

Catalog Power Supplies



2016 / 06



DC / DC Power Supplies 12 Vdc Output

type numbers: 00791 | 00845
00846 | 00847



DC / DC Power Supplies 12 Vdc Output

type numbers: 00791 | 00845
00846 | 00847



DC / DC Power Supplies 19 Vdc Output

type numbers: 00122 | 00906



DC / DC Power Supply 19 Vdc Output

type numbers: 00768 | 00409
19870 | 9171683



AC / DC Converter for Field Applications
230 Vac to 24 (28) Vdc / 100 A

type number 00888



Power Supply / Battery Charger
24 (28) Vdc 70 A

type numbers: 00424 | 00426



HPC 2000 Battery Pack and Battery Charger

type number 00684



Power Supply / Battery Charger
24 (28) Vdc / 100 A to 120 A

type number 00441



High Isolation Transformer (AC / AC Converter)
Series STT 1 kVA to 3 kVA 230 Vac-Output

type number 00946



Power Supply with High Isolation Transformer
Series TS 28 Vdc / 80 A (24 Vdc / 100 A) Plus 230 Vac-Output

type number 00950



Power DC / AC Supply NC24
True Sine Wave

type number 00646



Power DC / AC Supply
Pure Sine Wave Inverter

type number 00886



Modular Power System acc. VG 96916-20
„MoFess“ Module for Military Ground Vehicles



Connector Box 230 Vac

type number 00865



24 Vdc Emergency Power Supply for Mobile Vehicle Use

type number 01116

DC / DC Power Supplies 12 Vdc Output

type numbers: 00791 | 00845
00846 | 00847



type number
00791 +
00845



type number
00846 +
00847

type number 00791 + 00846

Input voltage:	18,0 Vdc to 36,0 Vdc
Consumption:	0,05 to 5,0 A at 24 Vdc
Output voltage:	12,0 Vdc
Output current:	8,0 A
Connector in / out:	SJT/PG (type number 00791) SJT/SJT (type number 00846)

type number 00845 + 00847

Input voltage:	11,0 Vdc to 36,0 Vdc
Consumption:	0,05 to 2,5 A at 24 Vdc
Output voltage:	12,0 Vdc
Output current:	4,0 A.
Connector in / out:	SJT/PG (type number 00845) SJT/SJT (type number 00847)

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Description:

This family of DC / DC power supplies is designed for automotive applications to be used under harsh environmental conditions.

Mechanical Specifications:

Material:	Aluminium
Dimensions:	194 x 101 x 40 mm (W x D x H)
Weight:	approx. 1 kg
Ground terminal:	M8
Finish / colour:	Powder coating, green RAL 6031 HR or TBD
Protection:	IP 66 (EN 60529)

Electrical Data:

Input according to:	VG 96916 -5
Voltage accuracy:	±1,0 % max
Temperature coefficient:	±0,05 % /°C max
Ripple & noise, 20MHz BW:	60 mV RMS
max.:	150 mV pk-pk
Safety according to:	EN 60950-1
EMC / EMI:	MIL-STD-461E or TBD

Environmental Data (acc.to MIL-STD-810F):

Temperature:	-40 °C to +85 °C (operating) -46 °C to +90 °C (storage)
Humidity:	0 % to 100 % rel.
Vibration.:	Fig. 514.5C3 for wheeled vehicles
Shock:	10 x 10 g / 6 ms

Option:

Remote control for electronically switch on and off.

DC / DC Power Supply 12 Vdc Output

type numbers: 01268



type number 01268

Input voltage:	18,0 Vdc to 36,0 Vdc
Consumption:	0,05 to 5,0 A at 24 Vdc
Output voltage:	12,0 Vdc
Output current:	8,3 A
Connector In:	VG95234A-10SL-3PN A=VCC, B=GND, C=housing
Connector Out:	VG95234A-10SL-3SN A=VCC, B=GND, C=housing

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Description:

This DC / DC power supply is designed for automotive applications to be used under harsh environmental conditions.

Mechanical Specifications:

Material:	Aluminium
Dimensions:	194 x 101 x 40 mm (W x D x H)
Weight:	approx. 1 kg
Ground terminal:	M8
Finish / colour:	Powder coating, green RAL 6031 HR or TBD
Protection:	IP 66 (EN 60529)

Electrical Data:

Input according to:	VG 96916 -5
Voltage accuracy:	±1,0 % max
Temperature coefficient:	±0,05 % /°C max
Ripple & noise, 20MHz BW:	60 mV RMS
max.:	150 mV pk-pk
Safety according to:	EN 60950-1
EMC / EMI:	MIL-STD-461E or TBD

Environmental Data (acc.to MIL-STD-810F):

Temperature:	-40 °C to +85 °C (operating) -46 °C to +90 °C (storage)
Humidity:	0 % to 100 % rel.
Vibration.:	Fig. 514.5C3 for wheeled vehicles
Shock:	10 x 10 g / 6 ms

Option:

Remote control for electronically switch on and off.

DC / DC Power Supplies 19 Vdc Output

type numbers: 00122 | 00906



type number
00122



type number
00906

Description:

This family of DC / DC power supplies is designed for automotive applications to be used under harsh environmental conditions. It operates as buck converter at a frequency of 80kHz.

General features:

Input according to:	VG 96916 -5
Safety according to:	EN 60950-1
Isolation Voltage:	200 Vdc In-Out
Isolation resistance:	10 ⁷ Ω
Dimensions:	175 x 113 x 58mm (W x D x H)
Weight:	approx. 1 kg

By courtesy of roda mildef GmbH

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Input voltage:	16,0 Vdc to 34,0 Vdc
Consumption:	0,02 A to 3,0 A at 24 Vdc
Output voltage:	19,0 Vdc ±0,2 Vdc indicated by LED on top
Output current:	4,2 A
Connector in / out:	SJT / SJT
Efficiency:	typ. >83 % at 24 Vdc
Protected against:	<ul style="list-style-type: none"> ■ input reverse polarity ■ over voltage ■ short-circuit ■ no-load
Ripple & noise:	<20 mV RMS at 20 MHz

Environmental Conditions:

Protection:	IP 65 (EN 60529)
EMC: VG 95373:	LA01; SA02; SA04; LF01; LF02; LF03; LF05; SF03; SF01
MIL-STD 461E:	CE102; CS101; CS114; CS115; CS116; RE101; RE102; RS101; RS 103

Conditions according to MIL-STD-810F:

Temperature:	-40 °C to +85 °C (operating) -46 °C to +90 °C (storage)
Temp. shock:	-40 °C to +70 °C (ΔT <1min)
Humidity:	up to 95 % rel.
Low pressure (altitude):	up to 4500 m operating
Vibration:	1,5 g, 60 Hz to 400 Hz 1,0 g, 400 Hz to 2000 Hz
Shock :	10 g, 6 ms (operating)

Option:

Output: 24 Vdc / 4,0 A

DC / DC Power Supply 19 Vdc Output

type numbers: 00768 | 00409
19870 | ZN 9171683



type number
00768



type number
00409

type number
0019870

ZN 9171683

Areas of Application:

Our miniature HV-Power Supplies are applied in industry, in research projects and with small CRT-monitors for special applications. Modified versions are also used in avionic equipment. The high quality standard and proven technologies guarantee high reliability.

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

type number 00768

Input voltage:	24 Vdc
Output voltage 1:	14 kVdc $\pm 1\%$ $\leq 400 \mu\text{A}$
Output voltage 2:	1,7 kVdc $< 5 \mu\text{A}$
Output voltage 3:	770 Vdc $< 5 \mu\text{A}$
Output features:	temperature stability ≤ 100 ppm / °C, overcurrent protection

type number 00409

Input voltage 1:	15 Vdc to 20 Vdc / 100 mA
Input voltage 2:	55 Vdc to 65 Vdc / 600 mA
Output voltage:	30 kVdc $\pm 0,4\%$ $\leq 550 \mu\text{A}$ temperature stability ≤ 100 ppm / °C overcurrent protection

type number 19870

Input voltage 1:	12 Vdc
Input voltage 2:	28 Vdc
Output voltage 1:	10 kVdc to 14 kVdc $\leq 400 \mu\text{A}$
Output voltage 2*:	390 Vdc to 600 Vdc $< 200 \mu\text{A}$
Output voltage 3*:	-55 Vdc to -80 Vdc $< 200 \mu\text{A}$

*levels 2 / 3 are linked to level 1

ZN 9171683

Input voltage 1:	15 Vdc $\pm 3\%$
Output voltage 1:	7,5 kVdc $\pm 1\%$ $\leq 100 \mu\text{A}$
Output voltage 2:	1,25 kVdc $< 5 \mu\text{A}$
Output voltage 3:	200 Vdc to 500 Vdc $< 5 \mu\text{A}$
Output voltage:	temperature stability ≤ 100 ppm / °C, Overload protection

AC / DC Converter for Field Applications 230 Vac to 24 (28) Vdc / 100 A

type number 00888



Description:

This Power AC / DC Converter was designed for open air field applications, to be supportive for battery charge for mobiles from line voltage with high power.

The provided stands allows a stable distance to the earth and the required ventilation of the converter.

Input is electrically isolated from output according to EN 60950-1.

Technical data:

Input voltage:	230 Vac \pm 15 %, 50 Hz.
Consumption:	max. 16 A sinusoidal conform to EN 61000-3-2
Output voltage:	28 Vdc +3, -5 % for 85 A, 24 Vdc +3, -5 % for 100 A
Output current:	max. 100 A 20 °C, limited for overload or increased temperature
Output release:	only after proved connection with vehicles supply system
Output protection:	no-load proof short-circuit proof
Inrush current:	< 30 A _{pk} at 230 Vac
Efficiency:	typ. 83 % at 230 Vac and 20 to 80 % load

By courtesy of Rheinmetall Landsysteme GmbH

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Isolation voltage:	floating output in accordance to VDE 0554
MTBF:	>15.000 h at 25 °C
Dimensions:	300 x 480 x 191 mm, (W x D x H) with stands
Weight:	≤15 kg
Housing:	<ul style="list-style-type: none"> ■ made of cast G-AlSi12 (DIN 1725) ■ two carrying handles integrated in the heat sink ■ captive connector covers ■ ground terminal M8 on rear ■ four pierced holes a' Φ 25 mm for a steel cable as anti-theft device
Protection:	IP 66 (EN 60529)

Environmental Data: MIL-STD-810F

Operating temp.:	-46 °C to +63 °C
Humidity:	95 % rel. with thawing
Salt fog:	5 % at 35 °C
Vibration.:	Fig. 514.5C3 for wheeled vehicles
Shock:	10 x 10 g / 6 ms
EMI / EMC:	MIL-STD-461C respectiv. D
ESD.:	EN 61000-4-2
Lightning protect.:	STANAG 4145 / AEP4, annex a (Land) /07.1990
NEMP:	STANAG 4236, Issue 2

Accessories: Connecting cables:

1) 3m screened lead, 230 Vac with integrated 16 A PRCD-S guard circuit (TBD) and CEE – 230V respectively Souriau Series 847 connectors.

2) 5m screened lead (power supply to mobile) with VG 95234 connectors of type M-24-12PN, respectively 24-125 N

Power Supply / Battery Charger 24 (28) Vdc / 70 A

type numbers: 00424 | 00426



type number
00424



Rear view



type number
00426

Electrical Data:

Input:

Nominal voltage:	230 Vac \pm 15 %
Line frequency:	45 Hz - 60 Hz
Consumption:	< 12 A (depending on model)
Inrush current:	< 30 A
Harmonics (current):	Power factor corrected to EN 61000-3-2
Power factor:	> 0,95

Output:

Output voltage:	28 Vdc (intern. adj. 26 Vdc - 28 Vdc)
Output tolerance:	-4 % / + 0 % (0 – 100 % load)
Output current:	30 A / 40 A / 50 A / 60 A (depending on model)
Output protection:	Current limit (110 % of I_{Nom}) Short circuit protection Over voltage shutdown (125 %) Over temperature shutdown with automatic recovery
Minimum load:	no minimum load required
Efficiency:	typ. 85 % – 88 % at 230 Vac
Isolation:	Input-output: 3000 Vac Input-chassis: 1500 Vac Output-chassis: 200 Vdc
Safety:	EN 60950-1

Description:

This range of modular AC/DC-Power-supplies is designed for charging batteries and battery back-up applications for harsh environments and mobile applications.

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Signals / Alarms:

Display:	Green LED: Power-on-signal Red LED: Alarm (batt-low)
Alarms (Relay contact):	Power ok, Battery-low

Power Supply / Battery Charger 24 (28) Vdc / 70 A

type numbers: 00424 | 00426

Connectors:

Line input:	ECTA 133, 3-pin-connector
DC-output:	High current studs (M8)
Alarms:	SJT00RT, 6-pin-connector
Ground terminal:	Studs M8 on front or rear

Environmental Data:

Protection:	IP 65 (EN 60529)
Cooling:	Convection cooling Automatic temperature controlled fan above +50 °C heatsink temperature

Environmental Data (acc. to MIL-STD-810F):

Operating temp. range:	-32 °C to +63 °C
Operating temp. optional:	-46 °C to +85 °C
Derate power:	2,5 % / °C above 50 °C ambient for Version 40 A - 60 A
Humidity:	0 % to 100 % rel.
Salt fog:	5 % at 35 °C
Vibration.:	Fig. 514.5C3 for wheeled vehicles
Shock:	10 x 10 g / 6 ms

Mechanical Specifications:

Dimensions:	360 x 350 x 124 mm (W x D x H) (overall, without connectors)
Weight:	<10 kg (depending on model)
Material:	Aluminium
Finish / Colour:	Powder coating, green RAL 6031

Available Options:

Line Input Voltages:	Single Phase 110 Vac 60 Hz or 95 Vac - 264 Vac, 50 / 60 Hz (wide range input)
Connectors:	(input / output) others on request
Colour:	Black or white or on request
Line Filter / EMC:	FCC / EN / VG / MILstandards / TBD
RoHS-Compliance:	On request

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

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HPC 2000 Battery Pack and Battery Charger

type number 00684



Battery Pack
with charger

Description:

The external battery pack has been designed for field applications of the HPC 2000 hand-held computer system.

Mounted on users belt the battery powers the system up to 7 hours.

The batteries are shock proven and hermetically sealed for water and dust protection.

The length of the spiral cable between the battery pack and the system connector is between 0,45 and 2,5 m.

The charging characteristic is optimized for NiMH-batteries. The charge time for completely discharged batteries is approx. 2 hours. A built in temperature sensor controls the temperature directly at the batteries. In case of battery temperature is rising over 60 °C, the charge process will be stopped.

Options:

- Other voltages
- power class
- interfaces
- charging characteristics

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Battery - Technical Data:

Technology:	NiMH
Capacity:	4,5 AH
Voltage:	24 Vdc
Weight:	approx. 2,2 kg
Dimensions:	230 x 120 x 60 mm (W x D x H)

Charger - Technical Data:

Inputs voltages:	230 Vac / 0.5 A 18 Vdc to 32 Vdc / 3 A
Input connectors:	230 Vac: IEC 320 socket DC: car-power-plug
Dimensions:	250 x 215 x 100 mm (W x D x H)
Battery over-temperature protection:	>60 °C when charging

Power Supply / Battery Charger 24 (28) Vdc / 100 A to 120 A

type number 00441



Rear view

Description:

This range of modular AC / DC-Power-supplies is designed for charging batteries and battery back-up applications for harsh environments and mobile applications.

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Electrical Data:

Input:

Nominal voltage:	400 Vac \pm 10 % (3 phase) and 230 Vac \pm 15 % (1 phase)
Line frequency:	50 Hz - 60 Hz
Consumption:	<13 A at 230 Vac
Inrush current:	< 30 A
Harmonics (current):	Power factor corrected to EN 61000-3-2 for 230 Vac
Power factor:	typ. 0,95 (1 phase with PFC) typ. 0,80 (3 phase)

Output (single phase powered):

Output voltage:	28 Vdc (int. adj. 24 Vdc - 28 Vdc)
Output tolerance:	+0 % / -4 % / (0 % - 100 % load)
Output current:	80 A at 24 Vdc
Output power:	> 1900 W max.

Output (three phase powered):

Output voltage:	28 Vdc (int. adj. 24 Vdc - 28 Vdc)
Output tolerance:	+0 -4 % / (0 - 100 % load)
Output current:	120 A for 24 Vdc
Output power:	2880 W max.

General Features:

Safety:	EN 60950-1
Output protection:	Current limit (120 % of I_{Nom}) Short circuit protection Over voltage shutdown (125 %) Over temperature shutdown with automatic recovery
Minimum load:	no minimum load required
Efficiency:	typ. 88 % at 400 Vac typ. 83 % at 230 Vac
Isolation:	Input-Output: 3000 Vac Input-Chassis: 1500 Vac Output-Chassis: 200 Vdc

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Power Supply / Battery Charger 24 (28) Vdc 100 A to 120 A

type number 00441

Connectors:

Line input 230 Vac:	ECTA 133, 3-Pin-Connector
Line input 400 Vdc:	ECTA 133, 5-Pin-Connector
DC-output:	High current studs (M8)
Alarms:	SJT00RT, 6-Pin-Connector
Ground terminal:	Studs M8 on front or rear

Environmental Data:

Protection:	IP 54 (EN 60529)
Cooling:	Convection cooling temperature controlled fan above +50 °C heatsink temperature

Environmental Data (acc. to MIL-STD-810F):

Operating temp. range:	-40 °C to +70 °C
Derate power:	2 % / °C for $T_{amb} > 50$ °C
Humidity:	0 % to 100 % rel.
Salt fog:	5 % at 35 °C
Vibration.:	Fig. 514.5C3 for wheeled vehicles
Shock:	10 x 10 g / 6 ms

Signals / Alarms:

Display:	Green LED: Power-on-Signal Red LED: Alarm (Batt-low)
Alarms (relay contact):	Power ok, Battery-low

Mechanical Specifications:

Dimensions:	360 x 500 x 124 mm (W x D x H) (overall, without connectors)
Weight:	approx. 16 kg
Material:	Aluminium
Finish / Colour:	Powder coating, green RAL 6031 or TBD

Options:

Line input voltages:	Single Phase 110 Vac 60 Hz or 95 Vac - 264 Vac, 50 Hz / 60 Hz (Wide Range Input)
Line filter / EMC:	FCC / EN / VG / MILStandards / TBD
RoHS-compliance:	On request

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

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High Isolation Transformer (AC / AC Converter) Series STT 1 kVA to 3 kVA 230 Vac-Output

type number 00946



Description:

This AC-AC converter based on a new concept with a high frequency transformer which allows to provide a high isolation (reinforced) between input and output.

The new technology allows a weight reduction of up to 70 % (compared with existing 50 Hz / 60 Hz transformers).

The internal high frequency transformer generates a 230 Vac pure sine wave output at 1 kVA up to 3 kVA (depending on model).

Technical Data:

Input:

Nominal voltage:	230 Vac $\pm 10\%$
Line frequency:	50 Hz
Consumption:	< 16 A
Inrush current:	< 30 A
Harmonics (current):	Power factor corrected to EN 61000-3-2
Power factor:	typ. 0,96 %

Output:

Output voltage:	230 Vac
Output tolerance:	-10 % / +15 % (0 –100 % load)
Output current:	4 to 10 A ($T_{amb} \leq 40\text{ }^{\circ}\text{C}$)
Output power:	1 kVA to 3 kVA
Output protection:	Current limit (110 % of I_{Nom}) Short circuit protection Over voltage shutdown (125 %) Over temperature shutdown with automatic recovery
Efficiency:	typ. 90 %
Minimum load:	no minimum load required
Applicable load:	capacitive, inductive or resistive until $\cos \varphi < 0,6$
Isolation voltage:	5000 Vac (input – output) 3000 Vac (chassis – line)
Safety	acc. to EN61558-2-6 (Safety transformers)
Output protection class:	II (no PE)

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

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High Isolation Transformer (AC / AC Converter) Series STT 1 kVA to 3 kVA 230 Vac-Output

type number 00946

Signals / Alarms:

Optical indicator:	Green LED: Power ok Red LED: Failure 4 White LED: Load-Level
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Mechanical Specifications:

Material:	Aluminium
Dimensions:	360 x 350 x 124 mm (W x D x H) (overall, without connectors)
Weight:	< 8 kg
Finish / Colour:	Powder coating, green RAL 6031 Hr or TBD

Connectors:

Line input:	ECTA 133, 3 Pin Connector
Output:	2 wire cable
Grounding terminal:	M8 on front or rear

Environmental Data:

Temperature:	-40 °C to +70 °C (operating) -46 °C to +85 °C (storage)
Vibration / Shock:	TBD
Protection:	IP 65 (EN 60529)
Line filter / EMC:	FCC / EN / VG / MIL Standards / TBD

Option:

Input voltage:	95 Vac - 264 Vac, 50 Hz - 60 Hz
Output voltage:	110 Vac, 50 Hz - 60 Hz
Special loads:	on request

This is a preliminary data sheet.
Specifications are subjected to change.

Ask for further technical information!
Functional or interface modifications can be realized on
request. Each configuration change causes a new type
number.

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Power Supply with High Isolation Transformer Series TS 28 Vdc / 80 A (24 Vdc / 100 A) Plus 230 Vac-Output

type number 00950



Description

This power supply / battery charger based on a new concept with a high frequency transformer which also provides the high isolation (reinforced) between input and output.

The new technology allows a weight reduction of up to 70 % (compared with existing 50 Hz / 60 Hz transformers).

The internal high frequency transformer generates also an additional 230 Vac output at about 1 kVA. Output power can be shared between the 24 Vdc and 230 Vac output. RCD-Protection is optional available.

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Input: (With RCD-Device)

Nominal voltage:	230 Vac \pm 15 %
Line frequency:	45 Hz to 60 Hz
Consumption:	< 16 A
Inrush current:	< 30 A
Harmonics (current):	Power factor corrected to EN 61000-3-2
Power factor:	> 0,95

Output: (Low voltage)

Output voltage:	24 Vdc (adj. 24-28 Vdc)
Output tolerance:	-4 % / +0 % (0 –100 % load)
Output current:	80 / 100 A (depending on model)
Output protection:	Current limit (110 % of I_{Nom}) Short circuit protection Over voltage shutdown (125 %) Over temperature shutdown with automatic recovery
Minimum load:	no minimum load required
Efficiency:	typ. 85 % – 88 % at 230 Vac

Output: (230 Vac / 50 Hz)

Output voltage:	230 Vac 50 Hz 110 Vac optional
Output tolerance:	\pm 8 %
Output current:	4 A - 6 A
Output protection:	Short circuit protection Over voltage shutdown Over temperature shutdown with automatic recovery
Minimum load:	no minimum load required
Efficiency:	typ. 89 % at 230 Vac
Isolation voltage:	4000 Vac (input – output) 3000 Vac (chassis – line)
Protection class:	II no PE

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Power Supply with High Isolation Transformer Series TS 28 Vdc / 80 A (24 Vdc / 100 A) Plus 230 Vac-Output

type number 00950

Signals / Alarms:

Optical indicator:	Green LED: Power ok Red LED: Battery low White LED: 230 Vac-Out active
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Mechanical Specifications:

Material:	Aluminium
Dimensions:	360 x 500 x 145mm (W x D x H) (overall dimensions)
Weight:	< 20 kg
Finish / Colour:	Powder coating, green RAL 6031 Hr or TBD

Connectors:

Line input:	ECTA 133, 3 Pin Connector
Output:	CEE-Connector (3 pin) or VG96926
Alarm:	SJT00RT, 6 Pin Connector
Output DC:	High current studs M8 isolated
Grounding terminal:	M8 on front or rear

Environmental Data:

Temperature:	-20 °C to +50 °C (operating) -40 °C to +85 °C (storage)
Vibration / Shock:	TBD
Protection:	IP 65 (EN 60529)
Line Filter / EMC:	FCC / EN / VG / MIL Standards / TBD

Option:

Input voltage:	400 Vac 50 Hz
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This is a preliminary data sheet.
Specifications are subjected to change.

Ask for further technical information!
Functional or interface modifications can be realized on
request. Each configuration change causes a new type
number.

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Power DC / AC Supply NC24 / 225 / B True Sine Wave

type number 00646



Performances:

- A single- chip- RISC processor generates a quartz stable AC voltage and controls the output level and the converter temperature.
- Automatic minimum load detection, 2 VA to 40 VA (adjustable) on stand-by mode.
- Well suitable to operate computers and other IT-Technology designed for main voltage of 230 Vac

Technical Data:

Continuous output power:	300 VA
Maximum output power:	350 VA for 10 min. at Tamb = 20 °C
Input voltage (nominal):	24 Vdc
Input voltage range:	21 Vdc to 32 Vdc
Consumption:	12 A
Inrush current:	37 A
Output voltage:	230 Vac +/-5 %
Output frequency:	50 Hz +/-0,5 % true sine wave
Output current:	1,1 A
Short circuit current (max. 0,5s):	3 A
Efficiency (max.):	93 %
Standby mode automatically:	<0,5 VA output power
Standby-consumption:	3 W at 24 Vdc
Safety:	EN60950-1
EMC:	EN61000-6-1, EN61000-6-3
Protection:	Short circuit and overload proof
Temperature:	0 °C to +60 °C (operating) -20 °C to +71 °C (storage)
Cooling:	Temperature and load controlled fan
Dimensions:	250 x 110 x 75 mm (W x D x H)
Weight:	approx. 3 Kg
Protection:	IP 20

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Power DC / AC Supply Pure Sine Wave Inverter

type number 00886



Performances:

This pure sine wave inverter was built to supply 230 Vac for electrical equipment of ground vehicles from the vehicle electrical system voltage of 24 Vdc.

- Pure sine wave output (THD <3 %)
- Power save function
- Standby function
- 93 % efficiency at full load
- Driving highly reactive & capacitive load at start moment
- LED Indication for input voltage, output load level and failure status
- Output controlled by residual current device
- Reverse polarity protection by special coded connector
- Output frequency can be fixed internally on 50 Hz or 60 Hz
- Other performances on request

Technical Data:

Continuous output power:	700 VA
Maximum output power (3 Min.):	800 VA
Surge rating:	1400 VA
Input voltage (nominal):	24 Vdc
Input voltage:	21 Vdc to 30 Vdc
Output voltage:	230 Vac +/-3 %
Output frequency:	50 Hz +/-0.05 %
Output waveform:	Pure sine wave (THD <3 %)
Efficiency (full load):	93 %
No load current:	0.6 A
Standby current:	0.15 A
Input level indicator:	Red / orange/ green LED
Load level indicator:	Red / orange/ green LED
Failure indicator:	Red LED
Protection:	Overload, short circuit, over- / under- input voltage, over temperature, residual-current-operated protective device (RCD)
Safety:	EN60950
EMC:	EN55022:1997, EN55024:1997, EN61000-3-2:1998, EN61000-3-3:1995
Electrical isolation input / output:	Insulation test voltage 500 Vdc
Temperature:	-10 °C to +40 °C (operating) -32 °C to +70 °C (storage)
Cooling:	Convection
Dimensions:	426 x 160 x 141 mm (W x D x H)
Weight:	approx. 7,5 Kg
Protection:	IP 55

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Modular Power System acc. VG 96916-20 „MoFess“ Module for Military Ground Vehicles



This new modular **Power System for Military Ground Vehicles** based on a standard box incorporating up to three different power modules. The power inlet module (230 Vac) includes line filter, lightning protection (optional) and also an engine immobiliser and automatic kick-off connector. Another module is generating a clean and isolated line voltage of 230 Vac up to 12 A. This revolutionary concept is based on a new innovative high frequency transformer which saves about 70 % weight and volume compared to a conventional 50 Hz-transformer.

The clean 230 Vac-line is protected via a fault current protection switch (RCD) and can now be used for any consumer in the car like battery charger, computer a.s.o.

Another available module is a AC/DC-power back-up system with battery charger which is able to charge lead acid batteries up to 60 A (optional 100 A) at 24 Vdc / 28 Vdc.

More intermediate bus converter modules according to the new German military standard VG 96916-20 are available and all can be plugged into this standard power box system.

- Safe power for military ground vehicles (tanks, trucks, containers)
- Output power 1 kVA - 3 kVA
- Automatic power line disconnection at alarm start
- Input from distorted power lines and 230 Vac-emergency-generators
- Light weight high-frequency transformer
- Modular design for versatile use
- Flexible plug-in modules
- AC/AC-converter module
- Battery charger module up to 100 A
- DC/DC-modules acc. to VG-96916
- Lightning protection (up to 20 kA)
- EMI: MIL-Std 461 (optional)
- Protection class II (reinforced Isolation)
- High isolation 4 kV (DIN/EN61558)
- Input-output Isolation EN60950
- Protection degree IP 54 (or IP 65)
- Operating: -46 °C bis +85 °C

Higher power systems (up to 14 kVA) available with 3-phase input

Features:

- AC/AC and DC/DC power supply
- Connection to unknown 110 Vac / 230 Vac line systems (TN, TT-Systems) and generators
- Battery back-up + charging
- Intermediate bus voltage generation 400 Vdc - 650 Vdc
- Power line filter and lightning protection

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Modular Power System acc. VG 96916-20 „MoFess“ Module for Military Ground Vehicles

Available Modules:



Module NA-230-AW

Power Line Connection Module with Standard CEE-Plug and automatic disconnection and/or engine immobiliser
Option FI: EMI-Filter and Lightning Protector (build-in in Module NA)

type number 00992



Module NA-230

Powerline Connection Module with Standard CEE-Plug (230 Vac single Phase)

type number 01021



Module AC-TT

AC / AC High-Frequency-Isolation-Transformer
Output Power 2,5 kVA (Class II equipment)

type number 01020



Module DC-BAT

Battery-Back-Up Supply and Charger
28 Vdc / 60 A (80 A pk) Input: 400 Vdc

type number 00996



Module AC-BAT

Back-Up Power Supply and Charger 28 Vdc / 60 A
Input: 230 Vac with reinforced isolation (Class II)

type number 01022



Module DC-TT

AC / DC High-Frequency-Transformer 2,5 kVA
(230 Vac into 400 Vdc – Intermediate Bus)

type number 01023



Power Box „MoFess“

Enclosure Box for up to 3 Modules

type numbers: 00991 | 00994
| 01029 | 01030



Module SV-1224

DC / DC Intermediate Bus Voltage Converter
Dual Output: 12 Vdc / 20 A and 24 Vdc / 10 A
(Consult Factory for other Voltages / Currents)

type number 01024



Module NA-230-ST

Stand-alone Power Line Connection Module with Standard CEE-Plug (no enclosure required)

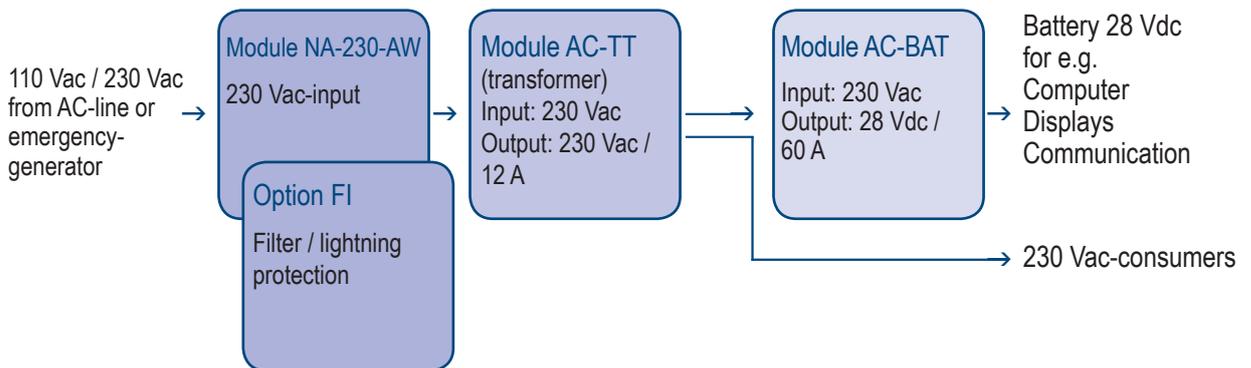
type number 01025

Modular Power System acc. VG 96916-20 „MoFess“ Module for Military Ground Vehicles

Block Diagram

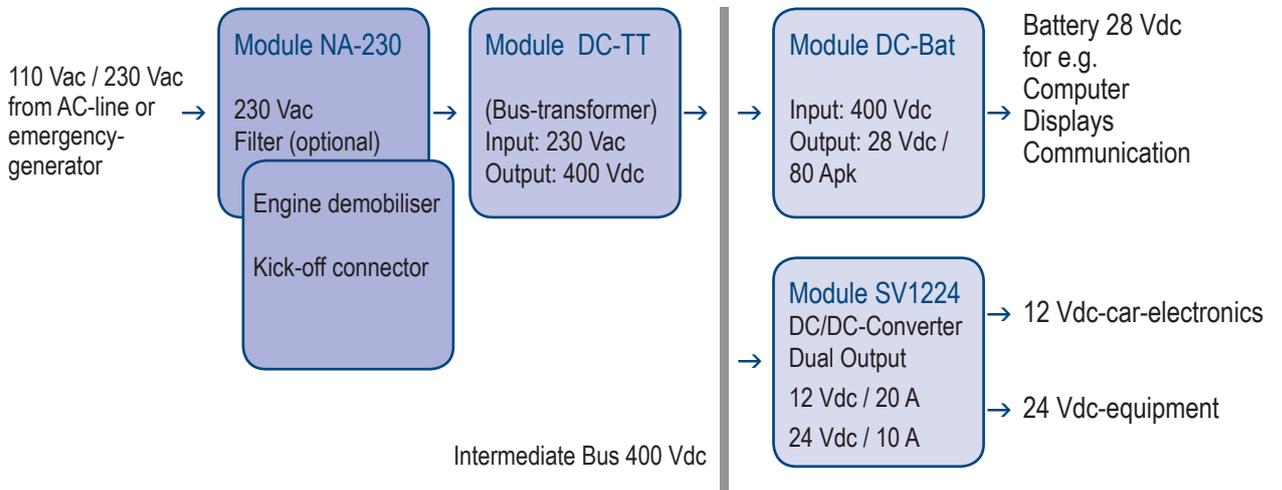
Modular Energy Generation and Distribution System

Typical application: AC-line input-module with EMC-Filter / lightning protection, high-isolation AC / AC-transformer and battery charger



Typical application with Intermediate Bus Voltage:

AC-line Input-Module with automatic kick-off-Connector, EMC-Filter /Lightning protection, AC / DC-Bustransformer and Battery charger



Modular Power System acc. VG 96916-20 „MoFess“ Module for Military Ground Vehicles



Module NA-230-AW: type number 00992
Module NA-230: type number 01021
(AC-Line connection Module 230 Vac)

Technical Specifications:

- AC-connector according to VG (3pole)
- Engine immobiliser
- NA-230-AW: automatic kick-off for power connector at engine start
- Manual connector release
- Water proof box to meet IP 54 - IP 65
- Protection Class II
- Weight appr. 5 kg

Option FI (EMC-Filter and Lightning Protection)

- Line filter acc. to MIL810 (VG or other MIL-Std. on request)
- Lightning protection up to 20 kA
- NEMP / tempest-line filter
- Weight: approx. 1 kg



Module AC-TT High Frequency AC / AC-Transformer type number 01020

Build to meet:	VDE/EN61558 (Isolation transformer)
Input voltage:	230 Vac (-15 +10 %) / 45 Hz - 400 Hz (optional: 115 Vac)
Harmonics:	Power factor corrected to EN/DIN 61000-3-2 (PFC)
optional:	Wide Input 95 Vac - 264 Vac / 50 Hz - 60 Hz

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Inrush current:	< 30 A
Fuse:	16 AT
Safety-isolation:	5000 Vdc /prim-sec. acc. to VDE 0100-410
Protection class:	II (no protective earth)
Safety:	EN 60950
EMC / EMI:	filtered to meet EN55022 / A MIL810 (optional others) EN61000-4-2
Transients:	EN61000-4-4, and 61000-4-5
CE-conformity:	Manufacturers declaration
Output power:	2,4 kVA at 230 Vac 1,4 kVA at 115 Vac
Output voltage:	230 Vac / 50 Hz +10 % to -15 % (or 60 Hz)
Current:	Version 1: 8 A Version 2: 12 A
Fault current protection:	RCD-Protector optional
Weight:	approx. 4 kg

Modular Power System acc. VG 96916-20 „MoFess“ Module for Military Ground Vehicles



Module DC-BAT
Battery Back-up Power Supply and Charger
type number 00996

Technical Specifications:

Input (AC-BAT):	230 Vac / 50Hz - 400 Hz (-15 % to +10 %)
Input (DC-BAT):	400 Vdc (from intermediate bus)
Fuse:	16 A (magn. tripped)
Output voltage:	24 Vdc to 28 Vdc
Tolerance:	-0,5 Vdc to +0,0 Vdc
Current (charger):	60 A / 80 A pk (Derate above +50 °C)
Overcurrent:	short circuit protected
No load:	no minimum load
Current limit:	typ. 110 %
Battery type:	Lead acid batteries up to 200 Ah
Weight:	approx. 3,5 kg



Module DC-TT
High Frequency AC / DC-Converter
type number 01023

Technical Specifications:

Input:	230 Vac / 50 Hz - 400 Hz (-15 % to +10 %)
Optional:	Wide input 110 Vac to 230 Vac
Fuse:	16 A
Output voltage:	400 Vdc
Current:	8 A
Overcurrent:	short circuit protected
No load:	no minimum load
Current limit:	typ. 110 %
Optical indicator:	Input AC-OK Overload DC-Out ok
Weight :	approx. 4 kg

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Modular Power System acc. VG 96916-20 „MoFess“ Module for Military Ground Vehicles



Module SV-1224 Dual Output Power Supply
type number 01024

Technical Specifications:

Input:	400 Vdc (from intermediate bus) (optional AC-input)
Fuse:	16 A (magn. tripped)
Output 1:	12 Vdc up to 20 A
Output 2:	24 Vdc to 28 Vdc up to 10 A
Overcurrent:	short circuit protected
No load:	no minimum load
Current limit:	typ. 110 %
Weight:	approx. 3,5 kg

Typical application:



AC-line input-module with automatic kick-off-connector,
EMC-filter / lightning protection, high-isolation AC / AC-
transformer and one blank panel



AC-line input-module with engine immobiliser and high-
isolation batterycharger (SELV)

Ask for further technical information!
Functional or interface modifications can be realized on
request. Each configuration change causes a new type
number.

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Modular Power System acc. VG 96916-20 „MoFess“ Module for Military Ground Vehicles



Rear View: Box with 80 A power-connector (left) and signal connectors

Power Box Mxx *)

For direct assembling in car bodies (standard box system)

Optional Signals:

- Alarm
- Power ok
- Battery low
- Power disconnect

Technical Specifications:

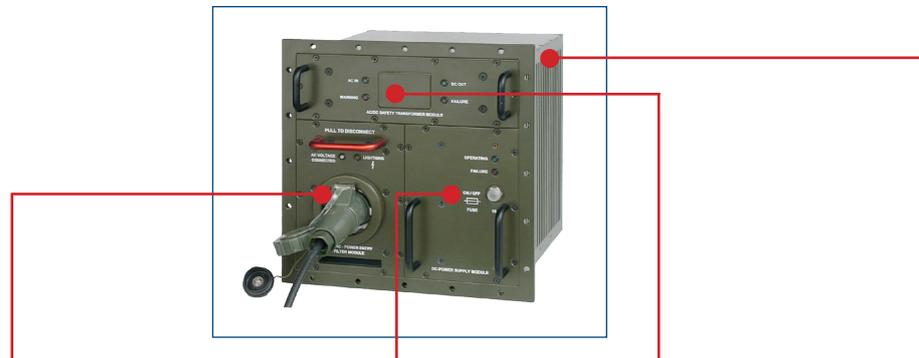
Protection:	IP 54 (optional to IP 65)
Temperature operating:	-20 °C to +70 °C optional: -46 °C to +70 °C
Dimensions:	353 x 353 x 298 mm (W x H x D) Depth may vary up to 400 mm depending on backplane-version
Weight:	approx. 4 kg (without modules)
Connectors:	depend on used options
Ground terminal:	2 Bolts M8
Signals:	6 pin Connector (female)
Mounting:	20 screws (M6)
EMC-gasket:	optional on frontside
Sealing (front):	Rubber sealing (waterproof)
Material / Colour:	Aluminium / RAL 6031 green
Shock / Vibration:	acc. to MIL810G

*) Final version varies on customers requests (power level, number of used modules, type of connectors a.s.o.)

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

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Modular Power System acc. VG 96916-20 „MoFess“ Module for Military Ground Vehicles Overview of possible Modul combinations



01026
Modul NA-230-LD
CEE Connector
+ Lightning
Detection

01021
Modul NA-230
CEE Connector

00996
Modul DC-BAT
400 Vdc →
24 (28) Vdc

00995
Modul AC-TT-RCD
with RCD- prot.
230 Vac →
230 Vac

00991
Power Box
configured with
connectors for
X-Pwr, P-Out, P-In
Control & Signal

01027
Modul NA-230-
AW-LD
CEE Connector
+ Lightning
Detection

00992
Modul NA-230-AW
CEE Connector

01022
Modul AC-BAT
230 Vac → 24
(28) Vdc

01020
Modul AC-TT
without RCD- prot.
230 Vac →
230 Vac

00994
Power Box
configured with
connectors for
Pwr-Out, Pwr-In,
Control & Signal

01032
Modul NA-400-
AW-LD
CEE Connector
+ Lightning
Detection

01031
Modul NA-400-AW
CEE Connector

01024
Modul SV-1224
400 Vdc
↳ 24 (28) Vdc
↳ 12 Vdc

01023
Modul DC-TT
AC/DC Converter
230 Vac →
400 Vdc

01029
Power Box
configured with
connectors for
X-Pwr, Pwr-In,
Control & Signal

01025
Modul NA-230-ST
CEE Connector
Stand alone /
Case

01028
Dummy Panel

01030
Power Box
configured with
connectors for
Power-In,
Control & Signal

Connector Box 230 Vac

type number 00865



Power adapter box with self-release-connector & lightning protection for military applications

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

By courtesy of Rheinmetall Landsysteme GmbH

24 Vdc Emergency Power Supply for Mobile Vehicle Use

type number 01116



Main Features:

- This emergency power supply is able to distribute power of about 10 A at least to a length of time > 30 min. after disconnecting from the input power.
- Operation: normal operation means the input voltage is feed through to the output. When the input power is cut-off, the output is further powered from the battery without any break. Note that in this state the output voltage is equal the battery voltage, which will diminish by time and load.
- The output connectors provide signals for „voltage ok“ and „failure“.
- On „failure“ there is also an acoustic alarm, resettable by signal lines on output connectors
- Attention: there is no input circuit breaker, so the customer has to look for a suitable safety device in the input line.

Technical Data:

Input voltage (nominal):	24 Vdc
Input voltage:	18 Vdc to 36 Vdc
Output voltage (nominal):	24 Vdc
Battery capacity:	10 Ah
Battery charge Current max.:	1,5 Adc
Efficiency charger:	> 80 %
Output overcurrent protection:	automatic circuit breaker, 15 A, each output
operating temperature:	-10 °C to +55 °C (pending on Battery)
Acoustic alarm signal:	Digital sounder type MALLORY SC648

Mechanical Specifications:

Dimensions:	230 x 330 x 181 mm (W x H x D) without connectors
Weight:	< 17 kg
Safety:	EN60950
EMC:	TBD

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

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24 Vdc Emergency Power Supply for Mobile Vehicle Use

type number 01116

Connectors:

Input: VG95234A-10SL-3PN

pin assignment:

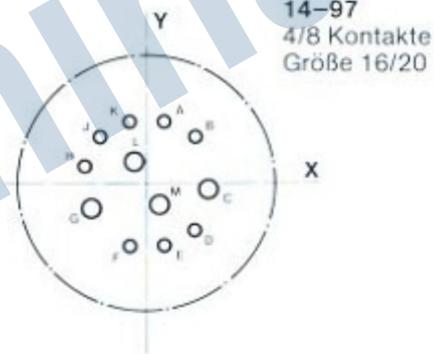
- A 24 Vdc
- B 24 Vdc RTN
- C not connected, pin inserted

Ansicht auf die Vorderseite des Stiftensatzes/ Front face of pin insert illustrated/ Vue face avant de l'insert mâle	Polbild / Contact arrangement/ Arrangement	Kontakte / Contacts / Contacts	
		Anzahl / Number / Nombre	Größe / Size / Taille
	10SL-3	3	15S

Output: SJT00RT14-97SN014 (2x)

pin assignment:

- A LED_A green, „Voltage ok“
- B LED_A red, „Failure“
- C not connected, pin inserted
- D not connected, pin inserted
- E not connected, pin inserted
- F not connected, pin inserted
- G not connected, pin inserted
- H not connected, pin inserted
- J pushbutton „Alarm off“
- K RTN for LED's and pushbutton
- L 24 Vdc (load)
- M 24 Vdc RTN (load)



- Alarm Sounder is integrated.
- LED_A's (anode connection) maybe directly powered by the device (build- in series resistor); pin „K“ is the return RTN for the LED's cathode connection.
- Pin „J“: internal 1k0 pull-up-resistor to 5 Vdc; pin „K“ is the return RTN. For activation „alarm off“ the external pushbutton shorts pin „J“ to return RTN pin „K“
- Grounding: one M8- bolt nearby the connectors

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

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