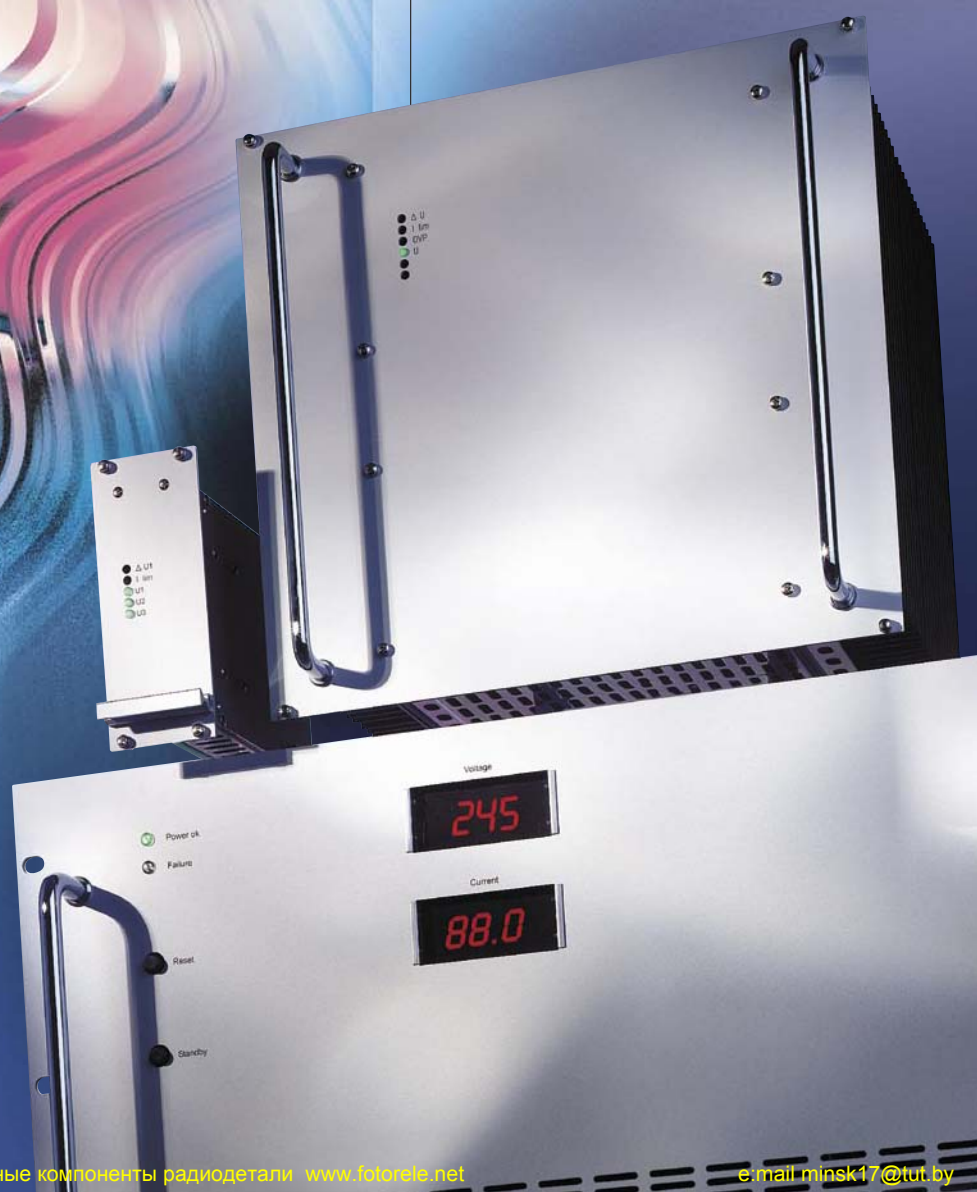


## High Power Conversion Products

# TRACO<sup>®</sup> POWER



[www.tracopower.com](http://www.tracopower.com)



## Corporate Profile

TRACO ELECTRONIC AG is a Swiss company with headquarters based in Zurich, Switzerland. As power supply specialists with more than 30 years of experience we are dedicated to the design and manufacturing of high quality power conversion products. Our mission is to provide customers with the optimal power supply solution in terms of performance, quality and price. We are marketing our products world-wide under the registered trademark TRACOPOWER.

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### *Products*

This shortform catalogue shows our range of high power AC/DC, DC/DC and DC/AC power systems with standard models from 150W to 22kW output power. These products are used in many demanding industrial applications, e.g in

- Railroad industry
- Automotive industry
- Power plants
- Chemical plants
- Factory automation
- Telecommunication

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### *Quality*

Development guidelines, use of industrial grade components, as well as many test procedures during production, ensure a very high product quality and reliability. In addition our factory is certified to ISO 9001/9002 to assure that quality management systems used in design, production and testing meet highest standards. TRACO's commitment to quality is supported by a **3 year product warranty.**

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### *Application Support*

Our experienced team of application engineers is ready to answer promptly technical questions concerning a TRACOPOWER product, from product specificatinos to applicable safety standards. They are pleased to help customers to select the best product for a specific application. Also, up-to-date product information can be downloaded from our website at [www.tracopower.com](http://www.tracopower.com)

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### *Contact*

For price and delivery information please contact our headquarters in Switzerland or our worldwide network of representatives.

## Product portfolio

- Switch mode DC/DC converters from 150 W to 22 kW
- Switch mode AC/DC converters and battery chargers from 150 W to 22 kW
- Switch mode inverters, frequency converters and static switches from 200 VA to 30 kVA
- Accessories for switch mode power supplies





## Switch mode DC/DC converters

## TSC Series

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- **Input voltage ranges:** 10-16 VDC, 18-36 VDC, 36-75 VDC, 80-160 VDC, 160-320 VDC, 320-640 VDC, 450-800 VDC
- **Output voltage:** up to 400 VDC
- **Output current:** up to 400 A
- **Output power:** 50 W - 22 kW

## Features

- Protective device in case of
  - overheating <sup>1)</sup>
  - overvoltage
  - overload
  - continuous short circuit
- Compact and robust design

## Plug-in modules for 19" sub-racks with natural convection

POWER <sup>3)</sup> [WATTS]	WIDTH [TE]	DEPTH [mm]	HEIGHT [U]
		160	3
150	14		
250	21		
500	42		
400	21	220	
800	42		
200	10	160	6
400	14		
600	21		
1200	42		
850	21	220	
1250	28		
1700	42		
2500	56		
2500	28	300	
5000	56		

1 TE = 5.08 mm, 1 U = 44.45 mm

## High power modules with forced cooling

POWER <sup>3)</sup> [kW]	WIDTH [inch]	DEPTH [mm]	HEIGHT [U]
5 / 7.5 / 10	19"	600	4
6 / 8 / 12	19"	360 / 460 <sup>4)</sup>	6 / 9 <sup>4)</sup>
22	19"	600	8

19" = 482.6 mm, 1 U = 44.45 mm

<sup>1)</sup> applicable to power ratings > 800 Watts<sup>2)</sup> applicable to power ratings ≥ 5000 Watts<sup>3)</sup> for low input and output voltages there will be less power in relation to the size<sup>4)</sup> depending on output currentSpecifications:  
Input

Immunity	
- Fast transients	acc. to EN 61000-4-4 level 3
- Surges	acc. to EN 61000-4-5 level 3

## Output

Line regulation (±10%)	0.1%
Load regulation (10 - 90%)	0.2%
Ripple and noise	< 1% + 30 mV pk-pk
Overload protection	current limited to 105-110% of full load
Overvoltage protection	OVP switches off module with automatic return to operation
Remote sense	up to 3 V per wire

## General

Efficiency	80 - 95% typical for low input / output voltage: 75% typical
Operating temperature	-20 to +75 °C optional: -40 to +75 °C above 55 °C derating 2.5%/°C
Storage temperature	-40 to +85 °C
I/O isolation voltage	2100 VDC ( $V_{in} < 60$ VDC) 3000 VDC ( $V_{in} > 60$ VDC)
Safety	acc. to EN 60950, class 1
EMI	acc. to EN 55022, class A optional: class B
Connector	H15 acc. to DIN 41612 or terminals

## Options

- Inrush current limiting
- Input polarity protection
- Output decoupling diode for redundant / parallel operation
- Active current sharing for parallel operation
- Remote on / off (inhibit)
- Output programmable via analogue signal
- Monitoring of input and output voltage
- RS232 or IEEE488 interface
- Wall mounting
- Increased mechanical strength
- Tropical protection



## Switch mode AC/DC converters and battery chargers TSC Series

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- **Input voltage:** 115 / 230 VAC, single phase or 200 / 400 / 480 VAC, three phases
- **Output voltage:** up to 400 VDC
- **Output current:** up to 400 A
- **Output power:** 50 W - 22 kW

### Features

- Protective device in case of
  - overheating <sup>1)</sup>
  - overvoltage
  - overload
  - continuous short circuit
- Compact and robust design

### Plug-in modules for 19" sub-racks with natural convection

POWER <sup>3)</sup> [WATTS]	WIDTH [TE]	DEPTH [mm]	HEIGHT [U]
		160	3
150	14		
250	21		
500	42		
400	21	220	
800	42		
200	10	160	6
400	14		
600	21		
1200	42		
850	21	220	
1250	28		
1700	42		
2500	56		
2500	28	300	
5000	56		

1 TE = 5.08 mm, 1 U = 44.45 mm

### High power modules with forced cooling

POWER <sup>3)</sup> [kW]	WIDTH [inch]	DEPTH [mm]	HEIGHT [U]
5 / 7.5 / 10	19"	600	4
6 / 8 / 12	19"	360 / 460 <sup>4)</sup>	6 / 9 <sup>4)</sup>
22	19"	600	8

19" = 482.6 mm, 1 U = 44.45 mm

<sup>1)</sup> applicable to power ratings > 800 Watts<sup>2)</sup> applicable to power ratings ≥ 5000 Watts<sup>3)</sup> for low input and output voltages there will be less power in relation to the size<sup>4)</sup> depending on output current

### Specifications:

#### Input

Frequency	47 - 400 Hz
Immunity	
- Fast transients	acc. to EN 61000-4-4 level 3
- Surges	acc. to EN 61000-4-5 level 3

#### Output

Line regulation (±10%)	0.1%
Load regulation (10 - 90%)	0.2%
Ripple and noise	< 1% + 30 mV pk-pk
Overload protection	current limited to 105-110% of full load
Overvoltage protection	OVP switches off module with automatic return to operation
Remote sense	up to 3 V per wire

#### General

Efficiency	80 - 95% typical
Operating temperature	-20 to +75°C optional: -40 to +75°C above 55°C derating 2.5%/°C
Storage temperature	-40 to +85°C
I/O isolation voltage	3000 VDC
Safety	acc. to EN 60950, class 1
EMI	acc. to EN 55022, class A optional: class B
Connector	H15 acc. to DIN 41612 or terminals

### Options

- Inrush current limiting
- Automatic selection of 115 / 230 VAC input
- Power factor correction for single phase input
- Output decoupling diode for redundant / parallel operation
- Active current sharing for parallel operation
- Remote on / off (inhibit)
- Output programmable by analogue signal
- Automatic / manual selection of charging characteristic
- Temperature compensated charging voltage
- Monitoring of input and output voltage
- RS232 or IEEE488 interface
- Wall mounting
- Increased mechanical strength
- Tropical protection



# Switch mode inverters and frequency converters TSD Series

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- **Input voltage:** 20 - 640 VDC or 115 / 230 VAC, single phase, 47 - 400 Hz or 200 / 400 / 480 VAC, three phases, 47 - 400 Hz
- **Output voltage:** 115 / 230 VAC, single phase or 200 / 400 / 480 VAC, three phases
- **Output frequency:** 50 / 60 / 400 Hz or programmable within 47 - 400 Hz upon request
- **Output power:** 200 VA - 30 kVA

## Features

- Isolation between input and output
- Sine wave output voltage
- Protective device in case of
  - overheating
  - overload
  - continuous short circuit
  - desaturation of semiconductors <sup>1)</sup>
- Compact and robust design

## Modules with 1-phase output

POWER <sup>2)</sup> [kVA]	DEPTH [mm]	WIDTH	HEIGHT
up to 0.6	160	42 TE	6 U
up to 1.2	220		
up to 1.6		56 TE	
up to 2.5	300		
up to 10 <sup>3)</sup>	460	19"	

1 TE = 5.08 mm, 19" = 483 mm, 6 U = 267 mm

## Modules with 3-phase output

POWER <sup>2) 3)</sup> [kVA]	DEPTH [mm]	WIDTH	HEIGHT
0.6 - 10	460	19"	6 U
up to 30	460	19"	3 x 6 U

<sup>1)</sup> realized for higher output power<sup>2)</sup> for low input voltage there will be less power in relation to the size<sup>3)</sup> for power ratings > 3.6 kVA the transformer needs to be installed externally because of weight and size

## Specifications:

### Input

No-load input power	20 W typical
Immunity	
- Fast transients	acc. to EN 61000-4-4 level 3
- Surges	acc. to EN 61000-4-5 level 3

### Output

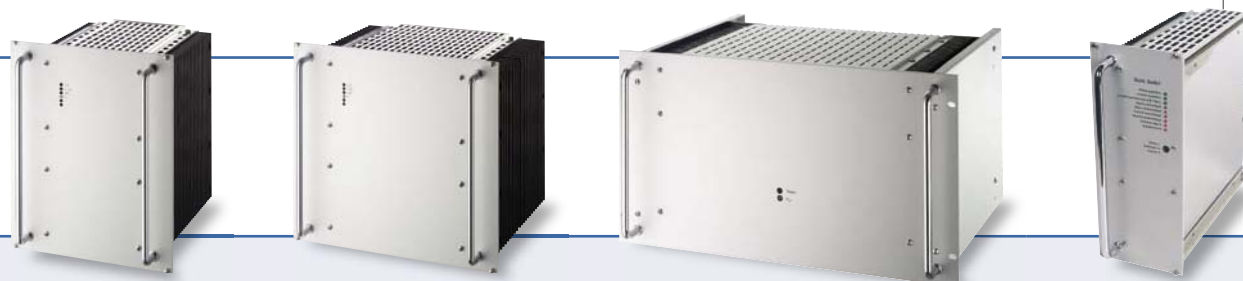
Line regulation (±10%)	2% typical
Load regulation (10-90%)	1% typical, 3% max. (3% typ. 5% max. @ 400 Hz)
Distortion	3% typical (5% @ 400 Hz)
Overload protection (steady state)	current limited to 105% of full load
Short circuit current	electronically limited to 3 x nominal current
Surge power	2 x nominal power for 1 sec.
Crest factor	approx. 3
Power factor	cos φ ≥ 0.7 inductive / capacitive

## General

Efficiency	75 - 90% typical
Operating temperature	-20 to +75 °C optional: -40 to +75 °C above 55 °C derating 2.5%/°C
Storage temperature	-40 to +85 °C
I/O isolation voltage	3000 VDC
Safety	acc. to EN 60950, class 1
EMI	acc. to EN 55022, class A optional: class B
Connector	H15 / F24 + H7 acc. to DIN 41612 or terminals

## Options

- Inrush current limiting
- Input polarity protection for DC input
- Automatic selection for 115 / 230 VAC input
- Power factor correction for single phase input
- Remote on / off (inhibit)
- Monitoring of input and output voltage
- Output programmable via analogue signal
- RS232 or IEEE488 interface
- Wall mounting
- Increased mechanical strength
- Tropical protection
- Static Switch for uninterruptible power supply from 800 VA to 10 kVA



**Accessories for switch mode power supplies**

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**19" Racks**

As standard, all of the modules are designed and manufactured for insertion into 19" racks. Higher power modules are already constructed in 19" format.

In order to provide our customers with complete solutions, 19" racks are offered which can be upgraded in accordance with the customers' requirements, e.g.

- mating connectors wired to a terminal block
- fuses or circuit breakers
- analogue or digital meters
- switches
- fans
- filters
- decoupling diodes
- provisions for keying the modules to ensure module / slot designation

Optionally, the racks can be provided in 23" format.

**Wall-mounting**

Modules, which have the wall mount option, are typically fixed to a structure or within a cabinet.

Depending on the size of the module, this may be done with a flat or angled plate (see photo). The load connections are typically a terminal block.

Should the application not require a pluggable module / rack solution, wall mounting presents an alternative for the customer to choose from.



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Excellence in Power Conversion

**TRACO<sup>®</sup>  
POWER**

Предлагаем продукцию  
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