ELECTROTEHNICA
Echipamente Electrice

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DC/AC INVERTER

In:220VDC
Out: 230VAC (2.25kVA)

KEY FEATURES

•1/4 x 19", 2U
•Excellent overall efficiency and high regulation speed
•"Hot plug-in" design with backplane connection
•High power density
•CAN-Bus interface
•Ability for parallel operation
•Temperature-controlled fan cooling
•Redundant synchronization bus
•Excellent sinusoidal output
•Input over/under voltage shutdown, overload and short circuit-proof

PRODUCT DESCRIPTION

The inverter includes the newest switching technology with digital control. Due to this fact a dramatic reduction of volume and weight was achieved.

With a state-of-the-art control solution it provides an excellent functionality and several protection features.

The inverter is able to run in parallel operation mode to increase the reliability of the AC system without any additional options. Additional modules can be integrated in wired slots during normal system operation. For higher reliability the hard wired synchronization bus between paralleled inverters is working in a redundant mode.

Up to 4 inverters can be installed in a 19"-subrack with only 2U. The module is prepared to operate with the new static switches series to increase the system availability furthermore.

APPLICATIONS

Inverter module for AC power supply facilities with or without battery in all areas of industry, power generation and power distribution.

TEHNICAL DATA

Nominal input voltage	216VDC
Nominal input current	9.2ADC @ 216VDC
Input frequency range	DC
Input voltage range	183.6-270VDC
Inrush current	≤nominal input current
Overall efficiency	≥90%
Internal input fusing	No; external fusing required (16A)
Nominal output voltage	230VAC ±0.5%, adjustment range: 200-242VAC; parallel mode: 230VAC ±5%
Nominal output current	9.8AAC @ cos phi=0.8; 7.8AAC @ cos phi=1 (resistive power)
Nominal output power	1800W/2250VA @ cos phi=0.8
Overload capability	130% for 5 sec, 110% for 1 min
Output frequency	50Hz ±0.01Hz
Synchronization range	48-52Hz/58-62Hz (60Hz optional)
Static regulating deviation	±0.5%
Dynamic accuracy of the output voltage	<3% Vnom at load variations between 10%-90%-10% Inom; regulation time ≤0.3ms
Short circuit protection	Continuous short circuit proof; 3x Inom for 2.5 sec
Parallel operation	Yes; current sharing ≤10% Inom; slope down output voltage line
THD/Crest factor	≤2% at linear load/≤3
Power factor range	0.5 ind. - 1 - 0.5 cap.
External output fuse	10A gL or MCB characteristic B
LED signalling	Operation (green), Vo OK (green), Alarm (red)
Main processor	16Bit Fujitsu
Electronic protection	Input under voltage, input over voltage, over temperature, overload and short circuit protection
External synchronization	Parallel operation; no fixed master; redundant synchronization bus; external synchronization by static transfer switch
Isolated signalling contacts	“General fault”; relay contact NO; 60V/0.1A
Communications interface	CAN-Bus, proprietary protocol
Ambient temperature	Operation: -20C to +55°C (power derating 2%/K above +40°C); storage: -40°C to +85°C
Cooling	Fan cooling (temperature-regulated; monitored)
Climatic conditions	according to IEC 721-3-3 class 3K3/3Z1/3B1/3C2/3S2/3M2
Max. installation altitude	≤ 1500m
Audible noise	<45dBA
Type of construction	19“subrack 2U
Dimensions (W/H/D)	106.4/88.4/335mm
Weight	approx. 4.0kg
Type of enclosure / Protection class	IP20 (front panel) / 1
Colour (front panel)	RAL 7035, black imprint
CE conformity	yes
Compliance to safety standards	EN60950-1; VDE0100 T410; VDE0110; EN50178; EN60146
Compliance to EMC standards	EN55011/22 class “B“; EN61000-4 T2-5
Connections	DC input, AC output and signalization: DIN41612-M connector


88.4 mm
106.4 mm
335 mm

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DC/AC Inverter

IN:100VDC
OUT: 230VAC (3.3kVA)

Description
The inverter family represents a high frequency DC to AC power conversion technology in 19" compatible racks. Suitable for any low to medium modular AC power system these inverters are ideal for applications in telecommunication, industry and railroad power supplies.
Combining high frequency conversion with galvanic isolation between input and output, inverter is a flexible, efficient and reliable AC power source. The possibility of parallel connection offers highest flexibility for realizing systems with increased output power and/or (n+1)-redundancy.
The inverter is designed to operate together with the static switch and supervisory module. Remote control and communication is performed via CAN interface. Alternatively the units can be operated in stand-alone mode.

Key Features

>> 19", 3U
>> Wide range DC input
>> "Hot-Plug-In" systems
>> High power density
>> CAN-Bus interface
>> Ability for parallel operation
>> Digital displays to notify all relevant parameters
>> Temperature-controlled fan cooling
>> Input over/under voltage shutdown, overload and short circuit-proof

Technical Data

Nominal input voltage	108VDC
Nominal input current	26.7ADC
Input frequency range	DC
Input voltage range	+20/-15%
Inrush current	≤ nominal current
Overall efficiency	≥90%
Internal input fusing	MCB 1 pole
Nominal output voltage	230VAC ±0.5%, sinusoidal
Nominal output current	14.35A
Nominal output power	3300VA (cos phi= 0,8)
Overload capability	130% for 30 seconds
Output frequency	50 or 60Hz programmable
Synchronization range	45– 65Hz
Accuracy	±0.5% static
Recovery time	< 0.3 ms at load transients 10%- 90%- 10%
Short circuit protection	Continuous short circuit proof, 3 x Inom for app. 2.5 sec.
Parallel operation	Max. 10 pieces, load sharing app. 5% Inom
THD/Crest factor	≤ 2% at linear load/≤ 3

Power factor range	0.5 ind. - 1 - 0.5 cap.
LED signalling	Standby, Vout, Vin>, Vin<, overload, overtemperature, general fault
Electronic protection	Mechanically coupled input and output MCB, input undervoltage
	shut down, input overvoltage shut down, overtemperature shut
	down, overload / short circuit shut down
External synchronization	Parallel operation and three-phase systems without additional
	components or specified master
Remote signals	Relay contact „General Fault“.
Digital display	2 x 3 digits, output voltage; output current; frequency, input
	voltage, input current, temperature, effective power, reactive
	power, cos phi
Microprocessor control	Programmable monitoring and protection for all system

Communication	CAN-Bus interface for communication with static bypass switch
Ambient temperature Operation:	-20°C to +55°C, storage: -40°C to +85°C
Climatic conditions	IEC 721-3-3 class 3K3/3Z1/3B1/3C2/3S2/3M2
Max. installation altitude	≤1500m.
Audible noise	≤45dB (A) at 1 m distance.
Construction	19‘‘, 3U, rear side connectors
Dimensions (W/H/D)	483/133/360mm.
Weight	approx. 27kg.
Minimum installation depth	440mm ex. 19‘‘ frame.
Cooling	Speed-controlled fan with overtemperature monitoring
Type of enclosure / Protection class	IP20 (mech.); 1 acc. to EN 60950 (electr.)
Surfaces	Front panel:powder coating RAL 7035, black imprint; constructive
	parts: anodized meta
Compliance to safety standards	EN 60950-1, VDE 0100 part 410, VDE 0110, EN 50178, EN 60146
Compliance to EMC standards/CE conformity	EN 55011, EN 55022 class „B“, EN 61000– 4 part 2– 5 /yes

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DC/AC Inverter

IN: 220VDC
OUT: 230VAC (5.0kVA)

Description

The inverter family (1kVA–5kVA) is equipped with a 50Hz isolation transformer following a primary side pulse-width modulation stage and is available as 19”-compatible rack or wall mounted cabinet.
These inverters are especially suited for applications in power plants, industrial, railroad and shipping AC power supplies up to 40kVA output power.
The combination of rugged mechanical construction, high overload ability and electrical isolation between input and output offers a very high flexibility in system configuration.
The inverters can be operated as single unit or in parallel connection (optionally) to provide power increase or further improved reliability by (n+1)- redundancy.
Operation with a static bypass switch is also possible.

Applications

Inverter module for AC power supply facilities in all areas of industry, power generation and power distribution.
Especially for heavy duty loads with high inrush currents.

Key Features

- 19“, 5U
- Wall cabinet version available
- “Hot plug-in“ system (19’’)
- Very high overload ability
- Ability for parallel operation (optional)
- Analogue measurement instruments (Vout, Iout)
- Temperature-controlled fan cooling
- Input over/under voltage shutdown, overload and short circuit-proof

Technical Data

Nominal input voltage	216VDC
Nominal input current	20.0ADC
Input frequency range	DC
Input voltage range	+20/-15%
Inrush current	≤ nominal current
Overall efficiency	≥91%
Internal input fusing	No; (external fusing required (25A)
Nominal output voltage	230VAC ±0.5%, sinusoidal
Nominal output current	21,8A
Nominal output power	5000VA (cos phi= 0,8)
Overload capability	160% for 1min, 130% for 10min, without shut down
Output frequency	50Hz±0,05%
Synchronization range	49,5–50,5Hz
Accuracy	±0.5% static.
Recovery time	<0.3 ms at load transients 10%- 90%- 10%
Short circuit protection	Continuous short circuit proof, 2…2,5 x Inom for app. 2.5 sec.
Parallel operation	Max. 12 pieces, load sharing app. 5% Inom, with external parallel operation chokes
THD	≤ 3% for linear load
Crest factor	2,5
Power factor range	0 ind. - 1 - 0 cap..
External output fusing	25A
LED signaling	Standby, Vout, Vin>, Vin<, overload, overtemperature, general fault
Electronic protection	input undervoltage shut down, input overvoltage shut down, overtemperatur shut down, output voltage OK, overload without shut down, short circuit shut down
External synchronization	yes
Remote signals	Relay contact „General Fault“
Analog Measurement Instruments	Iout, Vout
Ambient temperature	Operation: -20°C to +55°C; Storage: -40°C to +85°C
Climatic conditions	IEC 721-3-3 class 3K3/3Z1/3B1/3C2/3S2/3M2
Max. installation altitude	≤1500m
Audible noise	≤45dB (A) at 1 m distance
Construction	19‘‘, 5U, rear side connectors
Dimensions (W/H/D)	483/221/460mm
Weight	approx. 52kg
Cooling	Speed-controlled fan with overtemperature monitoring
Type of enclosure / Protection class	IP20 (mech.); 1 acc. to EN 60950 (electr.)
Surfaces	Front panel:powder coating RAL 7035, black imprint; constructive parts: anodized metal
CE conformity	yes
Compliance to safety standards 60146	EN 60950-1, VDE 0100 part 410, VDE 0110, EN 50178, EN
Compliance to EMC standards	EN 55011, EN 55022 class „B“, EN 61000– 4 part 2– 5