# POWER SUPPLIES





Woertz AG Hofackerstrasse 47, P.O. Box 948, CH-4132 Muttenz 1, Switzerland Tel. ++41 61 / 466 33 33, Fax ++41 61 / 461 96 06 http://www.woertz.ch

Woertz-USA
151 Discovery Drive, Unit 111
Colmar PA 18915
Tel. (215) 997 8855, Fax (800) 522-3868
http://www.woertz-usa.com, e-mail: woertz1@erols.com

## Power supplies

### Index

	Page
Introduction / About power supplies	27.4
Mini Regulator SnapLine with low power voltage regulator	27.5
Regulated miniature power supplies: Output current 50 mA resp. 100 mA	27.6
Regulated power supplies: Output current 1 A	27.7
Regulated power supplies without transformer, output current 250 mA	27.8
Regulated power supplies without transformer, output current 1 A	27.9
DC/DC Converter 6W, 5VDC, 1.2A, non isolated	27.10
Switching power supplies 5 W: Single and double outputs	27.11
Switching power supplies 15 W: Single, double and triple outputs	27.12
Switching power supplies 30 W: Single, double and triple outputs	27.13
Switching power supplies 120 W: Single and double outputs	27.14
Smoothed power supplies: Output current 3 A	27.15
Smoothed power supplies: Output current 5 A	27.16
Smoothed power supplies: Output current 10 A	27.17
Power supply components: Modules with rectifiers	27.18

woertz ©

## Power supplies

Introduction / About power supplies

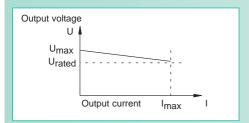
Power supplies have an essential role in control panels. Therefore, it is important that they are extremely reliable in an industrial environment. Our power supplies have a long life expectancy and are well suited for the industrial use. They can operate continuously at full load and even tolerate brief overloads.

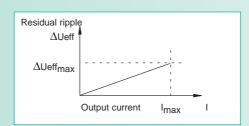
The Woertz power supplies are designed so that they can be either screwed or clipped onto mouting rails according to EN 60715 TH 35-7.5 and EN 60715 TH 35-15 or EN 60715 G32 (DIN). The mounting type depends on the output power of the module.

### **Smoothed power supplies**

Smoothed power supplies are simple energy sources. They create DC voltages which usually have good enough tolerance and ripple level, to suit most industrial applications (input tolerance is often +/- 20%).

Smoothed power supplies consist of a transformer, a rectifier and a smoothing capacitor. At open-circuit operation (without load) the output voltage is somewhat higher than the theoretical value and has almost no ripple. At full load, the output voltage decreases to a lower value. The capacitor at the output is only charged during a short time. It must then be able to fill in the "holes" with the stored energy. This cycle of charging and discharging is repeated over and over again. The result is a DC output voltage with a 100 Hz superimposed ripple. The ripple size depends on both the capacitor and the output current. The Woertz range of smoothed power supplies are well dimensioned, so that the ripple  $\Delta \text{Ueff}_{\text{max}}$  can be kept low even at full load.





### Regulated power supplies

In the case of regulated power supplies, the output voltage is maintained at a nearly constant value, from no load up to the rated current. Our range of regulated power supplies can be divided into two groups:

- Power supplies with linear regulators
- Switched power supplies

In the case of small power supplies, a linear controller is usually used.

Linear regulated power supplies consist of three parts: transformer, rectifier and regulator. The transformer achieves the galvanic separation between output and mains and adapts the voltage to a suitable level for further steps. The obtained AC voltage is then rectified and smoothed. The linear regulator keeps the output voltage stable, even if the current varies. The greater voltage difference between input and output of the regulator, the more power will be dissipated as heat.

Therefore power supplies with linear regulators usually need heat sinks. The advantage of this type of regulation is: it does not induce high frequency disturbance into sensitive devices, regulates fast and is very accurate. When high power has to be supplied, the linear type of regulator becomes less attractive due to the high power losses. Therefore the switched mode power supplies are introduced.

Switching power supplies "cut" the input voltage and transmit these pulses to the output circuit by means of a HF transformer. The output voltage is usually regulated by adjustment of the duty cycle. Often the switching power supplies operate with fixed frequencies of 100-200 kHz. In the case of an ideal controller, output power is equal to input voltage; this means that the power dissipation in the controller is equal to zero and independent of both voltage and current at the input and at the output. In reality the efficiency of a switching power supply is between 70% and 95%. The losses are comparably lower than those in a power supply with linear regulator. It is thus possible to build the switched power supplies smaller and lighter. However the development is more demanding and less flexible than for the linear technology. Due to the low power dissipation (high efficiency) of the switching power supplies, it is possible to lower the current consumption in the whole system, which decreases the operation costs. Woertz is offering switched power supplies for reasonable prices.









- Low power shunt regulator in 5.08mm SnapLine housing
- Protected against short-circuits (10s.)
- Up to three terminals can be connected in parallel to increase output current
- Available for the most common industrial voltages

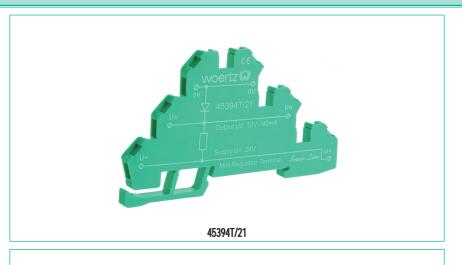


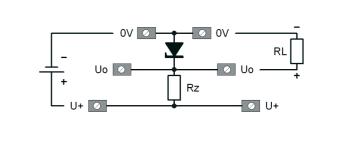
30407T End barrier
30403 Compatible 3-level terminals
30413RO Cross connection 20-pole red
30413BL Cross connection 20-pole blue

30413BL Cross connection 20-pole blue 30790 Cross connection 10-pole grey 81535/x Insulated cross connections w. screws

x=2,3,4,5,10 poles 30411, 12 Isolation strip red, blue Test plug red, black

35455/55xx Labels for custom use RB / 5 x 5







Technical data ( $T_a = 25$ °C)

### Regulator part

Max. input voltage
Output voltage tolerance (at U<sub>N</sub>)
Maximum output current at rated input voltage U<sub>N</sub>

### General data

Max. through-going current (0V/0V or U + /U +) Operating temperature range Nominal cross section of connecting terminals Max. torque Size W x H x D (from rail)



### Order numbers

U<sub>N</sub>: 12 VDC UO: 5.1 VDC/ 80 mA  $(Rz = 82 \Omega)$  $RL_{min} = 65 \Omega$ ) UO: 5.1 VDC/ 35 mA UN: 24 VDC  $(Rz = 470 \Omega)$  $RL_{min} = 145 \Omega$ ) UN: 24 VDC UO: 12.0 VDC/ 40 mA  $(Rz = 270 \Omega)$  $RL_{min} = 300 \Omega$ ) UO: 5.1 VDC/ 15 mA UN: 48 VDC  $(Rz = 2.2 k\Omega,$  $RL_{min} = 330 \Omega$ ) UO: 12.0 VDC/ 20 mA UN: 48 VDC  $(Rz = 1.5 k\Omega)$  $RL_{min} = 600 \Omega$ ) UN: 48 VDC UO: 24.0 VDC/ 20 mA

 $RL_{min} = 1.2 k\Omega$ )

 $U_N + 10 \%$  $\pm 5 \%$ see table below

10 A -55 °C up to + 45 °C 2.5 mm<sup>2</sup> 0.4 Nm 5.08 x 86.5 x 44 mm

45394T/17

45394T/27

45394T/21

45394T/37

45394T/31

45394T/32

 $(Rz = 1.0 k\Omega)$ 

## Regulated miniature power supplies

Output current 50 mA resp. 100 mA



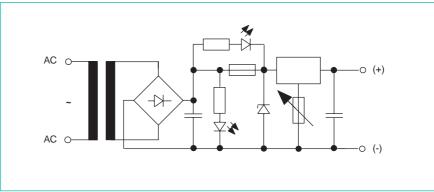






- Regulated power supply Primary side, standard voltage 230 or 115 V AC
- With green LED as operating indicator and red LED as fuse failure indicator







Output voltage Output current Ripple  $\Delta$  U<sub>eff</sub> max. at I<sub>nom</sub> Operating temperature Size W x H x D



Supply voltage

115 V AC / 60 Hz 230 V AC / 50 Hz

### Adjustable voltage

1.5 - 25 V DC 50 mA max. 10 mV  $-20^{\circ}$ C up to  $+40^{\circ}$ C 40 x 83 x 57 mm

> 45220C/6 45220C/3

### Voltage 12 V DC

12 V DC 100 mA max. 10 mV  $-20^{\circ}$ C up to  $+40^{\circ}$ C 40 x 83 x 57 mm

> 45220C/4 45220C/1

### Voltage 24 V DC

24 V DC 100 mA max. 10 mV  $-20^{\circ}$ C up to  $+40^{\circ}$ C 40 x 83 x 57 mm

> 45220C/5 45220C/2

woertz (2)





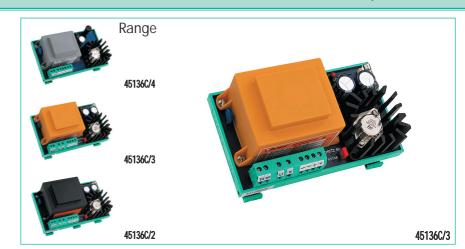


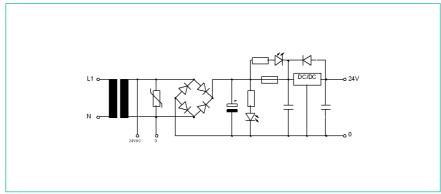


- Operating and fuse indicators
- Low ripple



- Other voltages available







Supply voltage
Output voltage
Output power
Output current
Ripple \( \Delta \) U<sub>eff</sub> max. at I<sub>nom</sub> = 1A
Operating temperature
Size W x H x D



 $230 \text{ V AC} \pm 10\%$   $5 \text{ V DC} \pm 5\%$  5 W 1 A 5 mV  $-20^{\circ}\text{C up to} + 40^{\circ}\text{C}$  140 x 83 x 80 mm

45136C/4

230 V AC  $\pm$  10% 12 V DC  $\pm$  5% 12 W 1 A 5 mV -20°C up to + 40°C 140 x 83 x 80 mm

45136C/3

 $\begin{array}{c} 230 \text{ V AC} \pm 10\% \\ 24 \text{ V DC} \pm 5\% \\ 24 \text{ W} \\ 1 \text{ A} \\ 5 \text{ mV} \\ -20 ^{\circ}\text{C up to} + 40 ^{\circ}\text{C} \\ 140 \text{ x } 83 \text{ x } 80 \text{ mm} \end{array}$ 

45136C/2

## Regulated power supplies

without transformer, Output current 250 mA



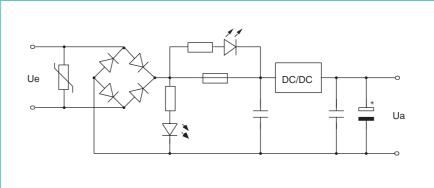






- Power supply module without transformer
- Can be used as AC/DC or DC/DC converter
- Regulator with thermal overload protection
- Tolerates brief overload
- With LEDs indicating operation and fuse failure





## Technical data

Output voltage Input voltage range V AC Input voltage range V DC Output current Ripple  $\Delta$  U<sub>eff</sub> max. at I<sub>nom</sub> = 250 mA Operating temperature Size W x H x D



27.8

### Output voltage 5 V DC

5 V DC  $\pm$  5 % 8 - 18 V AC 11 - 25 V DC 250 mA 5 mV 0.315 A lag  $-20^{\circ}$ C up to  $+40^{\circ}$ C 30 x 83 x 60 mm

45163C/6

### Output voltage 12 V DC

12 V DC  $\pm$  5 % 12 - 24 V AC 16 - 35 V DC 250 mA 5 mV 0.315 A lag  $-20^{\circ}$ C up to  $+40^{\circ}$ C 30 x 83 x 60 mm

45163C/1

### Output voltage 24 V DC

24 V DC  $\pm$  5 % 20 - 25 V AC 28 - 35 V DC 250 mA 5 mV 0.315 A lag  $-20^{\circ}$ C up to  $+60^{\circ}$ C 30 x 83 x 60 mm

45163C



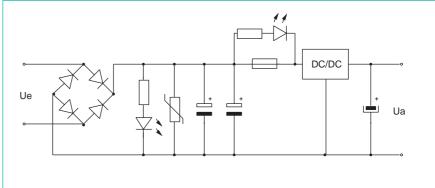






- Power supply module without transformer
- Can be used as AC/DC or as DC/DC converter Regulator with thermal overload protection
- With LEDs indicating operation and fuse failure







Output voltage Input voltage range V AC Input voltage range V DC Output current Ripple  $\Delta$  U<sub>eff</sub> max. at I<sub>nom</sub> = 250 mA

Fuse Size W x H x D



### Output voltage 12 V DC

12 V DC  $\pm$  5 % 12 - 17.5 V AC 14.5 - 21 V DC 1 A 5 mV

Derating at higher input voltage

DC: I<sub>amax.</sub> = 
$$\frac{9 \text{ W}}{\text{U}_{\text{e}} - 12 \text{ V}}$$
 (at U<sub>e</sub> = 24 V DC) (I<sub>a</sub> = 0.75 A)

max. 27 V DC

AC: I<sub>amax.</sub> = 
$$\frac{7.5 \text{ W}}{\text{U}_{\text{e}} - 10 \text{ V}}$$
 (at U<sub>e</sub> = 20 V AC) (I<sub>a</sub> = 0.75 A)

max. 22.5 V AC

1 A lag 70 x 83 x 56 mm

45200C/1

### Output voltage 24 V DC

24 V DC  $\pm$  0.5 %24 - 27 V AC 20 - 32 V DC 1 A 5 mV

1 A lag 70 x 83 x 56 mm

45200C

5VDC, 1.2A, non isolated









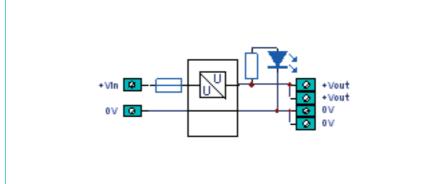
- High-grade DIN rail DC/DC converter Large input voltage range Protected against short-circuits (10 s.)

- Regulated output voltage
- Can be mounted on rails to EN 60715 TH 35-7.5 and EN 60715 TH 35-15
- Light shielded housing
- Input fuse (protection function in the case of a failure at the regulator)
- LED indicating output voltage



Other data (input voltage, output voltage, current, etc)







### Input

Rated voltage range Primary fuse protection

### Output

Power

Voltage and current

### General data

Rated cross section of connecting terminals Operating temperature range Cooling Size W x H x D



10-55 VDC 2 A lag

6 W 5 V DC, 1.2 A

 $2.5 \text{ mm}^2$ -25°C up to +60°C convection cooling 60 x 83 x 69 mm

45490C/05

woertz ଭ









- High grade DIN rail power supply
- Embedded AC/DC converter
- Large input voltage range
- High efficiency up to 76 %
- High reliability (MTBF > 400'000 h)
- Protected against overvoltage
- Protected against overload current
- Protected against short-circuits
- Regulated output voltages
- Single and double outputs
- FCC Class B, VCCI Class B Regulator: cUL 1950, EN 60950, CE
- Can be mounted on rails to EN 60715 TH 35-7.5 and EN 60715 TH 35-15



10 W output power (70 x 83 x 47 mm) Pluggable terminals



### Input

Rated voltage range Current Primary fuse protection Supply frequency

### Output

Power

Voltages and currents

Voltage tolerance Max. supply regulation Load regulation (no-load operation up to full load) Max. output ripple Leakage current

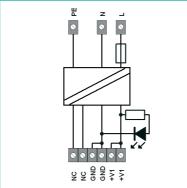
### General data

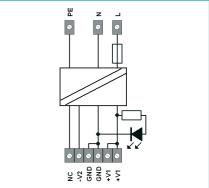
Rated cross section of connecting terminals **MTBF** Weight Operating temperature range Cooling Size W x H x D



3.3 V DC 5 V DC 12 V DC 15 V DC 24 V DC







### Single

100 ... 240 V AC max. 0.25 A 0.5 A lag 47 ... 63 Hz

5 W 3.3 V DC, 1.5 A 5 V DC, 1 A 12 V DC, 416 mA 15 V DC, 333 mA 24 V DC, 200 mA 2 % 0.3 %  $\pm$  3 % 1%  $< 0.30 \, \text{mA}$ 

2.5 mm<sup>2</sup> 400'000 h 141 g  $-25^{\circ}$ C up to  $+70^{\circ}$ C Convection cooling 60 x 83 x 47 mm

> 45401C/03S 45401C/05S 45401C/12S 45401C/15S 45401C/24S

### **Double**

100 ... 240 V AC max. 0.25 A 0.5 A lag 47 ... 63 Hz

5 W

 $\pm$  5 V DC,  $\pm$  500 mA  $\pm$  12 V DC,  $\pm$  200 mA  $\pm$  15 V DC,  $\pm$  160 mA

> 2% 0.3 %  $\pm$  3 % 1%  $< 0.30 \, \text{mA}$

2.5 mm<sup>2</sup> 400'000 h 141 g  $-25^{\circ}\text{C}$  up to  $+70^{\circ}\text{C}$ Convection cooling 60 x 83 x 47 mm

> 45401C/05D 45401C/12D 45401C/15D

## Switching power supplies 15 W

Single, double and triple outputs









- High grade DIN rail power supply
- Embedded AC/DC converter
- Large input voltage range
- High efficiency up to 80%
- High reliability (MTBF > 400'000 h)
- Protected against overvoltage
- Protected against overload current
- Protected against short-circuits
- Regulated output voltages
- Single, double and triple outputs
- Regulator:
- FCC Class B, VCCI Class B cUL 1950, EN 60950, CE
- Can be mounted on rails to EN 60715 TH 35-7.5 and EN 60715 TH 35-15



### On request

Single and double versions also with 10 W output power (70 x 83 x 47 mm) Pluggable terminals



### Technical data

### Input

Rated voltage range Current Primary fuse protection Supply frequency

### Output

Power

Voltages and currents

Voltage tolerance Max. supply regulation Load regulation (no-load operation up to full load) Max. output ripple Leakage current

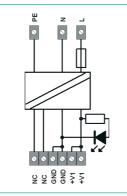
### General data

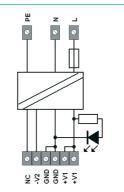
Rated cross section of connecting terminals MTBF Weight Operating temperature range Cooling Size W x H x D

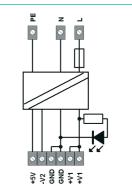


5 V DC 12 V DC 15 V DC 24 V DC









### Single

100 ... 240 V AC max. 0.25 A 0.5 A lag 47 ... 63 Hz

15 W 5 V DC, 3 A 12 V DC, 1.25 A 15 V DC. 1 A 24 V DC, 625 mA 2 % 0.3 % ± 3 % 1%  $< 0.30 \, \text{mA}$ 

2.5 mm<sup>2</sup> 400'000 h 206 g  $-25^{\circ}$ C up to  $+70^{\circ}$ C Convection cooling 80 x 83 x 47 mm

> 45403C/05S 45403C/12S 45403C/15S 45403C/24S

### **Double**

100 ... 240 V AC max. 0.25 A 0.5 A lag 47 ... 63 Hz

15 W  $\pm$  5 V DC,  $\pm$  1.5 A  $\pm$  12 V DC,  $\pm$  650 mA  $\pm$  15 V DC,  $\pm$  500 mA

> 2 % 0.3 % ± 3 % 1% < 0.30 mA

2.5 mm<sup>2</sup> 400'000 h 206 g  $-25^{\circ}$ C up to  $+70^{\circ}$ C Convection cooling 80 x 83 x 47 mm

> 45403C/05D 45403C/12D 45403C/15D

### **Triple**

100 ... 240 V AC max. 0.25 A 0.5 A lag 47 ... 63 Hz

15 W 5 V DC, 2 A, and also  $\pm$  12 V DC,  $\pm$  200 mA  $\pm$  15 V DC,  $\pm$  150 mA

> 2 % 0.3 % ± 3 % 1%  $< 0.30 \, \text{mA}$

2.5 mm<sup>2</sup> 400'000 h 206 g  $-25^{\circ}$ C up to  $+70^{\circ}$ C Convection cooling 80 x 83 x 47 mm

> 45403C/12T 45403C/15T

Single, double and triple outputs









- High-grade DIN rail power supply
- Embedded AC/DC converter
- Large input voltage range
- High efficiency up to 80 %
- High reliability (MTBF > 400'000 h)
- Protected against overvoltage
- Protected against overload current
- Protected against short-circuits
- Regulated output voltages
- Single, double and triple outputs
- FCC Class B, VCCI Class B Regulator: cUL 1950, EN 60950, CE
- Can be mounted on rails to EN 60715 TH 35-7.5 and EN 60715 TH 35-15



Pluggable terminals



### Technical data

### Input

Rated voltage range Current Primary fuse protection Supply frequency

### Output

Power

Voltages and currents

Voltage tolerance Max. supply regulation Load regulation (no-load operation up to full load) Max. output ripple Leakage current

### General data

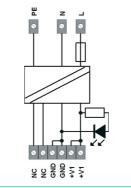
Rated cross section of connecting terminals **MTBF** Weight Operating temperature range Cooling Size W x H x D

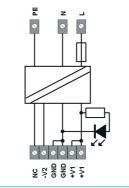


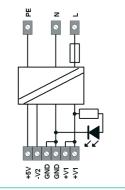
### Order numbers

5 V DC 12 V DC 15 V DC 24 V DC









### Single

100 - 240 V AC max. 0.5 A 0.5 A lag 47 - 63 Hz

30 W

5 V DC, 6 A 12 V DC, 2.5 A 15 V DC, 2 A 24 V DC, 1.25 mA 2 % 0.3 % ± 3 % 1%  $< 0.30 \, \text{mA}$ 

2.5 mm<sup>2</sup> 400'000 h 321 g  $-25^{\circ}$ C up to  $+70^{\circ}$ C Convection cooling 95 x 83 x 50 mm

> 45404C/05S 45404C/12S 45404C/15S 45404C/24S

### **Double**

100 - 240 V AC max. 0.5 A 0.5 A lag 47 - 63 Hz

30 W  $\pm$  5 V DC,  $\pm$  3 A  $\pm$  12 V DC,  $\pm$  1.3 A  $\pm$  15 V DC,  $\pm$  1 A

> 2% 0.3 %  $\pm 3\%$ 1%  $< 0.30 \, \text{mA}$

2.5 mm<sup>2</sup> 400'000 h 321 g  $-25^{\circ}$ C up to  $+70^{\circ}$ C Convection cooling 95 x 83 x 50 mm

> 45404C/05D 45404C/12D 45404C/15D

### **Triple**

100 - 240 V AC max. 0.5 A 0.5 A lag 47 - 63 Hz

30 W 5 V DC, 3 A, and also ± 12 V DC, ± 630 mA  $\pm$  15 V DC,  $\pm$  500 mA

> 2 % 0.3 % ± 3 % 1%  $< 0.30 \, \text{mA}$

2.5 mm<sup>2</sup> 400'000 h 321 g  $-25^{\circ}$ C up to  $+70^{\circ}$ C Convection cooling 95 x 83 x 50 mm

> 45404C/12T 45404C/15T

## Switching power supplies 84W-120W

Single and double outputs









- High grade DIN rail power supply with an attractive quality-price ratio
- Large input voltage range
- Robust metal housing protected against vibration
- High efficiency up to 84 %
- High reliability (MTBF > 260'000 h) Output SELV (safety low voltage)
- Protected against short circuit
- Integrated overvoltage protection
  Single versions with inhibit input to switch off the output (5 - 10 V DC / about 5 mA)
- OK output for remote monitoring (open collector, max. 45 VDC / 20 mA)
- Parallel connection of several power supplies possible
- In- and outputs with PCB connectors
- EMC standards: IEC 801, NAMUR, EN 61000-3-2 Class A, EN 55011 / EN 55022 Class B
- Safety standards: IEC 950, EN 60950, UL 1950, CSA 22.2 / 950
- Approvals: EN 60950, (c us in preparation)



### Technical data

### Input

Rated voltage Voltage range Current Supply frequency Bridging time at full load Fuse protection (replaced by manufacturer)

Adjustment range of the output voltage (can be adjusted by an internal 10-turn potentiometer accessible from outside) Second output of 45406J/12D Second output of 45406J/24D

Max. supply regulation at full load (188...264 V AC) Static load regulation (I<sub>out</sub>: 0 %...100 %, 24 V DĆ) Dynamic load regulation (I<sub>out</sub>: 10 %...90 %...10 %) Start-up time

Max. output ripple (24 V DC)

Max. output noise

Overvoltage protection (12 / 24 / 48 V DC)

Temperature coefficient

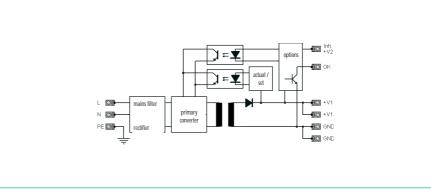
### General data

Rated cross section of connecting terminals Weight Protection degree Cooling Size W x H x D



12 VDC / 7 A (11 ... 15 V DC) 24 VDC / 5 A (23 ... 28 V DC) 48 VDC / 2.5 A (40 ... 55 V DC)





### Single

115 / 230 V AC (front switch) 94 ... 132 V AC / 188 ... 264 V AC typ. 2.5 A / 1.5 A, max. 5 A 47 ... 63 Hz 20 / 30 ms 4 A lag

-5% up to +20%

 $\pm$  0.2 % typ. - 0.1 V / A typ. ± 0.2 % typ. 700 ms 80 mVpp 100mVpp 22 / 32 / 64 V DC  $\pm 0.01 \% / K$ 

2.5 mm<sup>2</sup> 850 q IP 20 Convection cooling 70 x 130 x 110 mm

> 45406J/12S 45406J/24S 45406J/48S

### **Double**

115 / 230 V AC (front switch) 94 ... 132 V AC / 188 ... 264 V AC typ. 2.5 A / 1.5 A, max. 5 A 47 ... 63 Hz 20 / 30 ms 4 A lag

-5% up to +20%

3 ... 10 V DC, 1 A 3 ... 18 V DC, 1 A  $\pm$  0.2 % typ. - 0.1 V / A typ.  $\pm$  0.2 % typ. 700 ms 80 mVpp 100mVpp 22 / 32 / 64 V DC  $\pm 0.01 \% / K$ 

2.5 mm<sup>2</sup> 900 q IP 20 Convection cooling 70 x 130 x 110 mm

> 45406J/12D 45406J/24D



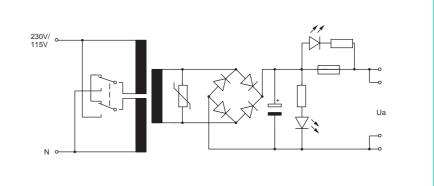






- Operating and fuse LEDs
- Low ripple When installing these modules ventilation must be sufficient
- Protected against overvoltage Switchable between 115 or 230 V AC input







Supply voltage Output voltage range V DC Output power Output current Ripple  $\Delta$   $\rm U_{\mbox{\footnotesize eff}}$  max. at  $\rm I_{\mbox{\footnotesize nom}}=3~\mbox{\footnotesize A}$  Operating temperature

Size W x H x D



### Output voltage 24 V DC

230 V AC / 115 V AC (switch on the module) 21 - 28.5 72 W 3 A 3.15 A lag 0.5 V -20°C up to +56°C

45170C/2

150 x 83 x 84 mm

woertz ℘

## Smoothed power supplies

Output current 5 A



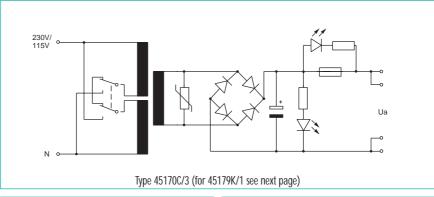






- Operating and fuse LEDs
- Low ripple
- When installing these modules ventilation must be sufficient
- Protected against overvoltages





## Technical data

Supply voltage Output voltage range V DC Output power Output current Ripple  $\Delta$  U $_{eff}$  max. at I $_{nom}=5$  A Fuse Operating temperature

Size W x H x D Distance between fixing holes



### Output voltage 12 V DC

230 V AC / 115 V AC (switch on the module) 10.5 - 14.5

60 W 5 A 0.5 V 5 A lag -20°C up to +56°C

150 x 83 x 84 mm

45170C/3

### Output voltage 24 V DC

230 V AC / 115 V AC (different terminals) 23 - 28.5

23 - 28.5 120 W 5 A 0.6 V 5 A lag -20°C up to +40°C

130 x 215 x 152 mm 73 x 200 mm

45179K/1

woertz 😡



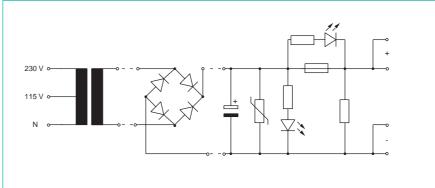






- Operating and fuse LEDs
- Low ripple When installing these modules ventilation must be sufficient
- Protection against overvoltage at the output Both transformer and module are fitted together on a steel plate for screw fixing







Supply voltage Output voltage range V DC Output power Output current Ripple  $\Delta$   $\rm U_{\mbox{eff}}$  max. at  $\rm I_{\mbox{nom}}=10~\mbox{A}$  Operating temperature

Size W x H x D Interval between fixing holes



### Output voltage 24 V DC

230 V AC / 115 V AC (different terminals) 23.5 - 28.5

240 W 10 A 10 A lag

1.0 V  $-20^{\circ}$ C up to  $+40^{\circ}$ C

130 x 240 x 152 mm 99 x 225 mm

45179K/4

woertz ଭ

## Power supply components

Modules with rectifiers



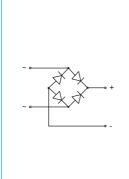


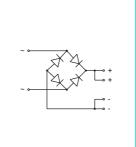


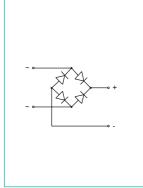


- Modules with bridge rectifier Because of the rise in temperature these modules should not operate at a current higher than the rated one
- Because there is no touch protection, only a voltage of max. 30 V AC should be applied to the 3 A and 20 A versions











Rated voltage Blocking voltage Constant current Rated current Surge current Operating temperature Forward voltage V<sub>f</sub> Reverse current I<sub>r</sub> Connections Size W x H x D



### 250 V AC / 2 A

250 V AC 800 V DC 2 A 4 A\* 200 A (max. 8.3 ms)  $-55^{\circ}$ C up to  $+45^{\circ}$ C

screw terminals 2.5 mm<sup>2</sup> 30 x 83 x 43 mm

45124A/2

### 30 V AC / 3 A

30 V AC 800 V DC 3 A 6 A\* 200 A (max. 8.3 ms)  $-55^{\circ}$ C up to  $+45^{\circ}$ C 0.9 V 25 μΑ screw terminals 2.5 mm<sup>2</sup> 30 x 83 x 43 mm

45124C/3

### 30 V AC / 20 A

30 V AC 200 V DC 20 A 25 A 300 A  $-55^{\circ}$ C up to  $+45^{\circ}$ C 1.2 V 10 μΑ 6.3 mm fast-on connectors 120 x 75 x 50 mm

45327K/20

\* (without specific cooling max. 5s.)

\* (without specific cooling max. 5s.)