,0/1/12	230	12	2	27,30/26,80/32,3
VB 2,0/1/15	230	15	2	27,30/26,80/32,3
VB 2,0/1/18	230	18	2	27,30/26,80/31,8
VB 2,0/1/24	230	24	2	27,30/26,80/32,3
VB 2,0/2/6	230	2 x 6	2	27,30/26,80/32,2
VB 2,0/2/9	230	2 x 9	2	27,30/26,80/32,2
VB 2,0/2/12	230	2 x 12	2	27,30/26,80/32,2
VB 2,0/2/15	230	2 x 15	2	27,30/26,80/32,2
VB 2,3/1/6	230	6	2,3	27,30/29/32,3
VB 2,3/1/9	230	9	2,3	27,30/29/32,3
VB 2,3/1/12	230	12	2,3	27,30/29/32,3
VB 2,3/1/15	230	15	2,3	27,30/29/32,3
VB 2,3/1/18	230	18	2,3	27,30/29/32,3
VB 2,3/1/24	230	24	2,3	27,30/29/32,3
VB 2,3/2/6	230	2 x 6	2,3	27,30/29/32,3
VB 2,3/2/9	230	2 x 9	2,3	27,30/29/32,3
VB 2,3/2/12	230	2 x 12	2,3	27,30/29/32,3
VB 2,3/2/15*	230	2 x 15	2,3	27,30/29/32,3
VB 2,8/1/6	230	6	2,8	27,30/34/32,3
VB 2,8/1/9	230	9	2,8	27,30/34/32,3
VB 2,8/1/12	230	12	2,8	27,30/34/32,3
VB 2,8/1/15	230	15	2,8	27,30/34/32,3
VB 2,8/1/18	230	18	2,8	27,30/34/32,3
VB 2,8/1/24	230	24	2,8	27,30/34/32,3
VB 2,8/2/6	230	2 x 6	2,8	27,30/34/32,3
VB 2,8/2/9	230	2 x 9	2,8	27,30/34/32,3
VB 2,8/2/12	230	2 x 12	2,8	27,30/34/32,3
VB 2,8/2/15*	230	2 x 15	2,8	32,30/34/27,3
VB 2,8/2/18*	230	2 x 18	2,8	27,30/34/32,3
VB 3,2/1/6	230	6	3,2	35/30,80/41
VB 3,2/1/9	230	9	3,2	35/30,80/41
VB 3,2/1/12	230	12	3,2	35/30,80/41
VB 3,2/1/15	230	15	3,2	35/30,80/41
VB 3,2/1/18	230	18	3,2	35/30,80/41
VB 3,2/1/24	230	24	3,2	35/30,80/41
VB 3,2/2/6	230	2 x 6	3,2	35/30,80/41
VB 3,2/2/9	230	2 x 9	3,2	35/30,80/41
VB 3,2/2/12	230	2 x 12	3,2	35/30,80/41
VB 3,2/2/15*	230	2 x 15	3,2	35/30,80/41
VB 3,2/2/18*	230	2 x 18	3,2	35/30,80/41

SHORT-CIRCUIT PROOF PCB TRANSFORMER AVB



Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Width/Height/Depth in mm
AVB 0,35/2/6	2 x 115	2 x 6	0,35	22,70/15/22
AVB 0,35/2/12	2 x 115	2 x 12	0,35	22,70/15/22
AVB 0,35/2/15	2 x 115	2 x 15	0,35	22,70/15/22
AVB 0,5/2/6	2 x 115	2 x 6	0,5	22,70/19/22
AVB 0,5/2/9	2 x 115	2 x 9	0,5	22,70/19/22
AVB 1,0/2/9	2 x 115	2 x 9	1	27,30/21,80/32,3
AVB 1,0/2/12	2 x 115	2 x 12	1	27,30/21,80/32,3
AVB 1,0/2/18	2 x 115	2 x 18	1	27,30/21,80/32,3
AVB 1,5/2/6	2 x 115	2 x 6	1,5	27,30/23,80/32,3
AVB 1,5/2/8	2 x 115	2 x 8	1,5	27,30/23,80/32,3
AVB 1,5/2/9	2 x 115	2 x 9	1,5	27,30/23,80/32,3
AVB 1,5/2/12	2 x 115	2 x 12	1,5	27,30/23,80/32,3
AVB 1,5/2/15	2 x 115	2 x 15	1,5	27,30/23,80/32,3
AVB 1,5/2/18*	2 x 115	2 x 18	1,5	27,30/23,80/32,3
AVB 1,5/2/24	2 x 115	2 x 24	1,5	27,30/23,80/32,3
AVB 2,3/2/6	2 x 115	2 x 6	2,3	27,30/29/32,3
AVB 2,3/2/9	2 x 115	2 x 9	2,3	27,30/29/32,3
AVB 2,3/2/12	2 x 115	2 x 12	2,3	27,30/29/32,3
AVB 2,3/2/15	2 x 115	2 x 15	2,3	27,30/29/32,3
AVB 2,3/2/18	2 x 115	2 x 18	2,3	27,30/29/32,3
AVB 2,3/2/24*	2 x 115	2 x 24	2,3	27,30/29/32,3
AVB 3,2/2/6	2 x 115	2 x 6	3,2	35/30,80/41
AVB 3,2/2/9	2 x 115	2 x 9	3,2	35/30,80/41
AVB 3,2/2/12	2 x 115	2 x 12	3,2	35/30,80/41

BENEFITS

- › Minimum size at high output
- › Inherently short-circuit proof
- › Dual input voltage for series or parallel connection
- › Dual output voltage for series or parallel connection
- › Designed for high ambient temperatures
- › Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation
- › Self-extinguishing potting and hood material

TECHNICAL DATA

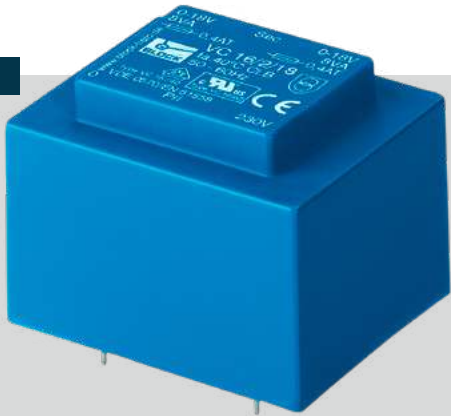
- › Rated input voltage 2 x 115 Vac
- › Rated output voltage 6 - 2 x 24 Vac
- › Rated power 0.35 - 3.2 VA
- › Insulation class B
- › Maximum ambient temperature 70 °C (AVB 3,2 max. 50 °C)
- › Efficiency up to 59 %
- › Degree of protection IP 00

APPLICATIONS

- › *As a mains transformer for adjustment of the voltage and simple electrical isolation.
As a safety isolating transformer for the safe electrical isolation of the input and output sides.

PCB TRANSFORMER

VC



BENEFITS

- Minimum size at high output
- Also with dual output voltage for series or parallel connection
- Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation
- Self-extinguishing potting material

TECHNICAL DATA

- Rated input voltage 230 Vac
- Rated output voltage 6 - 2 x 24 Vac
- Rated power 3.2 - 16 VA
- Insulation class B
- Maximum ambient temperature 40 - 60 °C
- Efficiency up to 76 %
- Degree of protection IP 00

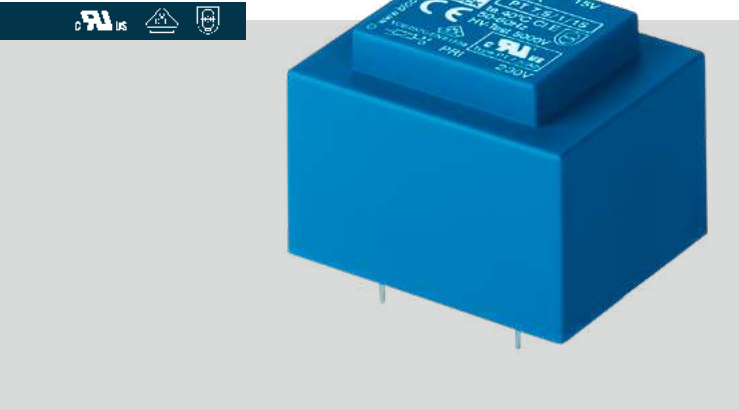
APPLICATIONS

- *As a mains transformer for adjustment of the voltage and simple electrical isolation.
- As a safety isolating transformer for the safe electrical isolation of the input and output sides.

Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Width/Height/Depth in mm
VC 3,2/1/9	230	9	3,2	41/28,10/35
VC 3,2/1/12	230	12	3,2	41/28,10/35
VC 3,2/1/15	230	15	3,2	41/28,10/35
VC 3,2/2/12	230	2 x 12	3,2	41/28,10/35
VC 3,2/2/18	230	2 x 18	3,2	41/28,10/35
VC 5,0/1/6	230	6	5	37/33/44
VC 5,0/1/9	230	9	5	37/33/44
VC 5,0/1/12	230	12	5	37/33/44
VC 5,0/1/15	230	15	5	37/33/44
VC 5,0/1/18	230	18	5	37/33/44
VC 5,0/1/24	230	24	5	37/33/44
VC 5,0/2/6	230	2 x 6	5	37/33/44
VC 5,0/2/8	230	2 x 8	5	37/33/44
VC 5,0/2/9	230	2 x 9	5	37/33/44
VC 5,0/2/12	230	2 x 12	5	37/33/44
VC 5,0/2/15	230	2 x 15	5	37/33/44
VC 5,0/2/18	230	2 x 18	5	37/33/44
VC 5,0/2/24*	230	2 x 24	5	37/33/44
VC 10/1/6	230	6	10	43/34,60/51
VC 10/1/9	230	9	10	43/34,60/51
VC 10/1/12	230	12	10	43/34,60/51
VC 10/1/15	230	15	10	43/34,60/51
VC 10/1/18	230	18	10	43/34,60/51
VC 10/1/24	230	24	10	43/34,60/51
VC 10/2/6	230	2 x 6	10	43/34,60/51
VC 10/2/9	230	2 x 9	10	43/34,60/51
VC 10/2/12	230	2 x 12	10	43/34,60/51
VC 10/2/15	230	2 x 15	10	43/34,60/51
VC 10/2/18	230	2 x 18	10	43/34,60/51
VC 16/1/12	230	12	16	48/39/57
VC 16/1/15	230	15	16	48/39/57
VC 16/1/18	230	18	16	48/39/57
VC 16/1/24	230	24	16	48/39/57
VC 16/2/6	230	2 x 6	16	48/44/57
VC 16/2/9	230	2 x 9	16	48/44/57
VC 16/2/15	230	2 x 15	16	48/44/57
VC 16/2/18	230	2 x 18	16	48/44/57
VC 16/2/12	230	2 x 12	16	48/44/57



SHORT-CIRCUIT PROOF PCB TRANSFORMER PT



Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Width/Height/Depth in mm
PT 4,5/1/8	230	8	4,5	37/33/44
PT 4,5/1/9	230	9	4,5	37/33/44
PT 4,5/1/12	230	12	4,5	37/33/44
PT 4,5/1/15	230	15	4,5	37/33/44
PT 4,5/1/18	230	18	4,5	44/33/37
PT 4,5/2/9	230	2 x 9	4,5	44/33/37
PT 4,5/2/12	230	2 x 12	4,5	37/33/44
PT 4,5/2/15	230	2 x 15	4,5	44/33/37
PT 7,5/1/8	230	8	7,5	43/36/51
PT 7,5/1/12	230	12	7,5	43/36/51
PT 7,5/1/15	230	15	7,5	43/36/51
PT 7,5/2/6	230	2 x 6	7,5	51/36/43
PT 7,5/2/8	230	2 x 8	7,5	43/36/51
PT 7,5/2/9	230	2 x 9	7,5	43/36/51
PT 7,5/2/12	230	2 x 12	7,5	43/36/51
PT 7,5/2/15	230	2 x 15	7,5	43/36/51
PT 13/1/9	230	9	13	47/40/56
PT 13/1/12	230	12	13	47/40/56
PT 13/1/15	230	15	13	47/40/56
PT 13/1/24	230	24	13	47/40/56
PT 13/2/12	230	2 x 12	13	47/40/56
PT 13/2/15	230	2 x 15	13	47/40/56
PT 13/2/18	230	2 x 18	13	56/40/47
PT 22/1/8	230	8	22	54/46/64
PT 22/1/24	230	24	22	54/46/64
PT 22/2/9	230	2 x 9	22	54/46/64
PT 22/2/18	230	2 x 18	22	54/46/64

BENEFITS

- Minimum size at high output
- Integrated overload protection using PTC in the input
- Also with dual output voltage for series or parallel connection
- Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation
- Self-extinguishing potting material
- Space saving installation thanks to additional screw mounting in the base plate

TECHNICAL DATA

- Rated input voltage 230 Vac
- Rated output voltage 8 - 2 x 18 Vac
- Rated power 4.5 - 22 VA
- Insulation class E
- Maximum ambient temperature 40 °C
- Efficiency up to 83 %
- Degree of protection IP 00

APPLICATIONS

- Safety isolating transformer for the safe electrical isolation of the input and output sides.

LOW PROFILE TRANSFORMER

FL



BENEFITS

- Minimum size at high output
- Low height
- Double input voltage for series or parallel connection
- Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation
- Coil shell in 2-chamber technology
- Self-extinguishing potting material

TECHNICAL DATA

- Rated input voltage 2 x 115 Vac
- Rated output voltage 2 x 6 - 2 x 24 Vac
- Rated power 2 - 52 VA
- Insulation class E
- Maximum ambient temperature 40 °C
- Efficiency up to 78 %
- Degree of protection IP 00

APPLICATIONS

- *As a mains transformer for adjustment of the voltage and simple electrical isolation.
- **As an isolating transformer for the safe electrical isolation of the input and output sides.
- As a safety isolating transformer for the safe electrical isolation of the input and output sides.

Product Name Order No.	Input voltage Vac	Output voltage Vac	Power VA	Width/Height/Depth in mm
FL 2/6	2 x 115	2 x 6	2	44/17,60/53
FL 2/12	2 x 115	2 x 12	2	44/17,60/53
FL 4/6	2 x 115	2 x 6	4	44/20/53
FL 4/8	2 x 115	2 x 8	4	44/20/53
FL 4/9	2 x 115	2 x 9	4	44/20/53
FL 4/12	2 x 115	2 x 12	4	44/20/53
FL 4/15	2 x 115	2 x 15	4	44/20/53
FL 4/18	2 x 115	2 x 18	4	44/20/53
FL 4/24*	2 x 115	2 x 24	4	44/20/53
FL 6/6	2 x 115	2 x 6	6	44/22,80/53
FL 6/8	2 x 115	2 x 8	6	44/22,80/53
FL 6/9	2 x 115	2 x 9	6	44/22,80/53
FL 6/12	2 x 115	2 x 12	6	44/22,80/53
FL 6/15	2 x 115	2 x 15	6	44/22,80/53
FL 6/18	2 x 115	2 x 18	6	44/22,80/53
FL 8/6	2 x 115	2 x 6	8	44/29/53
FL 8/9	2 x 115	2 x 9	8	44/29/53
FL 8/12	2 x 115	2 x 12	8	44/29/53
FL 8/15	2 x 115	2 x 15	8	44/29/53
FL 8/18	2 x 115	2 x 18	8	44/29/53
FL 10/6	2 x 115	2 x 6	10	57/23/68
FL 10/8	2 x 115	2 x 8	10	57/23/68
FL 10/9	2 x 115	2 x 9	10	57/23/68
FL 10/12	2 x 115	2 x 12	10	57/23/68
FL 10/15	2 x 115	2 x 15	10	57/23/68
FL 10/18	2 x 115	2 x 18	10	57/23/68
FL 14/6	2 x 115	2 x 6	14	57/24,40/68
FL 14/9	2 x 115	2 x 9	14	57/24,40/68
FL 14/12	2 x 115	2 x 12	14	57/24,40/68
FL 14/15	2 x 115	2 x 15	14	57/24,40/68
FL 14/18	2 x 115	2 x 18	14	57/24,40/68
FL 18/6	2 x 115	2 x 6	18	57/27,80/68
FL 18/8	2 x 115	2 x 8	18	57/27,80/68
FL 18/9	2 x 115	2 x 9	18	57/27,80/68
FL 18/12	2 x 115	2 x 12	18	57/27,80/68
FL 18/15	2 x 115	2 x 15	18	57/27,80/68
FL 18/18	2 x 115	2 x 18	18	57/27,80/68
FL 24/6	2 x 115	2 x 6	24	57/31,40/68
FL 24/9	2 x 115	2 x 9	24	57/31,40/68
FL 24/12	2 x 115	2 x 12	24	57/31,40/68
FL 24/15	2 x 115	2 x 15	24	57/31,40/68
FL 24/18	2 x 115	2 x 18	24	57/31,40/68
FL 24/24*	2 x 115	2 x 24	24	57/31,40/68
FL 30/6	2 x 115	2 x 6	30	57/35,80/68
FL 30/9	2 x 115	2 x 9	30	57/35,80/68
FL 30/12	2 x 115	2 x 12	30	57/35,80/68
FL 30/15	2 x 115	2 x 15	30	57/35,80/68
FL 30/18	2 x 115	2 x 18	30	57/35,80/68
FL 30/24**	2 x 115	2 x 24	30	57/35,80/68
FL 42/9	2 x 115	2 x 9	42	70/39/83,5
FL 42/12	2 x 115	2 x 12	42	70/39/83,5
FL 42/15	2 x 115	2 x 15	42	70/39/83,5
FL 42/18	2 x 115	2 x 18	42	70/39/83,5
FL 52/9	2 x 115	2 x 9	52	70/49/86,5
FL 52/12	2 x 115	2 x 12	52	70/49/86,5
FL 52/15	2 x 115	2 x 15	52	70/49/86,5
FL 52/18	2 x 115	2 x 18	52	70/49/86,5

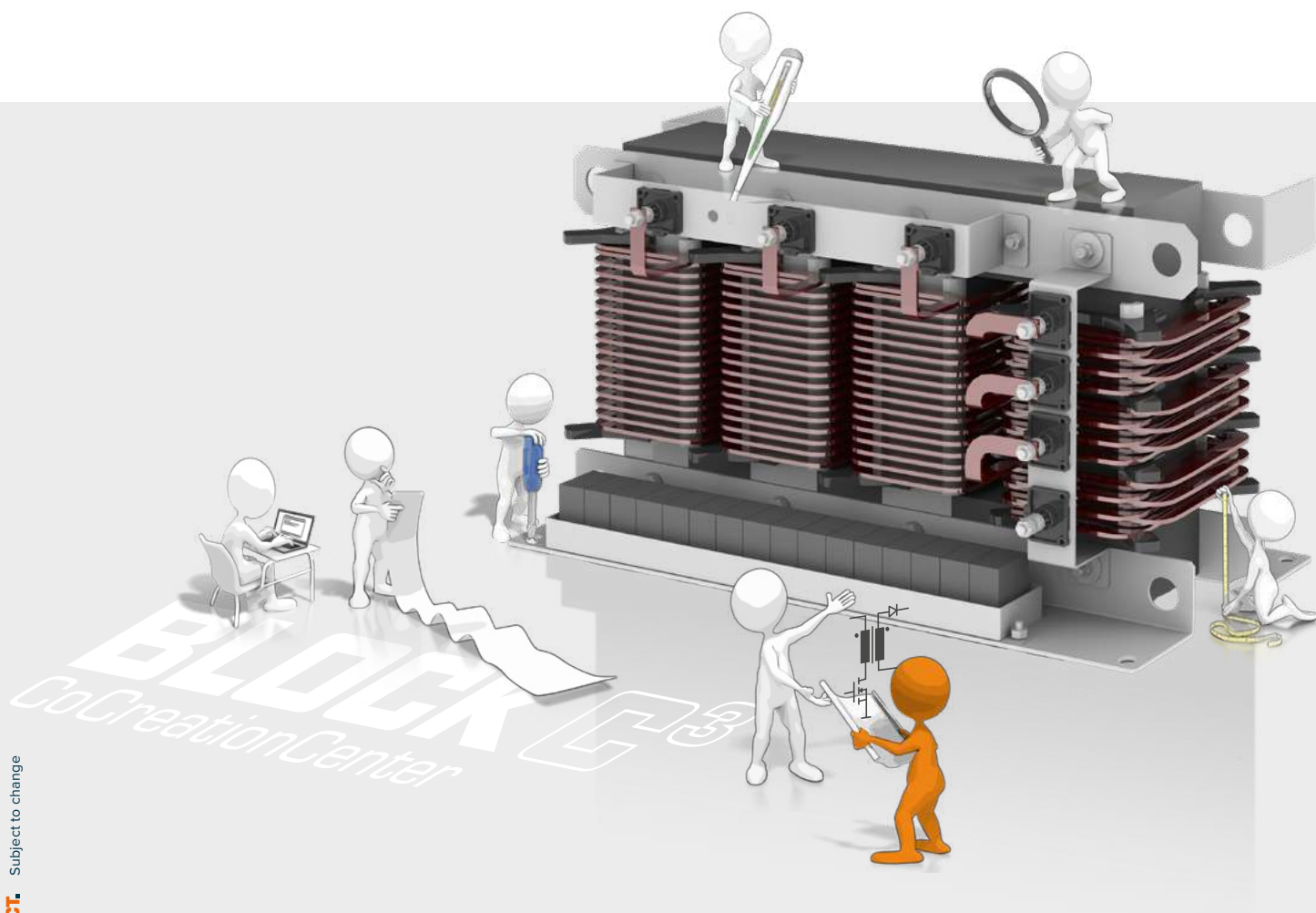
BLOCK CoCREATIONCenter

INTERDISCIPLINARY APPROACH TO MARKET-READY INDUCTIVE COMPONENTS

Setting up the BLOCK CoCreationCenter has significantly accelerated the development process for individual electrical components for medium and high-frequency inductive components.

SUCCESS IN BEST TIME

The BLOCK CoCreationCenter is an ideas workshop where interdisciplinary teams work hand in hand on customer-specific solutions in tried and tested processes. The aim is to expand on knowledge and innovation with respect to medium-frequency transformers and high-frequency inductive components and to enable a holistic approach toward carrying out research and development tasks. Interactions take place continuously with the customer during the entire development and testing process as well as during prototyping and through to serial production.



OUR SOLUTIONS TO BOOST YOUR SYSTEM EFFICIENCY

Our products are optimally adapted to the special requirements of railway technology. A sophisticated, internal testing system enables us to test products for the particular environmental conditions of railway applications and thus guarantee maximum reliability.

VARIETY OF PRODUCTS

Our product portfolio includes winding goods for auxiliary voltage converters or supplies with voltages up to 1500 V.

DOCUMENTATION

Our customized developments are accompanied by appropriate documentation. Our materials are qualified according to EN45545 and can be provided via UNIFE fire protection list if required.

QUALITY STANDARD

Our transformers and reactors set the highest standards in functionality and service life: qualified according to EN60310, meeting pollution degree 4 due to their particularly robust design and an extremely long service life.

STANDARDS AND FUNCTION TESTS

Our railway solutions undergo extensive in-house qualification in accordance with EN60310, including environmental simulations, heat measurements, water tests, and shock and vibration tests according to EN61373 (up to 350 kg).

Send us your specification for a quote to info@block.eu.

REACTOR*

Boost inductor with cooling channels for natural air cooling

Inductance: 230 μ H
Current DC: 70 A
Current AC: 110 A
Switching frequency: 5 kHz



REACTOR*

Three-phase sine filter reactor with cooling channels for natural air cooling

Inductance: 110 μ H
Current RMS: 100 A
Fundamental frequency: 50 Hz
Switching frequency: 7400 Hz



MF-TRANSFORMER*

Medium frequency transformer with uncut nanocrystalline core technology: significant noise reduction, lower losses and heat dissipation

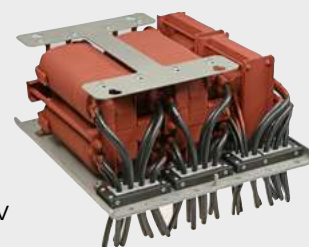
Power: 50 kVA
Primary voltage: 500 V
Secondary voltage: 750 V
Frequency: 2,5 kHz square wave voltage
Weight: 30 kg



MF-TRANSFORMER*

Combination of four air-cooled medium-frequency transformers in one assembly. Suitable for installation in dirty areas (PD4)

Power: 2 x 100 kVA / 2 x 20 kVA
Primary voltage: 600 V
Secondary voltage: 750 V / 150 V
Frequency: 18 kHz
Weight: 65 kg



* The technical values mentioned are examples.

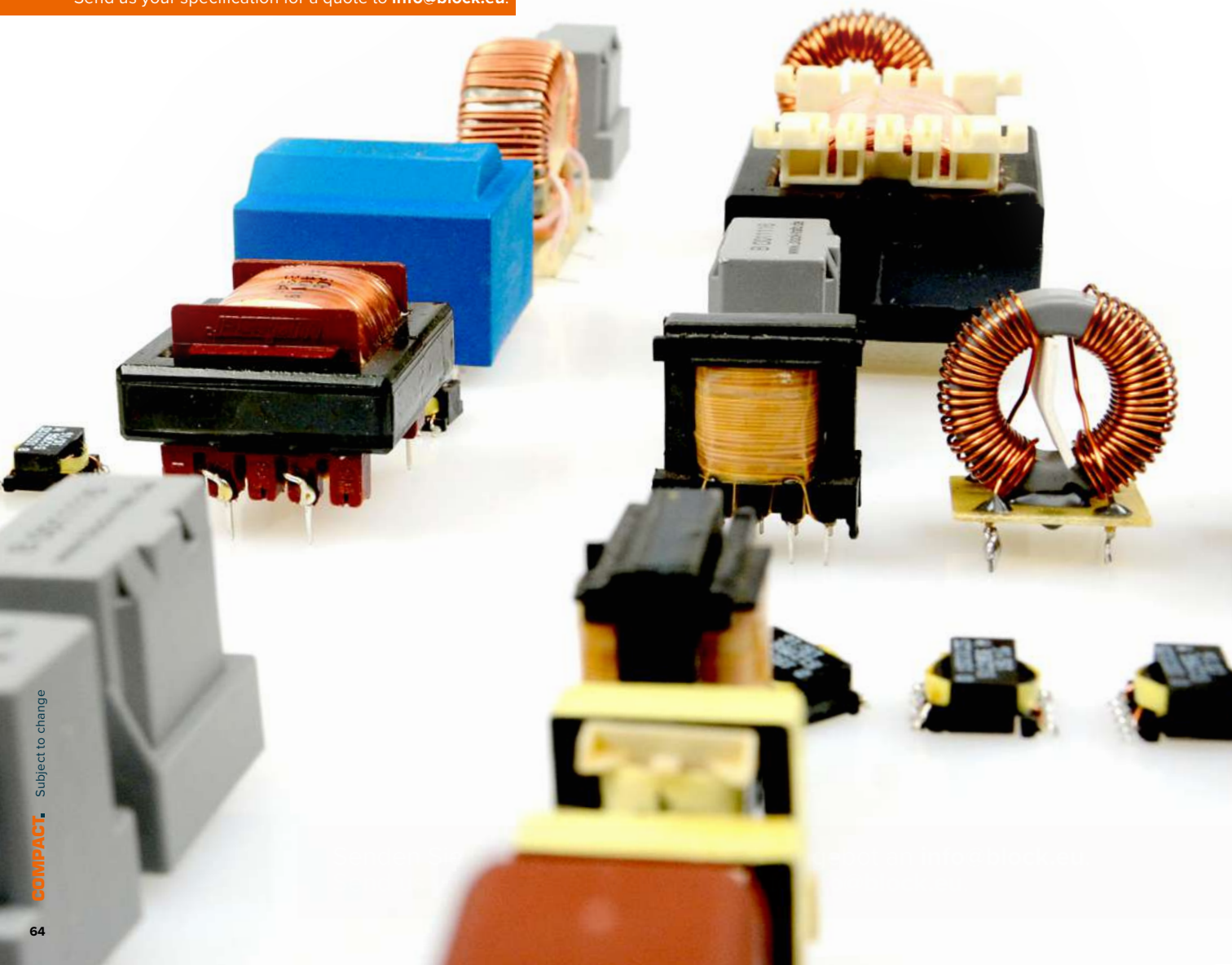
INDUCTIVE PCB COMPONENTS

With our in-house development, we realize projects to the full extent – from theory to series production. As a quality-conscious project partner, our customers always receive the appropriate support from us to develop their individual product and all the necessary information for a successful product qualification.

DESIGN FEATURES

- › Ferrite and powder cores in all shapes and materials
- › Electrical conductors from 0.05 mm single wire to foil or very fine high-frequency litz wire
- › Vacuum full potting for reduced clearance and creepage distances
- › Various potting materials for e.g. high voltage applications up to 20 kV or high thermal conductivity
- › THD, SMD or customized connection variants
- › RoHS & REACH compliant design

Send us your specification for a quote to info@block.eu.



TRANSFORMERS & REACTORS FOR MEDIUM AND HIGH FREQUENCY

FOR HEAT SINK MOUNTING

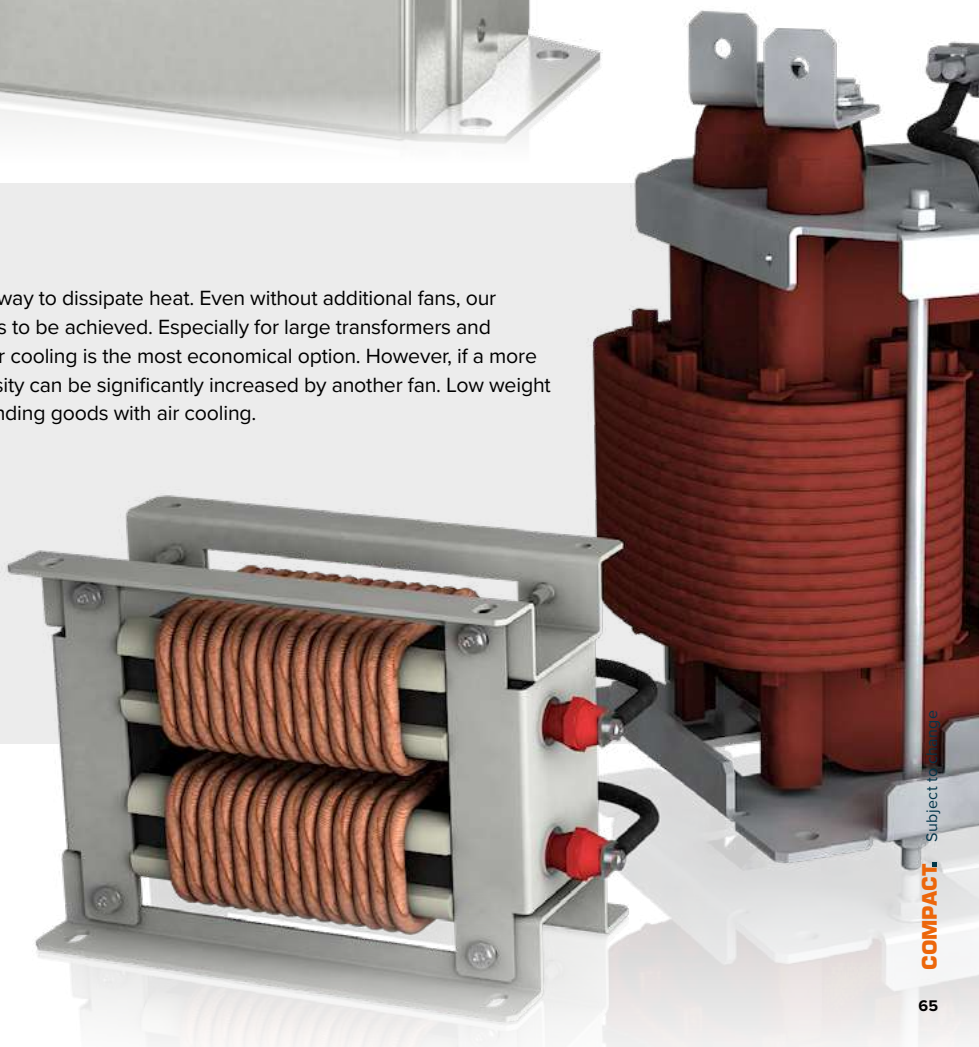
Heat sink mounting is the best and most common way of cooling semiconductors. With our transformers and reactors for heat sink mounting you can use your existing system to achieve the highest power densities even with winding goods. Especially in the medium power range between 10-50 kW this kind of cooling is very convenient. Tailored to your application and requirements, we optimize the performance of our solution based on experience, simulations and samples. Compact design and direct heat dissipation are the advantages of winding products with heat sink mounting.



AIR COOLED

Air cooling, on the other hand, is the easiest way to dissipate heat. Even without additional fans, our optimized designs allow high power densities to be achieved. Especially for large transformers and reactors in the power range up to 500 kW, air cooling is the most economical option. However, if a more compact solution is required, the power density can be significantly increased by another fan. Low weight and simple cooling are the advantages of winding goods with air cooling.

- Ferrite, powder or nanocrystalline cores provide optimum performance at high frequencies
- Fully insulated high-frequency litz wires provide reliable protection even in the harshest environmental conditions





NEWS

POWER SUPPLIES/CIRCUIT BREAKERS

TRANSFORMERS

INDUCTIVE COMPONENTS FOR POWER ELECTRONICS

REACTORS/EMI FILTERS

Line reactors

Harmonic filters

Radio interference suppression filters

Motor reactors

Sine filters

SERVICES

OVERVIEW

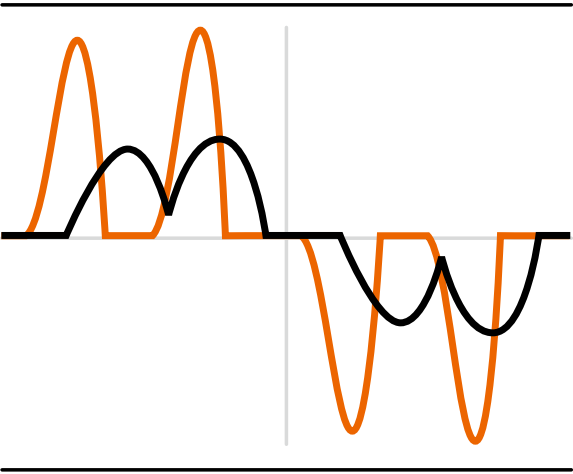
LINE REACTORS

Discover our entire
standard range here



Type	Rated input voltage	Short-circuit voltage (uK)	Rated current (A)																	
LR3-AE	3 x 480 V	3 % or 5 %														63		80		100
LR3	3 x 480 V	3 %	2	4	6	8	10	16	20	25	30	35	40	45	50	63	70	80	90	100
LR3	3 x 480 V	5 %	2				10	16	20	25										100
NKE	230 / 400 V	4 %	2	4	6		10	16	20	25			40		50	63				

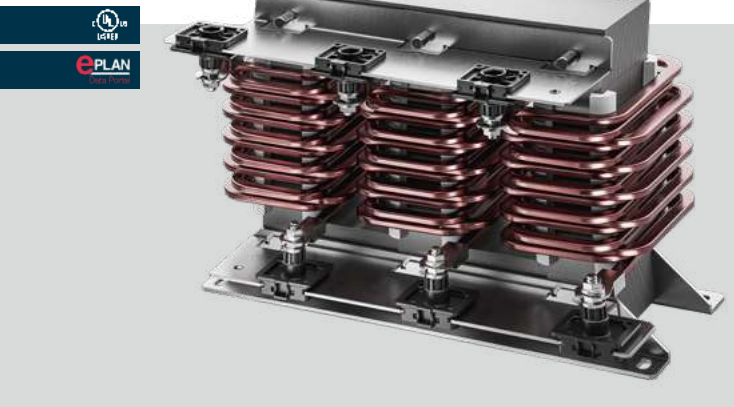
Type	Rated input voltage	Short-circuit voltage (uk)	Rated current (A)																	
LR3-AE	3 x 480 V	3 % or 5 %		125	160		200	250		315	400	500	630	710		900				
LR3	3 x 480 V	3 %	115	125	160	180	200	250	300		400	500	630	710	800		1000	1200	1400	1600
LR3	3 x 480 V	5 %	115	125	160	180	200										1000	1200	1400	1600
NKE	230 / 400 V	4 %																		



— with three-phase line reactor
— without three-phase line reactor

LINE REACTOR, THREE-PHASE

LR3-AE



Product Name Order No.	Rated voltage Vac	Rated current A	Inductivity mH	Width/Height/Depth in mm
LR3-AE063-483-0	3 x 480	3 x 63	0,35	300/205/142
LR3-AE080-483-0	3 x 480	3 x 80	0,27	300/142/210
LR3-AE100-483-0	3 x 480	3 x 100	0,22	300/198/151
LR3-AE125-483-0	3 x 480	3 x 125	0,18	400/187/180
LR3-AE160-483-0	3 x 480	3 x 160	0,14	420/187/196
LR3-AE200-483-0	3 x 480	3 x 200	0,11	480/200/205
LR3-AE250-483-0	3 x 480	3 x 250	0,09	480/198/205
LR3-AE315-483-0	3 x 480	3 x 315	0,07	480/293/218
LR3-AE400-483-0	3 x 480	3 x 400	0,06	480/263/230
LR3-AE500-483-0	3 x 480	3 x 500	0,04	509/261/266
LR3-AE630-483-0	3 x 480	3 x 630	0,04	500/252/263
LR3-AE710-483-0	3 x 480	3 x 710	0,03	586/294/264
LR3-AE900-483-0	3 x 480	3 x 900	0,02	586/324/278
LR3-AE063-485-0	3 x 480	3 x 63	0,58	300/205/150
LR3-AE080-485-0	3 x 480	3 x 80	0,45	300/209/160
LR3-AE100-485-0	3 x 480	3 x 100	0,36	300/198/185
LR3-AE125-485-0	3 x 480	3 x 125	0,29	400/187/210
LR3-AE160-485-0	3 x 480	3 x 160	0,23	420/187/225
LR3-AE200-485-0	3 x 480	3 x 200	0,18	480/200/230
LR3-AE250-485-0	3 x 480	3 x 250	0,15	480/201/246
LR3-AE315-485-0	3 x 480	3 x 315	0,12	480/261/246
LR3-AE400-485-0	3 x 480	3 x 400	0,09	480/261/265
LR3-AE500-485-0	3 x 480	3 x 500	0,07	510/261/306
LR3-AE630-485-0	3 x 480	3 x 630	0,06	500/251/303
LR3-AE710-485-0	3 x 480	3 x 710	0,05	586/294/304
LR3-AE900-485-0	3 x 480	3 x 900	0,04	586/323/328

BENEFITS

- Use as line reactor, commutating reactor or PFC reactor
- Ensuring the short-circuit voltage of 3 % or 5 % to the mains
- Power harmonic damping
- Starting current limitation
- Increases the service life of consumers
- Low ripple
- Bridging voltage dips
- Peak current limitation
- Very good corrosion protection and low noise due to vacuum impregnation
- UL listed approval

TECHNICAL DATA

- Rated voltage 3 x 480 Vac
- Short-circuit voltage (uK) 3 %, 5 %
- Rated current 3 x 63 - 3 x 900 A
- Inductance 0.02 - 0.58 mH
- Insulation class H
- Ambient temperature +40 °C
- Degree of protection IP 00

APPLICATIONS

- Line reactor to minimise mains pollution, to reduce the reactive-power components and charging currents in the DC link capacitor and to improve the cos(phi).

LINE REACTOR, THREE-PHASE

LR3



BENEFITS

- › Ensuring the short-circuit voltage of 3 % or 5 % to the mains
- › Power harmonic damping
- › Starting current limitation
- › Increases the service life of consumers
- › Low ripple
- › Bridging voltage dips
- › Peak current limitation
- › Integrated lifting rings
- › Multifunctional fixing rails
- › Use as line reactor, commutating reactor or PFC reactor
- › Very good corrosion protection and low noise due to vacuum impregnation

TECHNICAL DATA

- › Rated voltage 3 x 480 Vac
- › Short-circuit voltage (uK) 3 %, 5 %
- › Rated current 3 x 2 - 3 x 1600 A
- › Inductance 0.014 - 18.500 mH
- › Insulation class B, F or H
- › Ambient temperature -10 °C to +40 °C
- › Degree of protection IP 00

APPLICATIONS

- › Line reactor to minimize mains pollution, to reduce the reactive-power components and charging currents in the DC link capacitor and to improve the cos(phi).

Product Name Order No.	Rated voltage Vac	Rated current A	Inductivity mH	Width/Height/Depth in mm
LR3 48-3/2	3 x 480 Vac	2	11	74/100/56
LR3 48-3/4	3 x 480 Vac	4	5.5	74/100/63
LR3 48-3/6	3 x 480 Vac	6	3.7	80/117/60
LR3 48-3/8	3 x 480 Vac	8	2.75	80/117/69
LR3 48-3/10	3 x 480 Vac	10	2.2	120/140/85
LR3 48-3/16	3 x 480 Vac	16	1.38	120/140/95
LR3 48-3/20	3 x 480 Vac	20	1.1	155/177/95
LR3 48-3/25	3 x 480 Vac	25	0.88	155/177/95
LR3 48-3/30	3 x 480 Vac	30	0.74	155/177/110
LR3 48-3/35	3 x 480 Vac	35	0.63	155/177/110
LR3 48-3/40	3 x 480 Vac	40	0.55	185/210/102
LR3 48-3/45	3 x 480 Vac	45	0.49	185/210/102
LR3 48-3/50	3 x 480 Vac	50	0.44	185/210/102
LR3 48-3/63	3 x 480 Vac	63	0.35	185/210/112
LR3 48-3/70	3 x 480 Vac	70	0.32	185/210/122
LR3 48-3/80	3 x 480 Vac	80	0.27	210/240/117
LR3 48-3/90	3 x 480 Vac	90	0.24	210/240/105
LR3 48-3/100	3 x 480 Vac	100	0.22	267/198/115
LR3 48-3/115	3 x 480 Vac	115	0.19	267/205/193
LR3 48-3/125	3 x 480 Vac	125	0.18	267/205/139
LR3 48-3/160	3 x 480 Vac	160	0.14	250/210/129
LR3 48-3/180	3 x 480 Vac	180	0.12	250/208/149
LR3 48-3/200	3 x 480 Vac	200	0.11	250/230/131
LR3 48-3/250	3 x 480 Vac	250	0.09	352/260/144
LR3 48-3/300	3 x 480 Vac	300	0.07	352/328/144
LR3 48-3/400	3 x 480 Vac	400	0.06	352/260/157
LR3 48-3/500	3 x 480 Vac	500	0.04	352/265/184
LR3 48-3/630	3 x 480 Vac	630	0.04	412/315/170
LR3 48-3/710	3 x 480 Vac	710	0.03	412/315/185
LR3 48-3/800	3 x 480 Vac	800	0.03	480/370/183
LR3 48-3/1000	3 x 480 Vac	1000	0.02	480/360/198
LR3 48-3/1200	3 x 480 Vac	1200	0.02	552/410/193
LR3 48-3/1400	3 x 480 Vac	1400	0.02	552/410/242
LR3 48-3/1600	3 x 480 Vac	1600	0.01	552/410/272
LR3 48-5/2	3 x 480 Vac	2	18.5	74/100/56
LR3 48-5/10	3 x 480 Vac	10	3.68	120/140/95
LR3 48-5/16	3 x 480 Vac	16	2.3	155/177/95
LR3 48-5/20	3 x 480 Vac	20	1.84	155/177/110
LR3 48-5/25	3 x 480 Vac	25	1.47	155/177/110
LR3 48-5/100	3 x 480 Vac	100	0.37	250/215/139
LR3 48-5/115	3 x 480 Vac	115	0.32	250/230/131
LR3 48-5/125	3 x 480 Vac	125	0.29	291/230/131
LR3 48-5/160	3 x 480 Vac	160	0.23	352/265/150
LR3 48-5/180	3 x 480 Vac	180	0.2	352/265/169
LR3 48-5/200	3 x 480 Vac	200	0.18	352/265/169
LR3 48-5/1000	3 x 480 Vac	1000	0.04	552/410/193
LR3 48-5/1200	3 x 480 Vac	1200	0.03	552/410/272
LR3 48-5/1400	3 x 480 Vac	1400	0.03	540/465/270
LR3 48-5/1600	3 x 480 Vac	1600	0.02	540/465/370

LINE REACTOR, SINGLE-PHASE NKE



BENEFITS

- › Use as line reactor, commutating reactor or PFC reactor
- › Power harmonic damping
- › Starting current limitation
- › Increases the service life of consumers
- › Low ripple
- › Very good corrosion protection and low noise thanks to vacuum impregnation
- › Bridging voltage dips
- › Peak current limitation

TECHNICAL DATA

- › Rated voltage 230 or 400 Vac
- › Rated current 2 - 63 A
- › Inductance 0.49 - 25.5 mH
- › Insulation class B
- › Ambient temperature -10 °C to +40 °C
- › Degree of protection IP 00

APPLICATIONS

- › Line reactor to minimise mains pollution, to reduce the reactive-power components and charging currents in the DC link capacitor and to improve the $\cos(\phi)$.

Product Name Order No.	Rated voltage Vac	Rated current A	Inductivity mH	Width/Height/Depth in mm
NKE 2/25,50	400	2	25,50	60/70/70
NKE 4/7,33	230	4	7,33	60/70/70
NKE 4/12,75	400	4	12,75	60/70/70
NKE 6/4,88	230	6	4,88	60/70/70
NKE 6/8,50	400	6	8,50	84/95/80
NKE 10/2,93	230	10	2,93	84/95/80
NKE 10/5,10	400	10	5,10	84/96/80
NKE 16/1,83	230	16	1,83	84/96/80
NKE 16/3,19	400	16	3,19	96/110/90
NKE 20/1,47	230	20	1,47	84/98/87
NKE 20/2,55	400	20	2,55	120/130/110
NKE 25/1,17	230	25	1,17	84/98/87
NKE 25/2,04	400	25	2,04	120/130/110
NKE 40/0,73	230	40	0,73	120/130/110
NKE 40/1,28	400	40	1,28	120/130/110
NKE 50/0,59	230	50	0,59	120/130/110
NKE 63/0,49	230	63	0,49	120/160/92

HARMONIC FILTER HF1K



BENEFITS

- › Sinusoidal current consumption from the main in devices with uncontrolled B6U diode rectifiers
- › Compliance with EN 61000-3-2, EN 61000-3-12
- › Support in the compliance with IEEE 519, D-A-CH-CZ
- › $\cos(\phi) > 0,95$ at rated current
- › Hardly any intermediate circuit voltage dip by comparison with a 4 % uK line reactor
- › Harmonic filter with minimum capacitive idle reactive power
- › Very good corrosion protection and low noise thanks to vacuum impregnation
- › Operation at 50 - 60 Hz possible
- › Use of the HF1K as a central hum filter for multiple converters possible

TECHNICAL DATA

- › Rated voltage 3 x 400 Vac
- › Rated current 3 x 10 - 3 x 144 A
- › THD-I < 8 % in rated operation
- › Load rated capacity 5,5 - 90 kW
- › Insulation class H
- › Ambient temperature -10 °C to +45 °C
- › Degree of protection IP 00

APPLICATIONS

- › Harmonic filter module to ensure sinusoidal main currents, reduction of main harmonic currents, increase in system service life and system reliability and compliance with power quality standards such as IEEE 519, IEC 61000-3-2, IEC 61000-3-12.

Product Name Order No.	Rated voltage Vac	Voltage range Vac	Rated current A	Width/Height/Depth in mm
HF1K 7-400	3 x 400	360 - 440	10	375/235/125
HF1K 13-400	3 x 400	360 - 440	19	440/276/158
HF1K 18-400	3 x 400	360 - 440	26	440/275/171
HF1K 24-400	3 x 400	360 - 440	35	485/308/163
HF1K 30-400	3 x 400	360 - 440	44	545/355/163
HF1K 50-400	3 x 400	360 - 440	73	545/315/222
HF1K 70-400	3 x 400	360 - 440	102	685/420/272
HF1K 100-400	3 x 400	360 - 440	145	685/426/300

RADIO INTERFERENCE
SUPPRESSION FILTER,
THREE-PHASE
HLD 110



BENEFITS

- For enhanced requirements
- Single-stage filter concept
- Efficient filter effect against line-bound interference emissions
- Increase in the interference immunity of the connected consumer

TECHNICAL DATA

- Rated voltage 3 x 480 Vac
- Rated current 3 x 8 - 3 x 250 A
- Leakage current 20 - 37 mA depending on construction size
- Ambient temperature max. 50 °C
- Degree of protection IP 20

APPLICATIONS

- Three-phase radio interference suppression filter for line-side interference suppression of single devices, frequency inverters or as group interference suppression.

Product Name Order No.	Rated voltage Vac	Voltage range Vac	Rated current A	Width/Height/Depth in mm
HLD 110-500/8	3 x 480	3 x 0 - 520	3 x 8	45/75/190
HLD 110-500/12	3 x 480	3 x 0 - 520	3 x 12	45/75/220
HLD 110-500/16	3 x 480	3 x 0 - 520	3 x 16	45/75/250
HLD 110-500/30	3 x 480	3 x 0 - 520	3 x 30	55/95/270
HLD 110-500/42	3 x 480	3 x 0 - 520	3 x 42	55/95/310
HLD 110-500/55	3 x 480	3 x 0 - 520	3 x 55	85/95/255
HLD 110-500/75	3 x 480	3 x 0 - 520	3 x 75	85/135/310
HLD 110-500/100	3 x 480	3 x 0 - 520	3 x 100	95/150/325
HLD 110-500/130	3 x 480	3 x 0 - 520	3 x 130	95/150/325
HLD 110-500/180	3 x 480	3 x 0 - 520	3 x 180	130/181/440
HLD 110-500/250	3 x 480	3 x 0 - 520	3 x 250	155/220/525

MOTOR REACTOR
MDB



BENEFITS

- High damping of edge steepness
- High damping of inverter switching frequency
- Reduction of leakage current
- Long shielded cable lengths possible
- High efficiency
- Very good corrosion protection and low noise thanks to vacuum impregnation

TECHNICAL DATA

- Rated voltage 3 x 400 Vac
- Rated current 6.3 - 176 A
- For motor rated output 2.2 - 90 kW
- For switching frequencies of 2 - 6 kHz
- Rated frequency from 0 - 120 Hz
- Insulation class F
- Maximum ambient temperature 40 °C
- Degree of protection IP 00

APPLICATIONS

- Motor reactor for the limitation of the voltage peaks damaging to the motor insulation (dv/dt).

Product Name Order No.	Rated voltage Vac	Voltage range Vac	Rated current A	Width/Height/Depth in mm
MDB 400/6,3	3 x 400	3 x 0 - 690	6.3	155/160/70
MDB 400/9,4	3 x 400	3 x 0 - 690	9.4	155/160/70
MDB 400/13	3 x 400	3 x 0 - 690	13	155/160/85
MDB 400/16	3 x 400	3 x 0 - 690	16	190/193/115
MDB 400/24	3 x 400	3 x 0 - 690	24	190/193/115
MDB 400/30	3 x 400	3 x 0 - 690	30	210/182/130
MDB 400/39	3 x 400	3 x 0 - 690	39	210/182/130
MDB 400/46	3 x 400	3 x 0 - 690	46	210/182/120
MDB 400/61	3 x 400	3 x 0 - 690	61	210/182/120
MDB 400/72	3 x 400	3 x 0 - 690	72	210/182/120
MDB 400/91	3 x 400	3 x 0 - 690	91	210/182/120
MDB 400/110	3 x 400	3 x 0 - 690	110	240/205/131
MDB 400/150	3 x 400	3 x 0 - 690	150	240/205/141
MDB 400/176	3 x 400	3 x 0 - 690	176	240/205/165
MDB 400/250	3 x 400	3 x 0 - 690	250	240/210/180
MDB 400/380	3 x 400	3 x 0 - 690	380	300/260/171
MDB 400/430	3 x 400	3 x 0 - 690	430	300/265/210
MDB 400/700	3 x 400	3 x 0 - 690	700	360/315/215
MDB 400/1200	3 x 400	3 x 0 - 690	1200	420/380/275

SINE FILTER SFB



BENEFITS

- › Prevention of overvoltages on the motor
- › Long cable lengths possible
- › Reduction in motor noise
- › Reduction in line-borne and field-borne emitted interference
- › Reduction in motor losses
- › Very good corrosion protection and low noise thanks to vacuum impregnation

TECHNICAL DATA

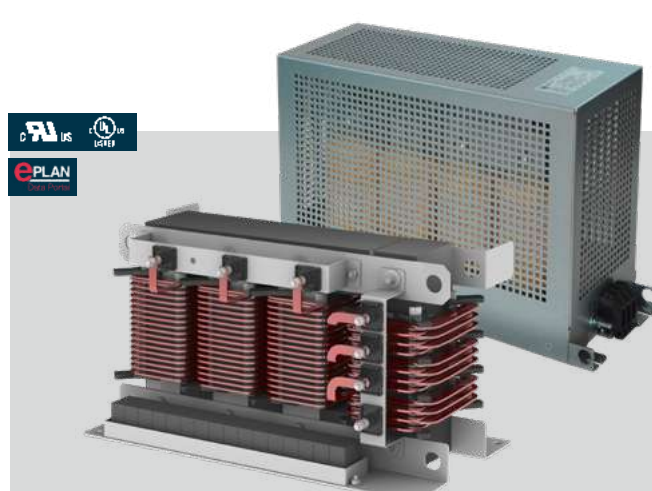
- › Rated voltage 3 x 400 Vac
- › Rated current 3 x 4 - 3 x 480 A
- › For motor rated output 1.5 - 260 kW
- › For switching frequencies of 4 - 8 kHz
- › Rated frequency from 0 - 150 Hz to 150 A, 0 - 60 Hz from 180 A
- › Maximum ambient temperature 40 °C
- › Degree of protection IP 00

APPLICATIONS

- › Sine filter for the suppression of differential mode interference.

Product Name Order No.	Rated voltage Vac	Voltage range Vac	Rated current A	Width/Height/Depth in mm
SFB 400/4	3 x 400	3 x 0 - 520	3 x 4	105/160/155
SFB 400/10	3 x 400	3 x 0 - 520	3 x 10	120/160/155
SFB 400/16,5	3 x 400	3 x 0 - 520	3 x 16,5	160/195/190
SFB 400/23,5	3 x 400	3 x 0 - 520	3 x 23,5	190/280/240
SFB 400/32	3 x 400	3 x 0 - 520	3 x 32	200/280/240
SFB 400/37	3 x 400	3 x 0 - 520	3 x 37	210/280/240
SFB 400/48	3 x 400	3 x 0 - 520	3 x 48	220/280/240
SFB-N 400/61	3 x 400	3 x 0 - 520	3 x 61	228/315/300
SFB-N 400/72	3 x 400	3 x 0 - 520	3 x 72	250/320/300
SFB-N 400/90	3 x 400	3 x 0 - 520	3 x 90	270/320/300
SFB 400/115	3 x 400	3 x 0 - 520	3 x 115	220/420/360
SFB 400/150	3 x 400	3 x 0 - 520	3 x 150	225/422/360
SFB 400/180	3 x 400	3 x 0 - 520	3 x 180	235/444/360
SFB 400/250	3 x 400	3 x 0 - 520	3 x 250	400/450/500
SFB 400/480	3 x 400	3 x 0 - 520	3 x 480	647/450/540

ALL-POLE SINE FILTER SF4



BENEFITS

- › Efficiency optimisation of the drive system
- › Use of unshielded motor cables
- › Improves conducted (150 kHz - 30 MHz) and radiated (30MHz - 1GHz) electromagnetic interference
- › Significant reduction of leakage currents
- › Elimination of bearing currents
- › Increase of motor service life

TECHNICAL DATA

- › Rated voltage 3 x 500 Vac
- › For switching frequencies ≥ 4 kHz
- › For motor rated output 2.2 - 45 kW
- › Maximum ambient temperature 50 °C
- › Degree of protection IP 00 / IP 20
- › Rated current 3 x 6 - 3 x 165 A
- › Rated frequency from 5 - 150 Hz

APPLICATIONS

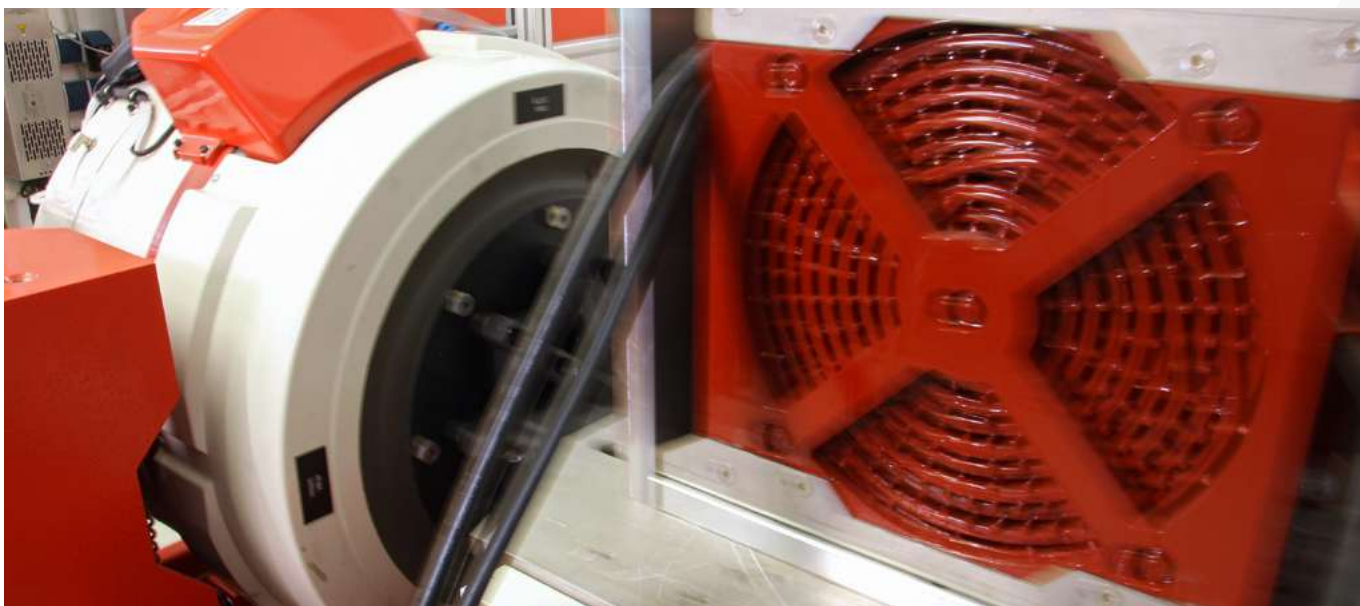
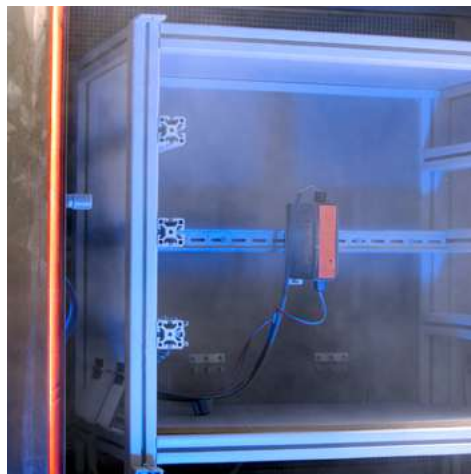
- › Sine filter for the suppression of differential mode interference and common mode interference. Designed for inverter with DC link connector (+Vg/+Ug) and works with continuous PWM (please contact our technical support staff).

Product Name Order No.	Rated voltage Vac	Voltage range Vac	Rated current A	Width/Height/Depth in mm
SF4-CD006-500-0	3 x 500	3 x 0 - 500	3 x 6	102/310/160
SF4-CD006-500-2	3 x 500	3 x 0 - 500	3 x 6	105/310/200
SF4-CD013-500-0	3 x 500	3 x 0 - 500	3 x 13	117/390/206
SF4-CD013-500-2	3 x 500	3 x 0 - 500	3 x 13	120/390/215
SF4-CD024-500-0	3 x 500	3 x 0 - 500	3 x 24	132/450/260
SF4-CD024-500-2	3 x 500	3 x 0 - 500	3 x 24	135/450/270
SF4-CE046-500-0	3 x 500	3 x 0 - 500	3 x 46	157/450/310
SF4-CE046-500-2	3 x 500	3 x 0 - 500	3 x 46	160/450/310
SF4-CE065-500-0	3 x 500	3 x 0 - 500	3 x 65	200/680/310
SF4-CE065-500-2	3 x 500	3 x 0 - 500	3 x 65	680/335/200
SF4-CE110-500-0	3 x 500	3 x 0 - 500	3 x 110	280/506/280
SF4-CE165-500-0	3 x 500	3 x 0 - 500	3 x 165	345/600/340

OUR SERVICES

BLOCK has many years of design engineering experience and works in partnership with its customers, providing a variety of sources of support for proving the reliability of products when subject to environmental and operational loads. We will be at your side at every stage of the product creation process, helping you to select suitable trials and even carrying out in-process reliability tests.

- › EMC service
- › Climatic testing
- › Shock and vibration testing
- › Partial discharge measuring
- › RoHS screening



SHOCK AND VIBRATION TESTS

Max. weight of DUT up to 350 kg
Swept sine, shock and random

- › Max. peak-force: 22,2 kN
- › Max. acceleration: Sine 40 g (60 g in vertical)
- › Shock (half-sine): 150 g
- › Random (RMS): 30 g
- › Max. velocity: 2 m/s

BLOCK TEST STATION FOR LIQUID COOLING

With the present test station, the most diverse challenges from cooling circuits can be recreated. Therefore, our products can be optimally adapted to respective applications.

3D X-RAY ANALYSIS

THERMAL SIMULATION

➤ Temperature range: -80 °C - +180 °C



BLOCKLAB EMC SERVICE

Discover our entire
services here

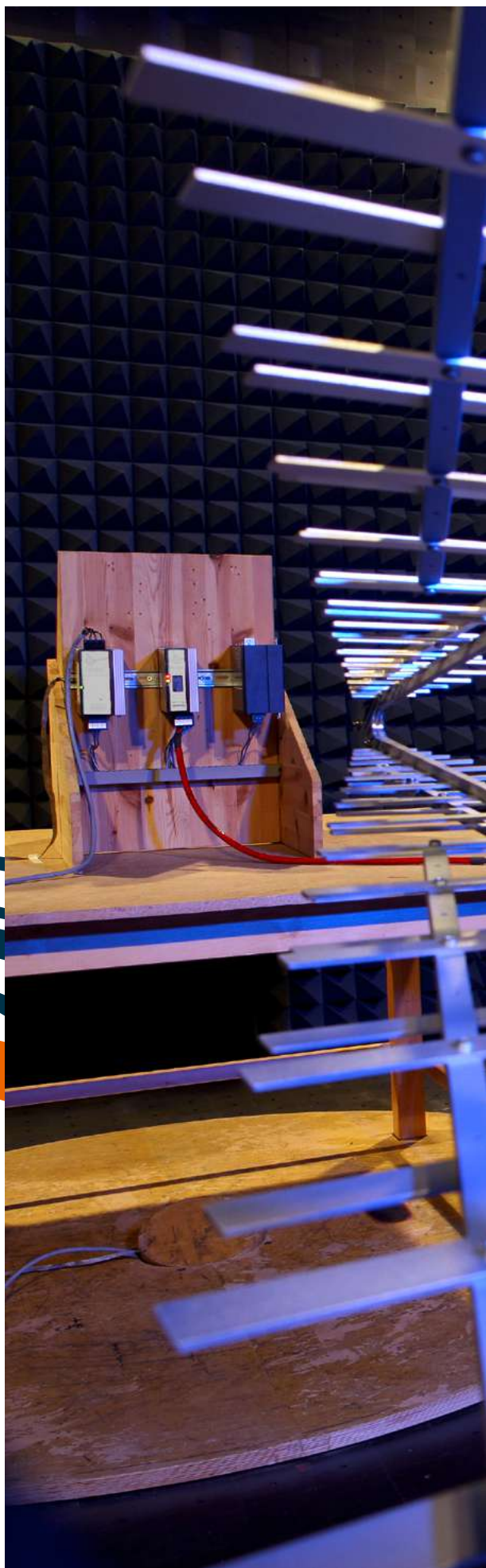


All our products, such as transformers, reactors, power supplies and radio interference suppression filters are developed and produced with the customer and market in mind. You will find them wherever a reliable mains interface is needed. Our EMC test laboratory functions as an independent business division. The laboratory concentrates on EMC services in the field of industry standards for products in the capital goods industry.

- › Consultancy, contribution, suppression
- › There right from the start of development
- › EMC interference suppression components
- › Independent EMC area according to DIN EN ISO/IEC 17025
- › DIN EN ISO 9001 certified
- › Mobile EMC equipment



BLOCKLAB



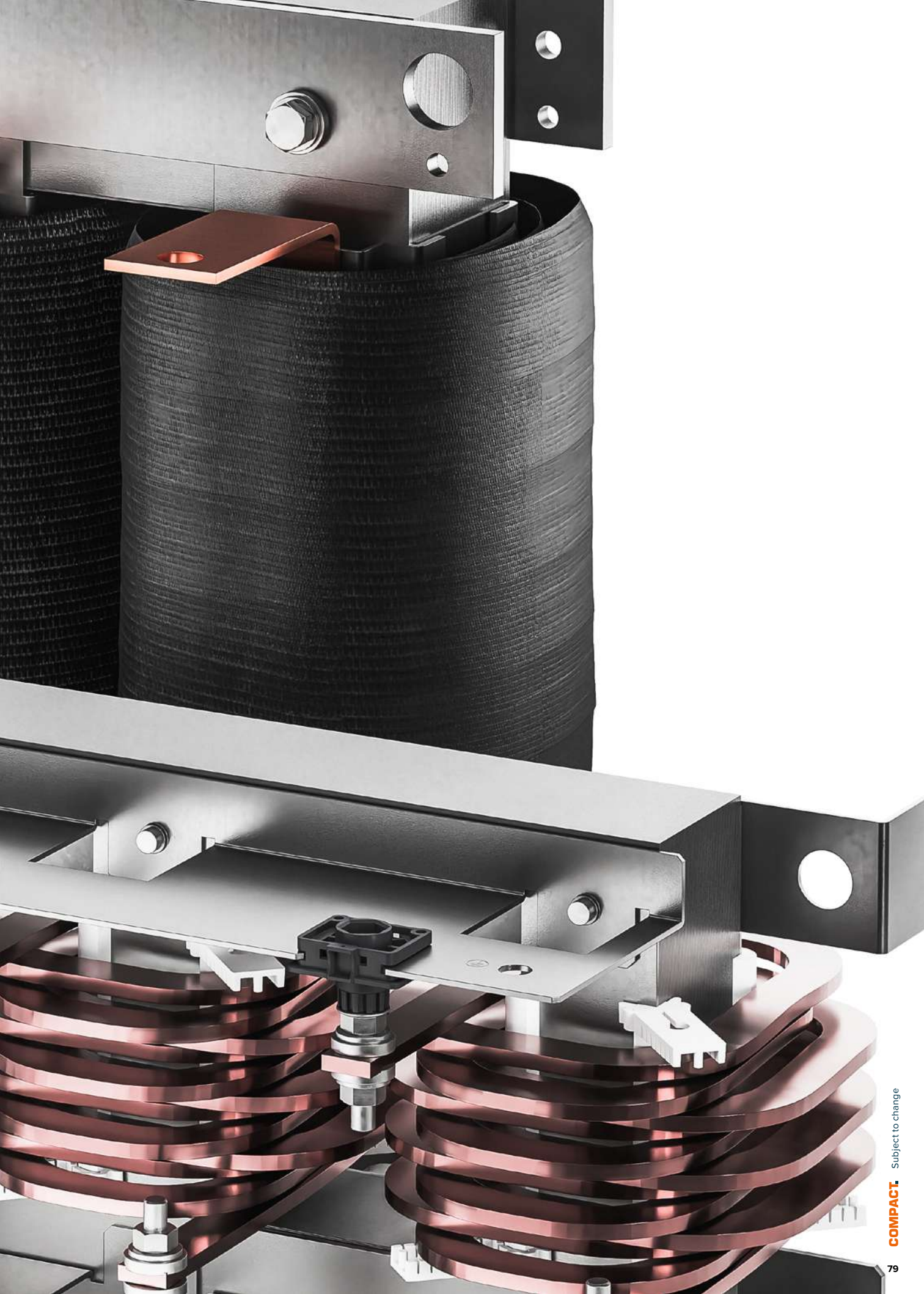


OVERVIEW FOR ALL TYPES

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**WE DEVELOP
THOUSANDS OF
PRODUCTS EVERY YEAR.**

**WHICH ONE WILL
WE DEVELOP FOR YOU?**

BLOCK USA, INC. – GENERAL TERMS AND CONDITIONS OF SALE



1. SCOPE

11. All products ("Products") and services associated with them are sold strictly pursuant to these terms ("Agreement"). References by Buyer to its conditions of purchase shall be null and void and are hereby expressly rejected. Any modification to this Agreement requires express written approval of Block USA Inc. ("Seller").
12. Acceptance by Buyer of Product(s) or services or payment for same shall constitute unequivocal acceptance of this Agreement. None of any past practice, industry standards, course of dealing or usage of trade shall constitute a modification of any term or condition contained herein, nor shall same add any term not contained herein.

2. OFFER / ACCEPTANCE

- 2.1 Offers to sell Products and/or services by Seller are non-binding with respect to price, quantity, delivery time and possibility.
- 2.2 Purchase orders from Buyer shall only become binding for Seller through written confirmation from Seller to Buyer and may take the form of an invoice or a delivery note.
- 2.3 When Products are ordered electronically, Buyer will receive a prompt confirmation of the order. This confirmation DOES NOT in any way constitute a binding acceptance of the order.
- 2.4 Any alteration, addition, or change to an existing order by the Buyer must be expressly confirmed in writing by Seller in order to become effective and binding on both parties.

3. SAMPLES / CATALOGS

- Any figures, measurements, statements, descriptions, illustrations, photographs, drawings, or any other materials contained in the Seller's brochures, catalogs, price lists, websites or advertising literature, or any samples provided to Buyer by Seller are not guaranteed to be accurate and are intended merely to represent a general description or depiction of the Products and shall not form part of any contract or agreement between the Seller and the Buyer, unless expressly specified and incorporated into any contract or agreement between the Parties in writing.

4. PRICES

- 4.1 Seller's prices valid at the time of the written confirmation shall be the invoiced price. The invoiced price of the Products does not include duty, tariffs, taxes, packaging costs, assembly costs, freight costs or similar charges, which shall be borne by Buyer, unless otherwise agreed in writing.
- 4.2 Agreements regarding fixed prices must be made in writing.
- 4.3 The minimum value for any order is \$250.
- 4.4 Should there be a general increase in Seller's prices in the period between the effective date of the written confirmation and delivery, then the prices valid on the day of delivery shall be applied. In case of such a general increase in prices, Buyer may cancel this Agreement without further obligation within 15 days after the announcement of such general price increase.

5. PAYMENT / TAXES

- 5.1 Seller's invoices are due and payable within 30 days after the date of such invoices without any deductions or offset, and payments shall be made in U.S. dollars. All prices shown are exclusive of any applicable tax and any tax that Seller is required to collect in connection with a sale shall be in addition to the quoted price and solely for Buyer's account. All agreements between the parties concerning cash discounts must be in writing and signed by Seller. Payment shall be considered complete when Seller receives from Buyer the full invoice amount in readily available funds.
- 5.2 Seller reserves the right to use payments for the settlement of the oldest due invoice items plus any accrued default interest and costs and such payments shall be applied in the following order: costs, interest and outstanding balance.
- 5.3 The non-payment of the purchase price on the invoice due date shall be a default under this Agreement.
- 5.4 If in the sole judgment of Seller, Buyer's financial ability to perform under this Agreement is diminished, then Seller shall have the right, among any other right or remedy, to change payment terms, require full or partial advance payment or to cancel any outstanding order, without liability.
- 5.5 In the event of a payment default by Buyer, Seller shall be entitled to receive interest on the defaulted payment at a rate equal to eighteen percent (18%) per annum or the maximum interest rate permitted by law.
- 5.6 Buyer may only offset claims which are undisputed or have been finally determined by a court of law or arbitral panel acting with proper jurisdiction.
- 5.7 Seller shall retain a security interest in Product(s) sold hereunder until all payments shall have been received in full by Seller and, if requested in writing to do so, Buyer agrees to do all acts necessary to perfect and maintain such security interest in Seller.
- 5.8 Buyer shall be solely responsible for any and all sales, use, value-added, excise, customs, imports or export fees or similar taxes, fees or charges of any nature required under applicable law and applicable to the Buyer's purchase of the Products, excluding any taxes based on Seller's income. Buyer shall indemnify, defend and hold Seller harmless from all such taxes, fees or charges. This provision shall survive the termination of this agreement. In lieu thereof, Buyer shall provide Seller with a tax-exemption certificate acceptable to the relevant taxing authorities.

6. DELIVERY

- 6.1 The quoted price for all Products is F.O.B. Seller's principal place of business or the location of shipment, whichever is applicable, unless otherwise agreed upon in writing.
- 6.2 Unless otherwise specified in writing, packing shall be Seller's standard packing.

- 6.3 Seller shall endeavor to punctually deliver the Products, provided, however, all specified delivery dates refer to the completion of manufacture and availability for shipment and merely represent Seller's best estimates. Seller reserves the right to modify the delivery dates with notice to Buyer and Buyer acknowledges that fixed delivery deadlines do not exist. Buyer also acknowledges that Seller's performance herein is subject to correct and punctual supply of Seller by its suppliers.
- 6.4 Buyer warrants there will be no diversion of any shipment that is (a) contrary to any applicable law, (b) for resale and/or transfer to any party to this Agreement, unless approved in writing by Seller, or (c) for shipment or use outside of the United States, unless approved in writing by Seller, and if so approved, Buyer warrants it will comply with all applicable laws, restrictions and regulations of the U.S. and other governments, including without limitation, the Export Administration Regulations, as amended, the U.S. Foreign Corrupt Practices Act of 1977, as amended, and the Office of Foreign Asset Control Regulations.

7. SHIPPING

- 7.1 Seller reserves the right to choose the shipping route and the mode of transport. Additional costs resulting from special shipping requests by Buyer shall be for Buyer's account. In addition, Buyer shall be responsible for the payment of increases in freight rates, possible additional costs for diversion, storage costs etc. which occur after the sales invoice has been issued, insofar as freight-paid delivery has not previously been agreed upon by the parties.
- 7.2 Title passes to Buyer upon delivery to carrier ("Delivery").
- 7.3 Buyer shall assert claims arising from damages in transit directly against the carrier and shall have no recourse against Seller for such damages. Choice of carrier and insurances shall be at Buyer's discretion. Unless otherwise agreed in writing, Buyer shall be responsible for the observation of legal and official regulations relating to the import, transportation, storage and use of Products.
- 7.4 If Products are not shipped within thirty (30) days after notification to Buyer that they are ready for shipping, for any reason beyond Seller's reasonable control, including Buyer's failure to give shipping instructions, Seller may store Products at Buyer's sole risk in a warehouse or storage facility or upon Seller's premises and Buyer shall pay all handling, transportation and storage costs upon submission of invoices therefor.

8. RETURN POLICY

- Seller, in its sole discretion, may permit the return of unused, resalable and originally packaged Products on a case by case basis subject to a restocking fee to be determined by Seller.

9. PRODUCTS FOR TRIAL USE

- Buyer is responsible for the payment of freight costs, insurance and packaging, as well as any loss in value of Products during the trial use by Buyer. Moreover Buyer shall be liable during the entire trial period and during any shipping period for any loss of or damage to Products supplied for trial use. Any products returned must be in undamaged and perfectly clean condition. Buyer shall be responsible for return shipping, packaging and insurance.

10. FORCE MAJEURE

- 10.1 Neither party shall be held responsible for any loss, damage, delay or lack of delivery arising from fire; strikes, lock-outs, injunction or other labor troubles, governmental intervention including, but not limited to, prohibition or extraordinary taxation upon import or export; war; riots; acts of terrorism; explosion; weather; flood; acts of God or nature; inability to obtain on terms acceptable to Seller or shortage of; fuel, power, raw materials, labor, containers or transportation; accident; breakage of machinery or other apparatus; disruption of normal supplier channels of distribution; or any other act or force beyond the affected party's reasonable control.
- 10.2 If, as a result of any of the disruptions listed in Sec. 10.1 above, the delivery or acceptance of the Product is delayed by more than thirty (30) days, then either party may upon notice cancel the applicable sales contract and terminate any further obligation to the other party.
- 10.3 Seller reserves the right to allocate and fairly apportion Product(s) among its internal and external customers during force majeure events in any manner Seller, in its sole discretion, deems appropriate.
- 10.4 Seller shall have no obligation to acquire by purchase or otherwise any Product(s) that Seller is unable to supply to Buyer due to force majeure events.

11. LIMITED WARRANTIES

- 11.1 Seller warrants that the Products shall be free from defects in material and workmanship for a period of twelve (12) months from the date of Delivery. Seller's obligations under the aforesaid warranty shall be discounting, repairing or replacing the Products, which if properly used and maintained, prove defective in material or workmanship. Such discount, repair or replacement shall be Seller's sole obligation and Buyer's sole remedy hereunder and shall be conditioned upon (a) Buyer's inspection of the Products within fourteen (14) days of receipt by Buyer, (b) Seller's receipt of written notice of any alleged defect within ten (10) days after its discovery, (c) Buyer checking the measuring instruments for correct readings and adjusting them if necessary, (d) Buyer following relevant operating instructions which may be provided by Seller. Any Product repaired or replaced pursuant to this warranty will be warranted for the remainder of the original warranty period. Upon Seller's request, Buyer shall promptly provide samples and other evidence of, and shall allow Seller's representatives access to the alleged defective Products. Claiming an alleged defect does not relieve Buyer of any of its payment obligation to Seller. Buyer must not return any alleged defective Products without Seller's prior written consent. Buyer agrees to reimburse Seller for all costs and expenses associated with any return of Products unauthorized by Seller. Receipt or inspection of returned Products by Seller shall not be deemed an admission of any alleged defect.

- 11.2 Seller's obligations under Sec. 11.1 above shall not apply to any part of the Products sold hereunder, which (a) are consumed by normal wear and tear, (b) have a normal life time inherently shorter than the herein stated warranty period, or (c) have been damaged due to negligent or faulty use, alteration, maintenance, storage or handling by Buyer or a third party.
- 11.3 Any suggestions by Seller or Seller's agents regarding use, application or suitability of Products shall not be construed as an express warranty unless confirmed to be such in writing by Seller.
- 11.4 Buyer assumes all risk for misuse of the Products.
- 11.5 The warranty expressed herein shall be in lieu of all other warranties, expressed or implied, oral or written, statutory or otherwise, including, without limitation, the implied warranties of merchantability and fitness for a particular purpose, application or use, non-infringement and title, and any warranties arising from a course of dealing, usage or trade practice which are expressly disclaimed, and is in lieu of any and all other obligations or liability on seller's part.

12. LIMITATION OF LIABILITY

- 12.1 Notwithstanding any provision in these conditions of sale or elsewhere to the contrary: (a) seller's maximum liability hereunder at any time for any cause whatsoever shall not exceed the price paid for the products or services at issue, (b) seller shall not be liable for any special, incidental, indirect or consequential loss or damage of any kind or nature, arising at any time, from any cause whatsoever, including loss of revenue or profit.
- 12.2 These limitations of liability shall apply notwithstanding any finding that any remedy fails its essential purpose.

13. PROPRIETARY INFORMATION & CONFIDENTIALITY

- All specifications, technical data sheets, manuals, security and safety data sheets and other information furnished by Seller to Buyer, including, but not limited to, pricing, volumes or the financial terms of this Agreement and the existence of this Agreement, are proprietary to Seller and confidential. Such information has been developed at substantial expense and contains trade secrets that are the exclusive property of Seller. Buyer may not reproduce or distribute such information except to Buyer's employees who are required to have such information in order to perform their duties and agree, in writing, to keep such information confidential. All such information supplied by Seller shall be received in confidence except for information that (a) was generally available to Buyer from public or published sources, provided publication did not take place in violation of this Agreement or through fault or omission of Buyer, (b) was lawfully obtained from a source under no obligation of confidentiality, directly or indirectly, to either Buyer or Seller, or (c) was disclosed to the general public with the written approval of the Seller, and Buyer shall exercise due diligence and reasonable care to hold such information in confidence.

14. SUSPENSION AND CANCELLATION

- If Buyer omits delivery instructions or fails to accept Delivery, as required by Contract, or shall fail to make any payment when it becomes due or shall commit any other breach of contract, or if Buyer shall enter into any composition or arrangement with its creditors or if any distress or execution is levied upon any goods or property of Buyer, or if Buyer shall commit any act of bankruptcy or, if a corporation, a receiver shall be appointed of the whole or any part of its undertaking or assets or if Buyer shall pass a resolution for winding up or if a Court shall make an order to that effect or if Buyer shall have a receiving order made against it, then at Seller's sole option Seller may defer or cancel any further deliveries or services and treat the Contract or any other contract between Seller and Buyer as terminated, but such termination shall be without prejudice to Seller's right to any unpaid price for Products delivered or cost of work done under the Agreement and to damages for loss suffered in consequence of such termination.

15. JURISDICTION

- Each Party shall be deemed to have submitted to the jurisdiction of the courts (city, state and Federal) located in the County of Cook, State of Illinois, for any action, proceeding or claim brought by the other Party pursuant to this Agreement and waives any objection to the venue of any such suit, action or proceeding and the right to assert that such forum is not a convenient forums.

16. GOVERNING LAW

- This Agreement and any sales hereunder shall be construed in accordance with and governed by the laws of the State of Illinois, without regard to its conflicts of law rules. The application of the provisions of the United Nations Convention on Contracts for the International Sale of Goods is hereby expressly excluded.

17. ADDITIONAL TERMS

- 17.1 This Agreement may not be assigned by either party to any other party without the prior written consent of the other party hereto; provided, however, that (a) Seller may assign its rights and obligations hereunder to any Affiliate without consent from Seller. This Agreement shall be binding upon and inure to the benefit of the parties and their respective legal representatives, successors and permitted assigns.
- 17.2 Seller may, but is not obligated to, insure Products sold hereunder against damage or loss during (a) transportation, and (b) if shipping is delayed by reasons beyond the reasonable control of the Seller during this delay at the expense of Buyer unless the parties have agreed otherwise. Until final payment is made Buyer shall insure such Products at its expense for the benefit of Seller against damages and loss including, but not limited to, fire and flood, and shall provide written proof thereof to Seller.
- 17.3 Seller assumes no liability as to any patent or copyright infringement by virtue of the use of the Products in combination with other goods or services, or the use of the Products manufactured to Buyer's specifications. Buyer shall not use Seller's trademarks without Seller's prior written consent.

- 17.4 The rights and obligations under Secs. 11, 12, 13, 15, 16 and 17 herein shall survive the cancellation, termination or expiration of this Agreement.
- 17.5 Should any part of this Agreement be deemed invalid by a court of law or arbitrator, it shall not constitute an invalidation of any other part of this Agreement, which shall otherwise remain in effect.
- 17.6 Failure of Seller to effect, or any delay by Seller to effect, any available right or remedy shall not be construed to operate as a waiver of same.
- 17.7 Except as otherwise expressly provided, this Agreement supercedes all prior agreements, understandings or otherwise, whether oral or written, between Buyer and Seller concerning the subject matter of this Agreement.
- 17.8 Seller's acceptance of (a) payment, or (b) specially endorsed checks shall not waive or limit any right or remedy of Seller.
- 17.9 Nothing contained herein is intended nor shall be construed as creating a partnership, joint venture, agency, distributorship or any other relationship except buyer and seller.
- 17.10 All headings herein are for reference only.

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