

Power that drives

DC/AC power supplies for industry and custom solutions



Welcome



Uwe Wöhrle, Chief Executive Officer
of Wöhrle Stromversorgungssysteme GmbH

Your specialist for a reliable supply of power

This claim combines the corporate philosophy and the product portfolio of Wöhrle Stromversorgungssysteme GmbH in just one sentence.

For more than 30 years, Wöhrle Stromversorgungssysteme GmbH has developed, produced and marketed high-quality power supply systems for industrial applications as well as for the IT and computer centre sectors.

Our product portfolio covers UPS systems, DC UPS systems, switched-mode power supplies, innovative energy storage device technologies and transformers. We also provide professional service and support for our products.

Our many years of experience and our expertise enable us to develop individual and specialised solutions along with our powerful standard systems.

The continuous further development of our products and skills ensures that we will remain a strong, dependable partner for our customers, also in future. The numerous requirements on the optimal reliability of the supply of power are met by the latest technology and highest quality standards, as well as by our commitment.

Innovation has been a fixed element of the philosophy of our medium-sized business since it was founded and, in future, will also be key to how we meet challenges that arise.

"The perfect solution for you – for every situation and every environment. We give our best every day to provide you with perfection."



DC power supplies

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- Switched-mode power supplies
- Custom DC solutions



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Custom UPS solutions

48 – 55

- UPS systems for industrial and critical environments
- Regenerative UPS systems
- Modifications to design and appearance
- Maintenance-free supercapacitors
- UPS systems for higher ambient temperatures

DC power supplies

Safeguarding the supply of electrical power where it is needed

Control systems, drives, lasers – DC voltages are used from automation technology to machinery manufacture. Here, as in the AC area, even brief power failures can cause protracted restarts or extensive damage. A reliable DC power supply is therefore of crucial importance.



DC UPS systems

Solutions for industry, IT, power stations and treatment plants as well as demanding applications with special requirements

- o Planning individual solutions for 24 V as well as special voltages with broad power spectrum
- o Maximum flexibility for optimal adaptation to your application
- o Low power consumption and tailor-made solutions ensure minimum operating costs
- o Integrated power supply units for maximum space saving in the switch cabinet



Switched-mode power supplies

- o Primary-switched power supply units
- o Output current from 1 to 80 A
- o Output voltage: 24 V
Special voltages: 5 V, 12 V, 30 V, 48 V, 72 V, 96 V, others upon request
- o Easy to mount: DIN rail mounting for switch cabinet installation or distribution board installation
- o Very slim design, compact dimensions and low weight
- o High efficiency
- o Wide-range input
- o International approvals such as UL, EN, CSA
- o Comprehensive protective functions
- o Depending on the unit, with relay contact, power boost and / or parallel connection option
- o ePlan macros for circuit diagram, 2D and 3D modelling



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Latest generation switched-mode power supplies, spring-cage terminal	
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DC supply scenarios

Scenario 1: unprotected supply

The load is connected directly to the power supply unit.

Problem: if there is a mains power failure or the power supply unit fails, the load is no longer supplied with power, and as a result data may be lost or the machine damaged.

Application: uncritical loads that do not need to be protected

Scenario 2: difficult protection

An energy storage device is connected between the power supply unit and the load. If there is a mains power failure, the load is temporarily supplied with power from the energy storage device.

Problem: due to the typical battery discharging curve, the power supply unit must be set to a higher value to be able to charge the battery. If it is not possible to operate the load with varying voltages, this scenario is not feasible. Also, this configuration is not supported by all power supply units.

Application: loads that can be supplied with varying voltages and that should be protected. However, there are limitations regarding reliability and there is no battery monitoring.

Scenario 3: protection with limitations

A DC UPS control unit with integrated charging current limiter is connected before the battery to control the battery's charging current and therefore to prevent the power supply unit from shutting down. In this scenario, the battery can also be monitored.

Problem: –

Application: loads that can be supplied with various voltages and that must be protected. The battery can be monitored.

Scenario 4: protection with constant voltage

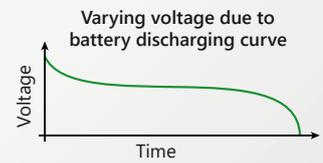
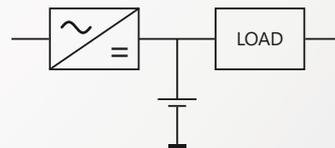
A DC/DC converter is connected between the power supply unit and the load. This converter maintains the voltage constant and therefore compensates for the battery discharging curve. If the mains or the power supply unit fails, the load is supplied with constant voltage by the energy storage device connected to the DC/DC converter. Furthermore, it is also possible to monitor the battery in this scenario.

Problem: –

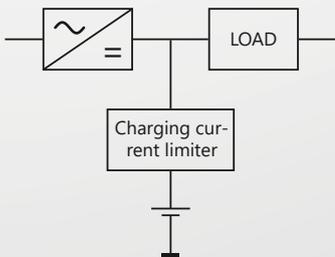
Application: loads that must be supplied with constant voltage and that must be protected.



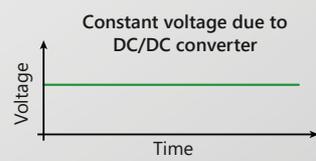
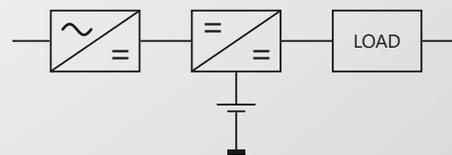
Scenario 1



Scenario 2



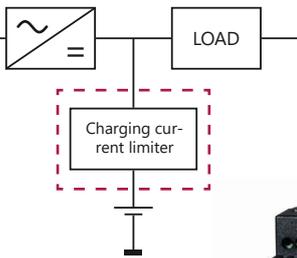
Scenario 3



Scenario 4

DC UPS modules

For various supply scenarios



DC UPS control unit with integrated charging controller (scenario 3)

Our solution: EVU2410

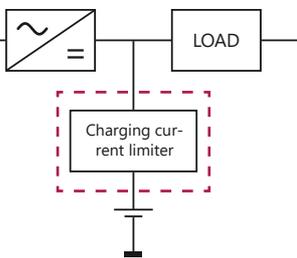
24 V DC UPS control unit for distribution boards / DIN rail mounting



Product name	Input voltage	Output voltage	Output current	Charging current
EVU2410	24–28 V DC	23–28 V DC	max. 10 A	0.5 A



**technical
data
sheet**



DC UPS module based on principle of charging current limiter (scenario 3)

Our solution: USR2440-2

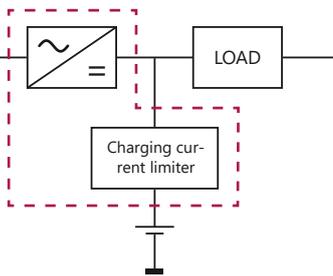
Monitoring and control assembly for 24 V DC UPS systems with deep discharge protection



Product name	Input voltage	Output voltage	Output current	Charging current
USR2440-2	24–28 V DC	23–28 V DC	max. 40 A	2 A



**technical
data
sheet**



ALL in ONE – DC UPS with integrated power supply unit

(scenario 3)

Our solutions: UNG24014, UNG24022, UNG2477-RS232 and UNG24154-RS232

Due to their modular design, the new Wöhrlé ALL in ONE units are a flexible DC UPS system. Various requirements such as the rated power and backup time can be adapted to the application and the energy storage device which is available separately. The units are used in combination with the appropriate energy storage device to protect systems and control processes against power failures.



Product name	Input voltage	Output voltage	Rated load	Charging current
UNG24014	90–264 V AC	20–30 V DC depending on battery voltage	max. 1.4 A	0.75 A
UNG24022	127–370 V DC		max. 2.25 A	1.25 A



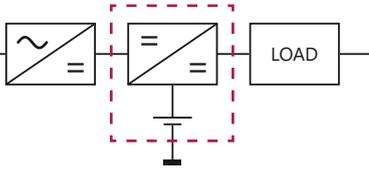
technical data sheet



Product name	Input voltage	Output voltage	Rated load	Charging current
UNG2477-RS232	90–305 V AC 127–431 V DC	24–28.8 V DC	10 A	Adjustable
UNG24154-RS232		24–28.8 V DC	20 A	Adjustable



technical data sheet



DC UPS module with DC/DC converter function and integrated storage device (capacitor) (scenario 4)

Our solutions: UGVC2420NG, UGVC 2440 and UGVC2440-2

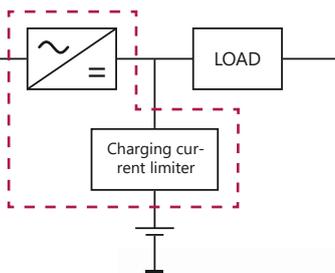
Maintenance-free for life as well as capacitors fully suited to use in industry, even in elevated ambient temperatures



Product name	Input voltage	Output voltage	Backup time	Output current
UGVC2420NG	22.8–28.8 V DC	24 V DC	5 sec. (1 A), 0.3 ms (20 A)	max. 20 A
UGVC 2440	22.8–28.8 V DC	24 V DC	8 sec. (1 A), 0.6 ms (20 A), 0.2 ms (40 A)	max. 40 A
UGVC2440-2	22–29 V DC	22/24 V DC	8 sec. (1 A), 500/320 ms (20 A), 250/160 ms (40 A)	max. 40 A



technical data sheet



DC UPS components – control unit with integrated charging controller (scenario 3)

Our solutions: UGS2420 and UGS2440

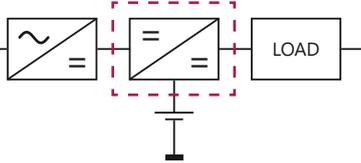
DC UPS modules of flexible application with individually adjustable settings and comprehensive extras



Product name	Input voltage	Output voltage	Rated load	Charging current
UGS2420	18–30 V DC	17.5–29.5 V DC	max. 20 A max. 30 A (7 sec. typ.)	0.75–3 A
UGS2440	18–30 V DC	17.5–29.5 V DC	max. 40 A max. 60 A (7 sec. typ.)	1–4 A



technical data sheet



DC UPS module with DC/DC converter function (scenario 4)

Our solution: UGVNG 20

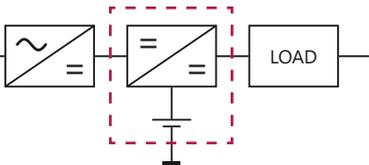
Programmable DC UPS module with comprehensive extras



Product name	Input voltage	Output voltage	Output current	Supported storage device technology
UGVNG 20	12–48 V DC	12–48 V DC	max. 20 A	Lead acid, NiMH, lithium rechargeable batteries, supercapacitors



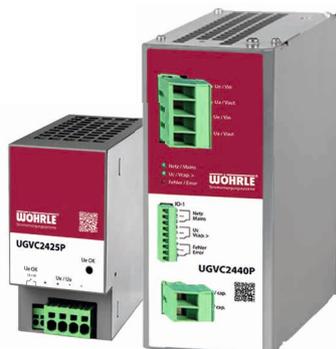
technical data sheet



DC UPS backup modules with integrated storage device (scenario 4)

Our solutions: UGVNC2425P and UGVC2440P

Programmable DC UPS module with comprehensive extras



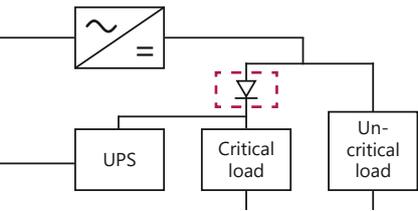
Product name	Rated input voltage	Rated input current DC	Rated output current DC	Energy
UGVNC2425P	24 V DC ±10 %	max. 28 A	25 A	1.2 kJ
UGVC2440P	24 V DC ±10 %	40 A	40 A	4 kJ



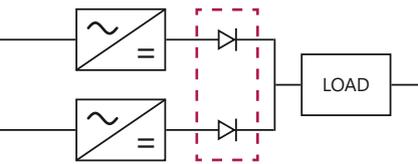
technical data sheet

Peripherals

Redundancy module, current limiter and energy storage devices



Application case 1: decoupling of critical paths to maintain the function of important components for longer.



Application case 2: if a power source fails, the second power source automatically takes over the supply of power.

Redundancy module

Our solutions: EDI-RED20 and EDI-RED40

EDI-RED20: This redundancy module is used as a decoupling diode with separate monitoring of the input. The EDI-RED20 can be used as an accessory for uninterruptible 24 V DC power supply systems. It also has a relay contact and a LED that indicates the state on the input.

EDI-RED40: With the broad range of input and output voltages from 22 to 60 V DC, the EDI-RED40 is able to support the supply of power while connected in parallel. The module can be variably configured and has a relay contact. It can also be used in a broad temperature range from -40 to +80 °C. For this reason it is also suitable for harsh industrial applications.



Product name	Input voltage	Output current
EDI-RED20	21–28 V DC	max. 20 A
EDI-RED40	22–60 V DC	max. 40 A



technical data sheet

Electronic current limiters

Our solutions: ESB10.2 and ESB10.4

ESB10.2: The ESB10.2 is a current limiter for DIN rail mounting for the selective shutdown of faulty current paths. Unlike classic circuit breakers, the current monitoring in the ESB10.2 is completely electronic, and as a result even minor overloads can be detected and shut down.

ESB10.4: Our four-channel current limiter impresses with active current limiting, a rated current wizard and lockable settings that can be changed using rotary switches. Straightforward DIN rail installation and the 130 % overload behaviour make it versatile in use.



Product name	Input voltage	Trigger current	Number of independent channels	Trigger characteristic	Shutdown characteristic
ESB10.2	10–31 V DC	2/4/6/10 A per channel	2	ultrafast, fast, medium, slow	–
ESB10.4	18–30 V DC	1/2/4/6/10 A per channel	4	–	fast



technical data sheet

Energy storage devices

Our solutions: BE lead gel energy storage device series, ESM energy storage device series and AKKU-SYS 24280S
A very wide range of storage device technologies for different applications with a maximum output current of up to 40 A.

Product name	Backup time in minutes									Charging connection voltage	Charging current	Max. discharging current	Capacity
	1 A	2 A	3 A	5 A	10 A	15 A	20 A	30 A	40 A				
BE24035	150	65	40	20	4	–	–	–	–	27–27.4 V DC	0.35–1 A	10 A	3.5 Ah
ESM-B	280	132	90	47	18	9	4	–	–	27.2–27.6 V DC	0.5–2 A	20 A	6.0 Ah
BE 2407 with additional BE 2407 rechargeable battery 24 V 7.2 Ah	320	150	100	50	22	10	6	2	–	27.2–27.6 V DC	0.75–2.25 A	30 A	7.2 Ah
	760	370	215	110	54	28	16	4	–				
BE 2407NG	320	150	100	50	22	10	6	2	–	27.2–27.6 V DC	0.75–2.25 A	30 A	Suitable for lead rechargeable batteries 12 V/7.2 Ah connected in series inside the housing to produce 24 V DC
AKKU-SYS 24180S	810	405	270	160	80	45	25	15	10	27.2–27.6 V DC	1.5–2.25 A	40 A	17 Ah

Capacity data at +20 °C

Energy storage devices for custom applications



Product name	Technology & properties	Capacity	Dimensions W × H × D mm	Weight kg
ESM-H-25	Cyclone cells: large temperature range, suitable for high currents	2.5 Ah	160 × 117 × 129.25	3.2
ESM-H-45		4.5 Ah		4.3
ESM-C-30	Capacitors: thermally stable, short backup times	30 F		1.9
ESM-C-40		40 F		1.95
ESM-C-50		50 F		2.1

NiMH and lithium energy storage devices upon request



technical data sheet

EPNSV series

Single-phase, distribution board installation, 15 to 150 W

Distribution board installation

The single-phase power supply units EPNSV for distribution board installation in 45 mm panel cut-outs have a closed, robust plastic housing with touch-protected screw connections. The switched-mode power supplies are mounted directly on DIN rails.

Flexible in use

The switched-mode power supplies of the EPNSV series have a wide-range input from 85 to 254 V AC and 120 to 370 V DC, enabling universal use. Along with the supply of 24 V loads, with this family of power supply units it is also possible to implement special output voltages on request. Due to the flexibility of the input and output voltage, the power supply units can be used in numerous different applications.

Compact design

The modern circuit design makes it possible to house the components in slim housings. With a width from 17.5 mm, enough space is left in the switch cabinet for the wiring as well as for control units and monitoring modules.



PRODUCT HIGHLIGHTS

Distribution board installation

Power range from
0.63 to 11.3 A / 15 to 150 W

Output voltage 5, 12, 24 and
48 V DC

High efficiency of up to 90.5 %



**technical
data
sheet**

	EPNSV series				
	EPNSV24006 ∨	EPNSV2401 ∨	EPNSV24025 ∨	EPNSV2404 ∨	EPNSV2406 ∨
Input					
Input voltage range AC	90–264 V	90–264 V	90–264 V	90–264 V	90–264 V
Input voltage range DC	127–370 V	127–370 V	127–370 V	127–370 V	127–370 V
Input current @115 V AC	0.5 A	0.88 A	1.2 A	3 A	3 A
Input current @230 V AC	0.25 A	0.48 A	0.8 A	1.6 A	1.6 A
Output					
Rated output voltage DC	24 V	24 V	24 V	24 V	24 V
Adjustment range of the output voltage DC	21.6–29 V	21.6–29 V	21.6–29 V	21.6–29 V	21.6–29 V
Rated output current	0.63 A	1.5 A	2.5 A	4.17 A	6.25 A
General data					
Temperature range	-20 to +70 °C	-30 to +70 °C	-30 to +70 °C	-30 to +70 °C	-10 to +70 °C
Efficiency	86 %	89 %	90 %	90 %	90.5 %
Dimensions					
W	18	35	52	70	150
H	90	90	90	90	90
D	58 mm	58 mm	58 mm	58 mm	58 mm
Weight	0.078 kg	0.12 kg	0.19 kg	0.27 kg	0.3 kg

	EPNSV series					
	EPNSV0502 ∨	EPNSV1201 ∨	EPNSV1202 ∨	EPNSV1204 ∨	EPNSV1210 ∨	EPNSV48027 ∨
Input						
Input voltage range AC	85–264 V					
Input voltage range DC	120–370 V					
Input current @115 V AC	0.5 A	0.88 A	0.88 A	1.2 A	3 A	3 A
Input current @230 V AC	0.25 A	0.48 A	0.48 A	0.8 A	1.6 A	1.6 A
Output						
Rated output voltage DC	5 V	12 V	12 V	12 V	12 V	48 V
Adjustment range of the output voltage DC	4.5–5.5 V	10.8–13.8 V	10.8–13.8 V	10.8–13.8 V	10.8–13.8 V	43.2–55.2 V
Rated output current	2.4 A	1.5 A	2 A	4.5 A	11.3 A	@115 V AC: 2.7 A @230 V AC: 3.2 A
General data						
Temperature range	-30 to +70 °C					
Efficiency	80 %	89 %	88 %	88 %	89 %	90.5 %
Dimensions						
W	17.5	35	35	52.5	105	105
H	90	90	90	90	90	90
D	54.5 mm	58.4 mm	58.4 mm	58.4 mm	54.5 mm	54.4 mm
Weight	0.078 kg	0.078 kg	0.12 kg	0.19 kg	0.31 kg	0.31 kg

EV series

Single-phase, distribution board installation, 30 to 100 W high-end

Distribution board installation

The new EV series with optimal price-performance ratio from Wöhrle offers a broad selection of compact switched-mode power supplies for distribution board installation in 45 mm panel cut-outs. The units can be mounted directly on DIN rails.

Compact housing

The only 91 mm high and between 53 and 89.9 mm wide design requires only little space in the switch cabinet. The units have a robust, sealed plastic housing with screw connections protected against touching. Therefore, they do not require an earth connection and have a low leakage current.

Universal application

The modern circuit design of the EV series meets the highest standards. Due to the broad input voltage range, both AC and DC, the switched-mode power supplies can be used universally for numerous applications. Furthermore, the units were developed for a broad range of operating temperatures between -25 °C and +70 °C. The units feature low residual ripple and also buffering of the DC output during power failures in the millisecond range.



PRODUCT HIGHLIGHTS

Distribution board installation

Power range from
1.25 to 3.8 A / 30 to 100 W

Output voltage 24 V DC

High efficiency of up to 89 %



**technical
data
sheet**

	EV series		
	EV2401 ▼	EV24025 ▼	EV2404 ▼
Input			
Input voltage range AC	90–264 V	90–264 V	90–264 V
Input voltage range DC	125–375 V	125–375 V	125–375 V
Input current @115 V AC	< 0.8 A	< 1.5 A	< 2.2 A
Input current @230 V AC	< 0.6 A	< 1 A	< 1 A
Output			
Rated output voltage DC	24 V	24 V	24 V
Adjustment range of output voltage DC	23.5–24.5 V	24–28 V	22–24 V
Rated output current	0–1.25 A (max. 30 W)	0–2.5 A (max. 60 W)	0–3.8 A (max. 100 W)
General data			
Temperature range	-25 to +70 °C	-25 to +70 °C	-25 to +70 °C
Derating	from 55 °C -2.5 % / K	from 55 °C -2.5 % / K	from 55 °C -2.5 % / K
Overtemperature protection	yes	yes	yes
Efficiency (typ.)	87 %	88 %	89 %
Dimensions			
W	53	71	89.9
H	91	91	91
D	55.6 mm	55.6 mm	55.6 mm
Weight	0.14 kg	0.22 kg	0.35 kg

E series

Single-phase, switch cabinet installation, 75 to 480 W

Affordably priced with basic functionality

The units of the E series offer the latest power supply technology focussed on basic functionality. The high-quality switched-mode power supplies offer a low-cost means of supplying sensitive loads without the need to make compromises. A stabilised 24 V output voltage is provided in the power range from 75 to 480 W. The series features high efficiencies of up to 93 % and can be used in a very wide range of application areas thanks to a broad temperature range between -30 and +70 °C.

Space saving due to ultra-slim design

The single-phase power supply units of the E series feature a very slim design between 27 and 56 mm depending on the device. The assemblies are integrated into a high-quality steel plate housing (E2403 in plastic housing) in a space-saving manner for DIN rail mounting. Compared to the previous slimmest series from Wöhrle, the EPNSB series, this successor series offers a significant space saving of 25 %.



PRODUCT HIGHLIGHTS

Ultra-slim design

Latest power supply technology with basic functionality

Power range from 3.125 to 20 A / 75 to 480 W

Output voltage 24 V DC

High efficiency of up to 93 %



technical data sheet

	E series			
	E2403 ∨	E2405 ∨	E2410 ∨	E2420 ∨
Input				
Input voltage range AC	90–264 V	90–264 V	90–264 V	90–264 V
Input current @115 V AC	1.4 A	2.1 A	2.5 A	4.6 A
Input current @230 V AC	0.9 A	1.3 A	1.3 A	2.3 A
Output				
Rated output voltage DC	24 V	24 V	24 V	24 V
Adjustment range of output voltage DC	21.6–26 V	21.6–26.4 V	21.6–26.4 V	24–28 V
Rated output current	3.1 A	5 A	10 A	20 A
General data				
Temperature range	-20 to +70 °C	-30 to +70 °C	-30 to +70 °C	-30 to +70 °C
Derating	from 50 °C -2.5 % / K			
Overtemperature protection	yes	yes	yes	yes
Efficiency (typ.)	89 %	89 %	90 %	93 %
Dimensions				
W	27	30	40	56
H	123.6	123.6	123.6	123.6
D	102 mm	117.2 mm	117.2 mm	116.8 mm
Weight	0.22 kg	0.45 kg	0.62 kg	0.87 kg

EF series



Single-phase, latest generation, 120 to 480 W
spring-cage terminal technology

Robust and reliable

The new EF series from Wöhrle was designed especially for industrial use. The conformal coated circuit boards protect the PCBAs against dust and damaging substances, which increases the service life and reliability of the units.

With a rated power from 120 to 480 W, the EF series is suitable for various industrial applications. All units operate in the constant current mode with effective overcurrent protection, ideal for DC UPS systems and charging applications.

Modern design and straightforward installation

Due to the spring-cage terminals, the connecting cables can be changed straightforwardly and quickly without the need for tools. The EF series has a modern circuit board layout with durable SMD technology. The units have a compact slim-line design and high-quality spring terminals for straightforward, reliable installation. In addition to the broad range of the adjustable DC output voltage from 24 to 28 V, a DC-OK LED indicator with additional relay contact rounds off the extras.



PRODUCT HIGHLIGHTS

- High-end technology
- Output voltage 24 V DC
- Spring-cage terminals
- Slim-line design



**technical
data
sheet**

	EF series		
	EF2405 ▼	EF2410 ▼	EF2420 ▼
Input			
Input voltage range AC	90–264 V	90–264 V	90–264 V
Input voltage range DC	127–375 V	127–375 V	127–375 V
Input current @115 V AC	1.2 A	2.5 A	4.7 A
Input current @230 V AC	0.6 A	1.3 A	2.4 A
Output			
Rated output voltage DC	24 V	24 V	24 V
Adjustment range of output voltage DC	24–28 V	24–28 V	24–28 V
Rated output current	5 A	10 A	20 A
General data			
Temperature range	-30 to +70 °C	-30 to +70 °C	-30 to +70 °C
Derating	from 60 °C -2.5 % / K	from 60 °C -2.5 % / K	from 60 °C -2.5 % / K
Overtemperature protection	yes	yes	yes
Efficiency (typ.)	93.5 %	94.5 %	95 %
Dimensions			
W	30	40	56
H	123.6	123.6	123.6
D	116.8 mm	116.8 mm	116.8 mm
Weight	0.5 kg	0.64 kg	0.88 kg

EP series

Single-phase, DIN rail mounting, 30 to 480 W high-end

Modern and durable

The new EP series from Wöhrle offers numerous compact, durable switched-mode power supplies for DIN rail applications. Due to their modern circuit design, they can also meet the highest standards. For instance, the units were developed for a broad range of operating temperatures from -25 °C to +70 °C. The EP series also impresses with a consistently slim design and high power density. All units of the series have UL approval and are excellently suited to all industrial applications in the area of automation, (custom) machinery and switch cabinet construction.

Premium switched-mode power supply series

Due to the latest, powerful switched-mode power supply technology, the units can be categorised as high-end. For instance, they have high-quality connection terminals.

With their broad range of AC and DC input voltages, the switched-mode power supplies can be used for numerous applications. The models from a rated power of 120 W include comprehensive extras such as a powerful long-lasting power boost as well as a relay contact.

PRODUCT HIGHLIGHTS

Broad AC and DC input voltage range

Units from 120 W

Powerful, long-lasting power boost

High-quality connection terminals

UL approval

Slim-line design



technical data sheet



	EP series					
	EP2401	EP2402	EP2404	EP2405	EP2410	EP2420
	∨	∨	∨	∨	∨	∨
Input						
Input voltage range AC	85–264 V	85–264 V	85–264 V	88–264 V	88–264 V	88–264 V
Input voltage range DC	120–375 V	120–375 V	120–375 V	100–375 V	100–375 V	100–375 V
Input current @115 V AC	< 0.8 A	< 0.95 A	< 1.2 A	< 1.18 A	< 2.6 A	< 5 A
Input current @230 V AC	< 0.4 A	< 0.55 A	< 0.6 A	< 0.61 A	< 1.3 A	< 2.5 A
Output						
Rated output voltage DC	24 V					
Adjustment range of output voltage DC	21.6–26.4 V	24–28 V	24–28 V	24–28 V	24–28 V	24–28 V
Rated output current	1.25 A / 30 W	2.1 A / 50 W	4 A / 96 W	5 A / 120 W	10 A / 240 W	20 A / 480 W
Power boost	–	–	–	150 % / 5 sec.	150 % / 5 sec.	150 % / 5 sec.
DC-OK/relay contact	–	yes	yes	yes	yes	yes
General data						
Temperature range	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-25 to +70 °C	-25 to +70 °C	-25 to +70 °C
Derating	from 55 °C -3.3 % / K	from 55 °C -3.3 % / K	from 55 °C -3.3 % / K	from 60 °C -2.5 % / K	from 60 °C -2.5 % / K	from 60 °C -2.5 % / K
Overtemperature protection	yes	yes	yes	yes	yes	yes
Efficiency (typ.)	88 %	89 %	89 %	91 %	94 %	94 %
Dimensions						
W	21	30	45	40	60	82
H	75	75	75	124	124	124
D	89.5 mm	89.5 mm	100 mm	117 mm	117 mm	127 mm
Weight	0.1 kg	0.18 kg	0.33 kg	0.58 kg	0.84 kg	1.2 kg

Z series / ZPNW series

Two-phase, 60 to 480 W
extremely wide-range input for worldwide use

Universal and powerful

The two-phase power supply units of the Z and ZPNW series from Wöhrle were designed for single- and two-phase connection and can be used worldwide without problems due to their very wide input voltage range from 180 to 550 V AC. In addition, the Z series power supply units can provide up to 120% of the rated load for 3 seconds and are specified for operation with an earthed negative (PELV). As such even demanding applications can be supplied reliably.

Compact and resilient

The compact DIN rail units are mounted in corrosion-resistant aluminium housings. The electronics of the Z series are designed for harsh ambient conditions with printed circuit boards with conformal coatings. As such the units withstand higher levels of pollution without problems (pollution degree 2). The temperature range of the Z and ZPNW series also meets higher standards. The units can be operated from -30 to +70 °C. Should, nevertheless, these or other limits be exceeded, the units offer comprehensive protective functions for overtemperature, overload and overvoltage.



PRODUCT HIGHLIGHTS

Large input voltage range
180 to 550 V AC

Worldwide use possible due to
single- or two-phase connection

Power range from
2.5 to 20 A / 60 to 480 W

Output voltage 24 V DC

High efficiency
of up to 92 %

Reliable solution even in harsh
industrial environments due to a
"special coating process"

Suitable for SELV
and PELV applications



**data
sheet
Z series**



**data
sheet
ZPNW series**

	Z series			ZPNW series		
	Z24025 ▽	Z2405 ▽	Z2410 ▽	ZPNW 24025 ▽	ZPNW 2405 ▽	ZPNW 2420 ▽
Input						
Input voltage range AC	180–575 V	180–550 V	180–550 V	180–550 V	180–550 V	180–550 V
Input voltage range DC	254–780 V	254–780 V	254–780 V	254–780 V	254–780 V	254–780 V
Input current @230 V AC	0.7 A	< 1.2 A	< 2 A	0.7 A	1.2 A	4 A
Input current @400 V AC	0.4 A	< 0.8 A	< 1 A	0.4 A	0.7 A	1.6 A
Output						
Rated output voltage DC	24 V	24 V	24 V	24 V	24 V	24 V
Adjustment range of output voltage DC	24–29 V	24–28 V	24–28 V	24–29 V	24–29 V	24–28 V
Rated output current	2.5 A	5 A	10 A	2.5 A	5 A	20 A
Overload	Constant current limiting	Power boost 120 % for 3 sec.	Power boost 120 % for 3 sec.	Constant current limiting	Constant current limiting	Constant current limiting
General data						
Temperature range	-30 to +85 °C	-30 to +70 °C	-30 to +70 °C	-30 to +85 °C	-25 to +70 °C	-30 to +70 °C
Derating	from 60 °C -5 % / K	from 60 °C -4 % / K	from 60 °C -2.25 % / K	from 60 °C -5 % / K	from 60 °C -4 % / K	from 50 °C -2 % / K
Overtemperature protection	yes	yes	yes	yes	yes	yes
Efficiency (typ.)	89 %	> 90 %	> 90 %	89 %	91 %	92 %
Dimensions						
W	32	40	60	32	40	85.5
H	125.2	124	124	125.2	125.2	125.2
D	102 mm	117 mm	117 mm	102 mm	113.5 mm	128.5 mm
Weight	0.45 kg	0.62 kg	0.81 kg	0.45 kg	0.65 kg	1.7 kg

D series / DPNSW series

Three-phase, switch cabinet installation, 120 to 960 W

Synchronous mains load and phase redundancy

If a synchronous mains load is required or a neutral conductor is not available, the units in the D and DPNSW series are the right choice.

The three-phase supply also provides phase redundancy within the power supply unit: if a phase fails, the output voltage of 24 V remains available with reduced power.

Energy efficient

The Wöhrlé D and DPNSW series of power supply units ensures reliable power in the range 240 to 960 W. The particularly slim units also offer a large space saving and very high efficiencies to further optimise the effectiveness of your systems.

Parallel connection possible

The DPNSW 2440 can also be connected in parallel to be able to supply applications that require a current of more than 40 A. This feature makes it possible to increase power simple and uncomplicated up to several kW without complications. As such even higher powers are available on a DIN rail with passive cooling.



PRODUCT HIGHLIGHTS

Three-phase with synchronous mains load

Power range from 10 to 40 A / 120 to 960 W

Output voltage 24 and 48 V DC

High efficiency of up to 94.5 %



data sheet
DPNSW series



data sheet
D series

	D series		DPNSW series				
	D2405 ∨	D2440 ∨	DPNSW 2410 ∨	DPNSW 2420 ∨	DPNSW 2440 ∨	DPNSW 4810 ∨	DPNSW 4820 ∨
Input							
Input voltage range AC	320–575 V	320–575 V	340–550 V	340–550 V	340–550 V	340–550 V	340–550 V
Input voltage range DC	480–800 V	480–800 V	480–780 V	480–780 V	480–780 V	480–780 V	480–780 V
Input current @400 V AC	< 0.5 A	< 1.65 A	0.69 A	0.85 A	2 A	0.85 A	2 A
Input current @500 V AC	< 0.4 A	< 1.35 A	0.6 A	0.7 A	1.4 A	0.7 A	1.4 A
Output							
Rated output voltage DC	24 V	24 V	24 V	24 V	24 V	48 V	48 V
Adjustment range of output voltage DC	24–28 V	24–28 V	24–28 V	24–28 V	24–28 V	48–55 V	48–55 V
Rated output current	5 A	40 A	10 A	20 A	40 A	10 A	20 A
Output current limiting (% of I_{rated})	105–150 %	110–150 %	105–130 %	105–130 %	105–130 %	105–130 %	105–130 %
General data							
Temperature range	-25 to +70 °C	-25 to +70 °C	-30 to +70 °C	-30 to +70 °C	-30 to +70 °C	30 to +70 °C	30 to +70 °C
Derating	from 55 °C -3.33 % / K	from 55 °C -3.33 % / K	from 60 °C -5 % / K	from 50 °C -2.5 % / K	from 50 °C -2 % / K	from 50 °C -2.5 % / K	from 50 °C -2.5 % / K
Overtemperature protection	yes	yes	yes	yes	yes	yes	yes
Efficiency (typ.)	87.5 %	95 %	92 %	92.5 %	94 %	93 %	94.5 %
Dimensions							
W	38	110	63	85.5	110	85.5	110
H	124	124	125.2	125.2	125.2	125.2	125.2
D	125.3 mm	128.7 mm	113.5 mm	128.5 mm	150 mm	128.5 mm	150 mm
Weight	0.54 kg	2.26 kg	1 kg	1.51 kg	2.47 kg	1.05 kg	2.47 kg

DF series



Three-phase, latest generation, 120 to 480 W
spring-cage terminal technology

Robust and reliable

The new DF series from Wöhrle provides an innovative solution for industrial use. The circuit boards in the DF series are conformal coated to meet the requirements of the harshest industrial environments. These coatings protect the circuit boards effectively against dust and damaging substances. In addition, all units in this series have outstanding EMC characteristics that meet class B standards for emissions and interference immunity in industry.

Versatile and adaptable

Thanks to the latest spring terminal technology, the connecting cables can be changed quickly and straightforwardly without additional tools. The DF series is versatile in use and suitable, in particular, for applications in DC UPS systems or charging applications. With a rated power from 120 to 480 W, the series covers a broad spectrum of power requirements. The power supply units operate in constant current mode and have integrated overcurrent protection, which makes them a flexible, adaptable solution for industrial power supply needs.



PRODUCT HIGHLIGHTS

- High-end technology
- Output voltage 24 V DC
- Spring-cage terminals
- Slim-line design



technical data sheet

	DF series		
	DF2405 ∨	DF2410 ∨	DF2420 ∨
Input			
Input voltage range AC	3 × 320–575 V 2 × 340–575 V	3 × 320–575 V 2 × 340–575 V	3 × 320–575 V 2 × 340–575 V
Input voltage range DC	450–800 V	450–800 V	450–800 V
Input current @400 V AC	<0.5 A	<0.75 A	<0.85 A
Input current @500 V AC	<0.4 A	<0.65 A	<0.73 A
Output			
Rated output voltage DC	24 V	24 V	24 V
Adjustment range of output voltage DC	24–28 V	24–28 V	24–28 V
Rated output current	5 A	10 A	20 A
General data			
Temperature range	3-phase: -25 to +70 °C 2-phase: -25 to +60 °C	3-phase: -25 to +70 °C 2-phase: -25 to +60 °C	3-phase: -25 to +70 °C 2-phase: -25 to +60 °C
Derating	from 55 °C -3.33 % / K	from 55 °C -3.33 % / K	from 55 °C -3.33 % / K
Overtemperature protection	yes	yes	yes
Efficiency (typ.)	87.5 % @ 3 × 400 V AC & 3 × 500 V AC	89.5 % typ. @ 3 × 400 V AC & 3 × 500 V AC	94 % typ. @ 3 × 400 V AC & 3 × 500 V AC
Dimensions			
W	38	50	65
H	124	124	124
D	125.3 mm	125.3 mm	127.3 mm
Weight	0.54 kg	0.84 kg	1.2 kg

DP series

Three-phase, DIN-rail mounting, 240 to 960 W high-end

Reliable and efficient

The new high-end three-phase switched-mode power supplies of the DP series from Wöhrlé were developed to the highest standards to ensure reliability and efficiency in the application. Particular value was placed on durability and a high level of protection against failure to save servicing costs. The high efficiency of up to 95.75 % also reduces the power consumption and at the same time optimises the efficiency of the systems. The units are therefore very cost-effective in the face of constantly increasing energy costs.

High-quality additional functions

The units of the DP series are designed for continuous operation and can be used universally for all industrial applications. Due to their very compact design, they also save space in the switch cabinet. Along with the high-current capacity of these switched-mode power supplies with the long-lasting power boost, the size of the connection terminals has also been increased correspondingly. All units of this product series are also equipped with a DIN rail clip, while some even offer additional features such as a remote contact and a relay contact.



PRODUCT HIGHLIGHTS

Power range from
10 to 40 A / 240 to 960 W

Output voltage
24 V DC (adjustable)

High efficiency up to 95.75 %

Modern circuit design

High-quality connection terminals

Slim-line design



**technical
data
sheet**

	DP series		
	DP2410 ∨	DP2420 ∨	DP2440 ∨
Input			
Input voltage range AC	320–600 V	320–575 V	320–575 V
Input voltage range DC	450–800 V	450–800 V	450–800 V
Input current @400 V AC	< 0.75 A	< 0.79 A	< 1.65 A
Input current @500 V AC	< 0.65 A	< 0.68	< 1.35 A
Output			
Rated output voltage DC	24 V	24 V	24 V
Adjustment range of output voltage DC	24–28 V	24–28 V	24–28 V
Rated output current	10 A	20 A	40 A
General data			
Temperature range	-25 to +80 °C	-25 to +70 °C	-25 to +70 °C
Derating	from 50 °C -2.5 % / K	from 60 °C -2.5 % / K	from 60 °C -2.5 % / K
Overtemperature protection	yes	yes	yes
Power boost	150 % / 3 sec.	150 % / 7 sec.	150 % / 7 sec.
Efficiency (typ.)	91 %	95.23 %	95.75 %
Dimensions			
W	70	65	110
H	121	124	124
D	117.3 mm	127.1 mm	128.6 mm
Weight	0.89 kg	1.18 kg	2.3 kg

Power supply units

for special applications

48 V with variety of functional extras

The single-, two- and three-phase switched-mode power supplies in the special 48 category impress with a broad power range and a stabilised output voltage of 48 V DC as well as proven technology.

Whether basic functionality or all the extras, Wöhrlé power supply units cover all the necessary features and offer, in addition to variations in the power rating, a rich variety of additional functions, input voltages, number of phases and sizes. The most important protective functions are provided by all units.



PRODUCT HIGHLIGHTS

Power range from 13.5 to 80 A

Output voltages 24 V, 30 V, 48 V and 72 V

High efficiency of up to 94.5 %

Units with integrated high-performance fans available

Units in particularly slim housing

It is possible to realise powers of 960 W in the extraordinarily slim design. Several units can also be connected in parallel to increase the power.





Temperature-controlled high-performance fans

The integrated, temperature-controlled high-performance fans ensure even cooling and enable the units to be installed in any orientation.

Suitable for IT and delta systems

Due to the special circuit design, the power supply units can adapt to a very wide range of requirements such that they can also be used, e.g., in IT and delta systems.



Reliable, remotely controllable 48 V DC power supply

Due to the broad spectrum of standard components, even buffered 48 V DC power supplies with remote monitoring and control can be realised at low cost and in a short time.

Advantages at a glance

- Remote monitoring and control possible via SNMP adapter
- Depending on ambient conditions, also equipped with high-temperature rechargeable batteries, IP65 housing
- Storage device technology, output voltage and output current can also be adapted flexibly at a later date



FAR AWAY
AND YET
SO CLOSE

Development of custom DC solutions

If the buffering of critical loads is not enough:

We can draw on many years of know-how in the area of custom solutions.

If your requirements cannot be met from our standard portfolio, we would be pleased to develop a tailor-made solution for you. In this way we regularly meet even unusual requirements from our renowned german and international partners in the industry.

If you also would like to profit from this knowledge in the area of the DC power supply, contact us.



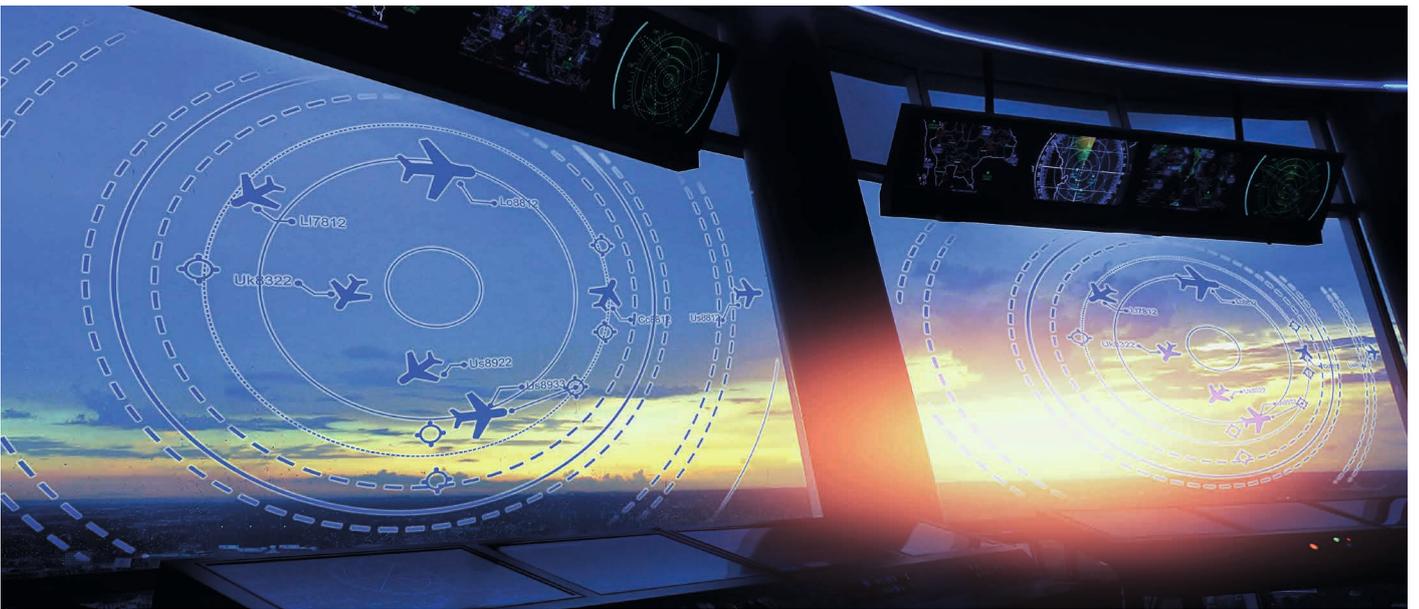
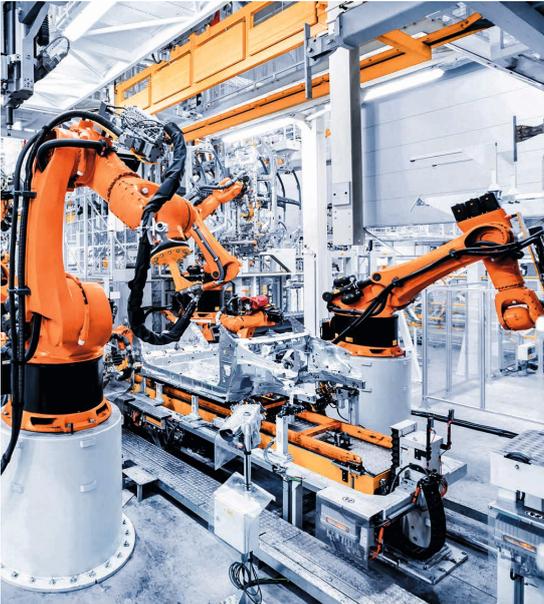
**YOUR WISHES
SPUR US ON TO PEAK
PERFORMANCE**

+

TYPISCH
WÖHRLE

POWER
THAT DRIVES





Transformers

Standard and special solutions for every requirement

The product portfolio of Wöhrle Stromversorgungssysteme GmbH includes single-phase transformers with EI or UI core, three-phase transformers with 3UI core as well as three-phase transformers for higher powers with self-supporting coils or strip-metal cores.

Alongside standard products, our range also includes customer-specific solutions.



- o Design as mains, isolating, safety, control or auto-transformer
- o Design according to UL and CSA standards possible
- o Degree of protection IP00 or IP23 to IP54
- o Various vector groups are available
- o Various frequencies
- o Insulation classes E, B and F
- o Protection classes I and II
- o Suitable for use in machine and plant manufacture, in renewable energy, as well as in building automation



Standard control transformers **40 – 41**
EI core, 50 to 3,000 VA

Suitable for installation up to IP23
Insulation class E, vector group li0, 100 % duty cycle, 50/60 Hz

Standard control transformers **42 – 43**
UI core, 1,000 to 8,000 VA

Upright or horizontal design
Suitable for installation up to IP23
Insulation class E, vector group li0, 100 % duty cycle, 50/60 Hz

Three-phase isolating transformers **44 – 45**
3UI core, 3,200 to 30,000 VA

Suitable for installation up to IP23
Insulation class E, vector group Dyn5, 100 % duty cycle, 50/60 Hz

Special solutions & higher powers **46 – 47**
Customer-specific solutions for every application

Standard control transformers

EI core, 50 VA to 3,000 VA

EI core	Primary voltage*	Secondary voltage	Dimensions W × H × D	Weight	Fastening C × D	Size
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Suitable for installation up to IP23, insulation class E, vector group li0, 100 % duty cycle, 50/60 Hz

C-WST 50 >	230 or 400 V	24 or 230 V	78 × 90 × 71 mm	1.3 kg	56 × 45 mm	EI78/27
C-WST 100 >	230 or 400 V	24 or 230 V	85 × 95 × 75 mm	2.1 kg	64 × 61 mm	EI84/43
C-WST 160 >	230 or 400 V	24 or 230 V	96 × 114 × 87 mm	2.9 kg	84 × 70 mm	EI96/45
C-WST 200 >	230 or 400 V	24 or 230 V	96 × 114 × 87 mm	3.0 kg	84 × 70 mm	EI96/45
C-WST 250 >	230 or 400 V	24 or 230 V	96 × 114 × 100 mm	3.6 kg	84 × 84 mm	EI96/59
C-WST 400 >	230 or 400 V	24 or 230 V	120 × 120 × 103 mm	5.2 kg	90 × 82 mm	EI120/53
C-WST 500 >	230 or 400 V	24 or 230 V	120 × 120 × 121 mm	6.2 kg	90 × 103 mm	EI120/73.7
C-WST 630 >	230 or 400 V	24 or 230 V	150 × 147 × 108 mm	7.7 kg	122 × 83 mm	EI150N/49
C-WST 800 >	230 or 400 V	24 or 230 V	150 × 147 × 125 mm	9.7 kg	122 × 101 mm	EI150N/66
C-WST 1000 >	230 or 400 V	24 or 230 V	150 × 147 × 151 mm	12.5 kg	122 × 127 mm	EI150N/92
C-WST 1600 >	230 or 400 V	24 or 230 V	174 × 154 × 149 mm	16.8 kg	135 × 116 mm	EI174/82
C-WST 2000 >	230 or 400 V	24 or 230 V	195 × 175 × 156 mm	22.7 kg	150 × 125 mm	EI192/82
C-WST 2500 >	230 or 400 V	24 or 230 V	195 × 175 × 172 mm	24.3 kg	150 × 146 mm	EI192/104
C-WST 3000 >	230 or 400 V	24 or 230 V	195 × 175 × 184 mm	26.8 kg	150 × 152 mm	EI192/110

*Primary taps for ± 5 %



Standard control transformers

UI core, 1,000 VA to 8,000 VA

UI core	Primary voltage*	Secondary voltage	Dimensions W × H × D	Weight	Fastening C × D	Size
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Upright design

Suitable for installation up to IP23, insulation class E, vector group li0, 100 % duty cycle, 50/60 Hz

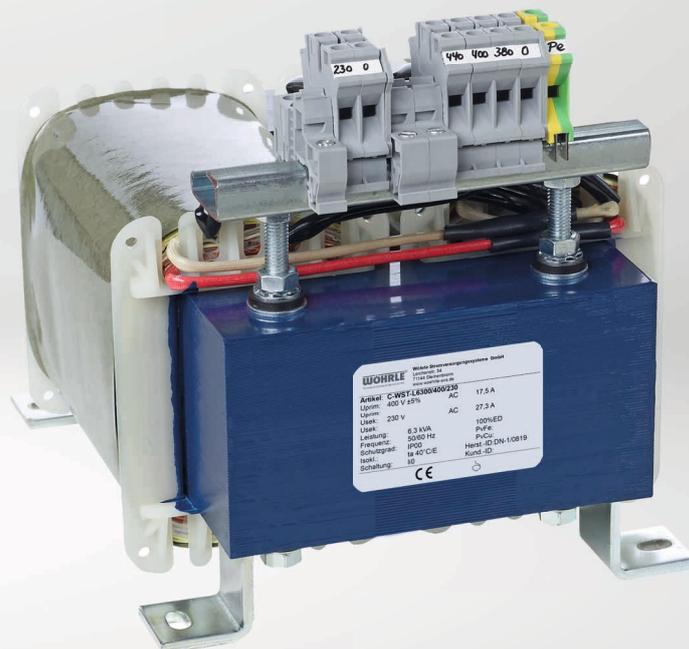
C-WST-S 1000 >	230 or 400 V	230 V	160 × 215 × 95 mm	9.3 kg	100 × 69 mm	UI120/41
C-WST-S 1500 >	230 or 400 V	230 V	160 × 215 × 115 mm	12.8 kg	100 × 89 mm	UI120/61
C-WST-S 2000 >	230 or 400 V	230 V	200 × 262 × 122 mm	14.6 kg	124 × 94 mm	UI150/52
C-WST-S 2500 >	230 or 400 V	230 V	200 × 262 × 135 mm	24 kg	124 × 107 mm	UI150/65
C-WST-S 3000 >	230 or 400 V	230 V	200 × 262 × 147 mm	27 kg	124 × 119 mm	UI150/77
C-WST-S 4000 >	230 or 400 V	230 V	200 × 262 × 162 mm	30 kg	124 × 134 mm	UI150/92
C-WST-S 5000 >	230 or 400 V	230 V	200 × 262 × 173 mm	39 kg	124 × 145 mm	UI150/103
C-WST-S 6300 >	230 or 400 V	230 V	240 × 360 × 168 mm	48.5 kg	144 × 140 mm	UI180/78
C-WST-S 8000 >	230 or 400 V	230 V	240 × 360 × 183 mm	58 kg	144 × 155 mm	UI180/92

Horizontal design

Suitable for installation up to IP23, insulation class E, vector group li0, 100 % duty cycle, 50/60 Hz

C-WST-L 1000 >	230 or 400 V	230 V	166 × 230 × 133 mm	9.3 kg	146 × 160 mm	UI120/41
C-WST-L 1500 >	230 or 400 V	230 V	166 × 230 × 153 mm	12.8 kg	146 × 160 mm	UI120/61
C-WST-L 2000 >	230 or 400 V	230 V	200 × 285 × 147 mm	14.6 kg	174 × 200 mm	UI150/52
C-WST-L 2500 >	230 or 400 V	230 V	200 × 285 × 160 mm	24 kg	174 × 200 mm	UI150/65
C-WST-L 3000 >	230 or 400 V	230 V	200 × 285 × 172 mm	27 kg	174 × 200 mm	UI150/77
C-WST-L 4000 >	230 or 400 V	230 V	200 × 285 × 187 mm	30 kg	174 × 200 mm	UI150/92
C-WST-L 5000 >	230 or 400 V	230 V	200 × 285 × 200 mm	39 kg	174 × 200 mm	UI150/103
C-WST-L 6300 >	230 or 400 V	230 V	240 × 340 × 185 mm	48.5 kg	204 × 240 mm	UI180/78

*Primary taps for voltages varying by ± 5 % upon request



Three-phase isolating transformers

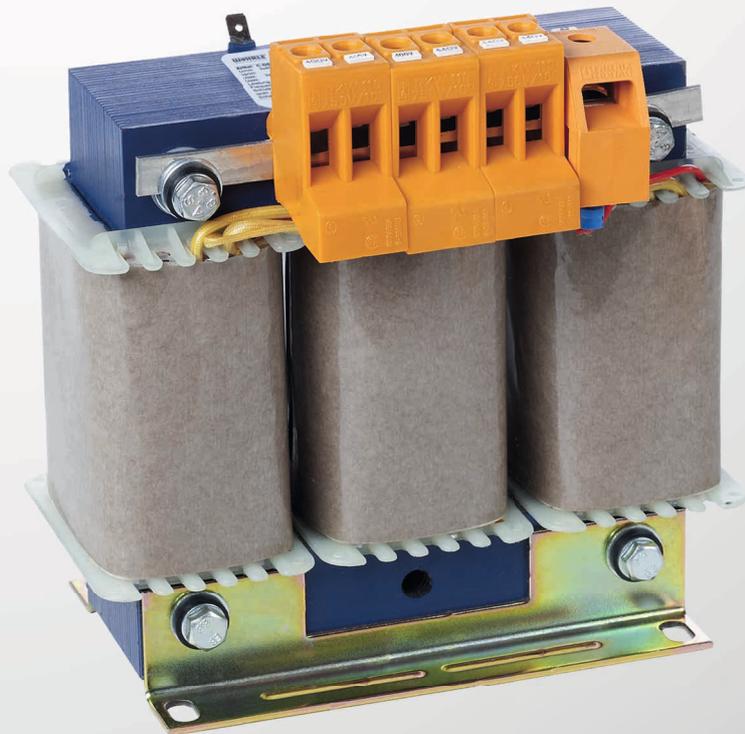
3UI core, 3,200 VA to 30,000 VA

3UI core	Primary voltage*	Secondary voltage	Dimensions W × H × D	Weight	Fastening C × D	Size
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Suitable for installation up to IP23, insulation class E, vector group Dyn5, 100 % duty cycle, 50/60 Hz

C-DST 3200 >	3 × 400 V	3 × 400 V + N	265 × 230 × 152 mm	29.2 kg	200 × 102 mm	3UI132/72
C-DST 4400 >	3 × 400 V	3 × 400 V + N	300 × 310 × 153 mm	36.6 kg	224 × 108 mm	3UI150/65
C-DST 5000 >	3 × 400 V	3 × 400 V + N	300 × 310 × 165 mm	41.1 kg	224 × 120 mm	3UI150/77
C-DST 6300 >	3 × 400 V	3 × 400 V + N	360 × 320 × 165 mm	53.8 kg	264 × 125 mm	3UI180/63
C-DST 8000 >	3 × 400 V	3 × 400 V + N	360 × 365 × 180 mm	65.7 kg	264 × 140 mm	3UI180/78
C-DST 10000 >	3 × 400 V	3 × 400 V + N	360 × 365 × 195 mm	76 kg	264 × 155 mm	3UI180/93
C-DST 13000 >	3 × 400 V	3 × 400 V + N	420 × 370 × 180 mm	90 kg	316 × 143 mm	3UI210/73
C-DST 16000 >	3 × 400 V	3 × 400 V + N	420 × 370 × 195 mm	110 kg	316 × 158 mm	3UI210/88
C-DST 20000 >	3 × 400 V	3 × 400 V + N	420 × 420 × 240 mm	144 kg	316 × 203 mm	3UI210/133
C-DST 25000 >	3 × 400 V	3 × 400 V + N	420 × 420 × 240 mm	149 kg	316 × 203 mm	3UI210/133
C-DST 30000 >	3 × 400 V	3 × 400 V + N	480 × 480 × 240 mm	181 kg	356 × 184 mm	3UI240/110

* Additional voltages available: 3 × 230 V, 3 × 380 V, 3 × 415 V, 3 × 420 V, 3 × 440 V, 3 × 460 V, 3 × 480 V, 3 × 500 V
Powers from 160 to 2,500 VA as well as from 40,000 VA upon request



Special solutions & higher powers

to suit customer requirements

Alongside standard products, our range also includes customer-specific products such that we can offer solutions for every requirement. The designs range from mains and isolating transformers, through safety and control transformers, to auto-transformers.

Upon customer request, the transformers are also installed in a housing and meet the degree of protection IP23 to IP54. In addition, the transformers can be equipped with PTC thermistors, fuse terminals, circuit breakers, NH isolators, screen windings between primary and secondary, cable clamp rails and cable entries.

Irrespective of whether standard or special solution – we place value on designing transformers with few losses.

Our many years of experience and our know-how enable us to provide competent advice for your individual solutions such that we can supply transformers that are optimal for your application.



Custom UPS solutions for every situation

Individual requirements need individual systems

As a specialist for special power supply requirements, we tackle every challenge. With expert know-how, decades of experience and a broad spectrum of specifically assembled components, we offer you the perfect solution tailored to your requirements.

From standard systems to highly bespoke solutions – one thing always remains constant with us: our unlimited aspirations related to technology, quality and architecture. With the highest reliability of supply, we make sure you never lose power in any situation.



Customised solutions for every requirement

- o Modular UPS architecture for maximum flexibility featuring scalability and redundancy (UPS + battery)
- o Low power consumption, maximum energy efficiency
- o High power with minimum operating costs (TCO)
- o Optimum ease of service
- o Maximum efficiency
- o Compact architecture and high power density
- o Power spectrum into the MVA range
- o Custom solutions for AC and DC applications



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UPS systems for industrial and critical environments

Industrial environments place special requirements on high-performance UPS systems.

Entirely unlike applications in IT infrastructure, industrial UPS systems must respond to the special challenges of "harsh" industrial environments.

It is especially important to protect the UPS system against critical overvoltages. However, Wöhrle also meets the challenge of higher ambient temperatures and the requirements for extraordinarily robust systems with special industrial-grade solutions.



**TOUGH AS
NAILS**

Regenerative UPS systems

When special industrial systems (for example grinding machines) are braked, energy is produced which "flows back" into the electrical circuit of the UPS system.

This flow of energy not only interferes with the function of every UPS system, but also renders the system inoperable. There is even a risk of damage in the inverter and rectifier circuit.

By using special regeneration units combined with matching UPS systems, regenerative energy "flowing back" is converted ensuring the full functionality of the UPS.



**SO "FLOW
BACK" IS NOT
A PROBLEM**

Constructive and visual modifications

Along with the technical components installed, upon request we will also adapt the design and the architecture of the cabinet to suit your overall system.

Advantages at a glance

- UPS architecture in stainless steel cabinet systems
- Special UPS cabinet architecture for robust applications in industrial environments
- Cabinets with degree of protection IP54 for the most comprehensive protection against splashed water
- Air-conditioned UPS systems



AS INDIVIDUAL
AS YOUR
REQUIREMENT

Maintenance-free supercapacitors

Maintenance-free supercapacitors feature an extremely long service life of up to one million charging cycles, a high power density, as well as a broad thermal tolerance.

As such, the benefit for the customer in industrial applications is particularly high.



Advantages at a glance

- Maintenance-free energy storage device
- High energy density
- Independent of ambient temperatures
- Very long energy storage device service life
- Energy storage device features extremely compact design

**LONG LIVE
THE ENERGY
STORAGE DEVICE**

UPS systems for higher ambient temperatures

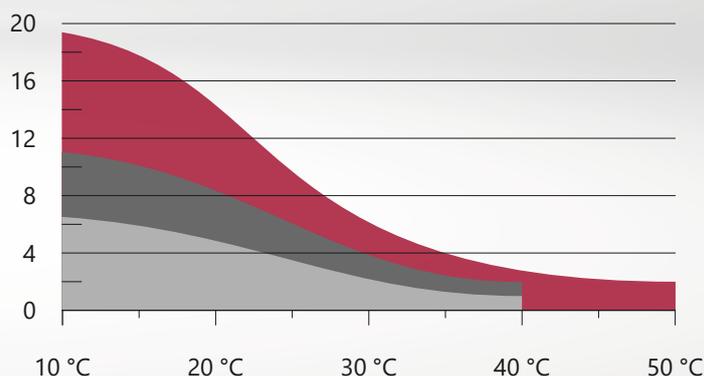
If necessary, we also equip our UPS systems with high-performance energy storage devices for a considerably longer service life at higher ambient temperatures.

Advantages at a glance

- Storage for up to two years without recharging is possible at a storage temperature of +25 °C due to the low rate of discharge of the battery system
- Service life of the battery system up to three times longer compared to conventional technology
- Drastically lower recharging times and higher useable battery capacity possible due to very low internal resistance



WITHSTAND EVERY HOT PHASE



Cyclone cells compared to maintenance-free batteries with 10-year and 6-year life expectancy



WÖHRLE®

Stromversorgungssysteme

UPS system

DC power supplies

Transformers

Custom solutions

Energy storage device solutions

Service & support

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