

## TECHNICAL DATA

### Input data

Input voltage	230 Vac (175 — 255 V)
Frequency	50 Hz (47 — 63 Hz)
Inrush current according to	EN61000-3-2
Power factor	≥ 0.98

### Rectifier IM1100

Output voltage (nominal)	110 Vdc
Output power	1000 W nominal (10 A/110 Vdc)
Output current limit	10 Adc
Output dynamic response (change load 20% to 100%)	1.5%
Output load line stability	±1%
Output voltage noise	≤ 50 mVeff, ≤ 100 mVp-p
Efficiency	η > 87%

### System data

Output voltage	110 Vdc, nominal
Max. Output voltage (adjustable using BCU)	116 - 128 Vdc
Max. Load current (adjustable using BCU, n - number of rectifier modules)	n x 7.5 A
Charging current	0.1C standard adjustable: 2—16 A
Temperature compensation	4 mV/C°/cell (standard), adjustable: 1—5mv/C°/cell

### Output specifications under absence of main ac supply

Output voltage	90 — 120 Vdc
Low voltage battery disconnect (LVD), adjustable, optionally	88 — 96 Vdc
Battery turn-on threshold, adjustable	98 — 104 Vdc

### DC (load) distribution

DCD2	2 terminal connectors, up to 30 A fuse (ceramic, 6.3x32 mm)
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### F - remote alarms interface (DB9 connector)

Interface	RS232
Number of signals (alarms)	8
Isolation	optoisolation

Designed for Batteries with capacity 110 V/24 – 200 Ah

### Designed and tested according to

Safety standard	EN 60950 (UL1950)
EMC standard	EN 55022/CISPR22, class A

### Environmental

Ambient operating temperature	0 to +50°C
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### Dimensions (L x W x H)

Rectifier (IM800)	150 x 105 x 200 mm
ETSI rack with fan unit	195 x 533 x 220 mm
ETSI cabinet	1000/1200 x 600 x 450 mm



SN12/3300 with extra battery charging, additional devices and system for remote monitoring and control (DNU24) in one cabinet (1000 mm)

# SN12/3300

## POWER SUPPLY SYSTEM 110 V<sub>DC</sub> / 3 x 10 A

- Compact modular power supply system - one rack with 3 rectifier modules, power up to 3300 W
- Full front access to supply system – easy installation and operation
- Parallel working of rectifiers – active current sharing, true redundant configuration (N+1)
- Power factor ≥0.98
- Optimal Charging of Batteries
- Additional output for extra battery charging - optionally
- Two independent battery breakers and two load breakers
- Programmable battery low voltage disconnect (LVD) - optionally



- Communication with remote monitoring center
- Use of Iritel SDNU System for remote monitoring and control of power electronic devices – optionally



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**Description**

SN12/3300 system is power solution designed for measurement, control, regulation and telecommunication applications with 110 Vdc (nominal) on output. Voltage supplied to load need to be reliable and permanent DC power supply regardless on main supply failure.

Power supply system SN12/3300 is modular and consists from up to 3 rectifier modules in one rack. System is positioned inside cabinet (with additional place inside for other devices included monitoring and control equipment and/or smaller batteries). SN12/3300 can be configured for different load power: 1100, 2200 or 3300 W. In redundant configuration of power supply system (N+1), reserve rectifier is also active and work in parallel work with others rectifiers. Accuracy of rectifiers active current sharing is 5%.

SN12/3300 are delivered in two configurations: basic (described above) and extended for additional batteries charging. Second version going when additional string of batteries is present at user. That auxiliary battery string is connected with primary set of batteries when battery voltage goes under 107 V (without presence of main ac voltage). In this configuration, additional battery charger is delivered with SN12/3300 V.

Batteries are paralleled with load and system output. Battery management includes controlled current charging of batteries independent of load current (IU characteristic), automatic temperature compensation. Up to two battery sets can be connected to SN12/3300 (parallel to each other).

Temperature compensation with additional cable and sensor is available, also, programmable low voltage disconnect (optionally).

**System overview**

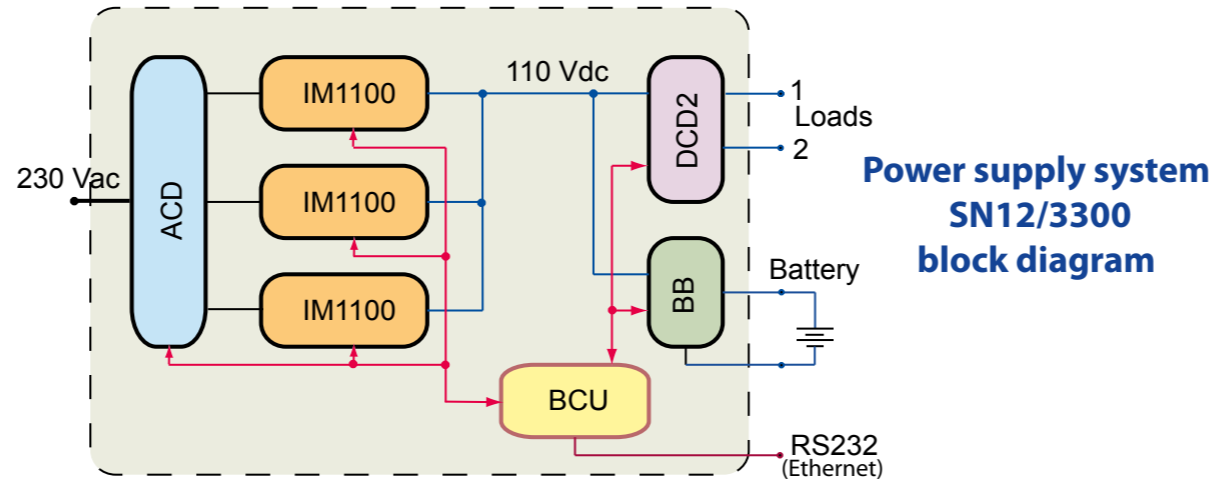
SN12/3300 system is composed of:

- AC distribution (ACD)
- Up to 3 rectifier modules (IM1100), power of each rectifier 1100 W (nominal)
- Load (DC) distribution (DCD2) with two fuses (two equal terminals for user)
- Battery board (BB) with double battery fuses and terminals (for two battery sets) – delivered optionally with Low Voltage Disconnect (LVD) part inside module
- BCU – basic control unit for control, monitoring and communications, with LCD display and keyboard for selfguided controller operation, LEDs, RS232 and other interfaces
- Module for connection with additional battery set - delivered optionally

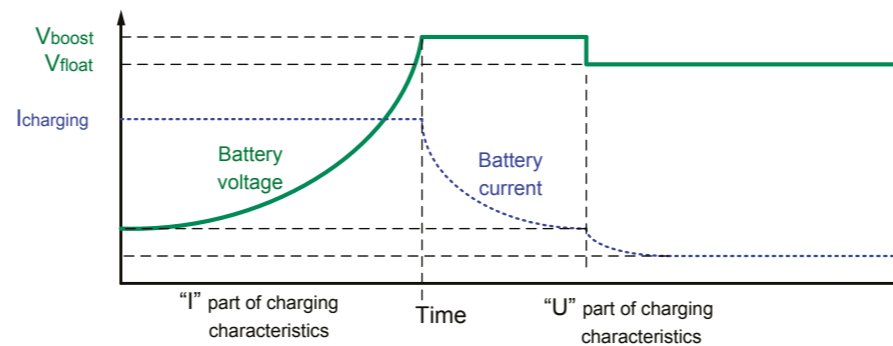
**Protections**

Protections include:

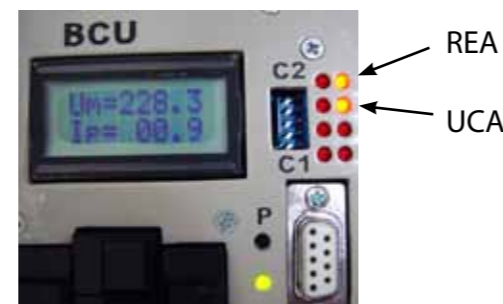
- Overload (current limit) and short circuit protection, active and passive, programmable and with fuses
- Electronic Low Voltage Disconnect (LVD) – battery over discharging protection; value of battery turn-off threshold is programmable (through keyboard or RS232 interface) – this is optionally



**Power supply system SN12/3300 block diagram**



**Batteries charging process**



**Rectifier module IM1100**



**SN12/110 with other equipment in closed cabinet**

- Battery current overcharging – value of charging current is controlled independently of load current (even in the case BCU is not active for some reason) and programmable through keyboard or RS232 interface (BCU)
- Over Voltage Protection (OVP) – output dc voltage and input ac voltage, active and passive
- Thermal rectifier protection (active)

**System monitoring**

System monitoring and control can be achieved locally (display and keyboard on BCU) or remotely through existing telecommunication network. All voltages and currents in system are measured and can be readout on BCU display (also alarms if exist) or via remote user PC-based software; accidental data, independently of usual measurements can be buffered in databases.

Local monitoring and control through keyboard and LCD display on BCU module allows:

- Measuring of voltages and currents in the system
- Adjusting of next working parameters:
  - Number of shelves and number of rectifiers
  - Maximal load voltage and current
  - Battery turn-off threshold (optionally)
  - Maximal battery charging current
  - Floating and boost voltage and value of current when system goes from boost to float voltage on output

Local light indication of basic system alarms are realized with LEDs on BCU mask. These alarms are:

- Low ac input voltage (main supply alarm – MSA)
- Rectifier fail (rectifier error alarm – REA)
- Battery voltage less than 93 Vdc i.e. rest capacity ≤10% (under voltage alarm – UVA)
- Battery voltage less than 107 Vdc (under charge alarm – UCA)
- Input ac fuse failure (main fuse failure – MFA)
- Battery fuse failure (battery fuse alarm – BFA)
- Output load fuse failure (distribution fuse alarm – DFA)

Green and red LED on each rectifier indicates correct work or rectifier failure.

Green and red LED on battery board indicates correct connection and battery employing.

**Connection with system for remote monitoring and control**

SN12/3300 can be connected with any other communication system. Data formatting and protocol are known to end user. For example, System for remote monitoring and control of power electronics – SDNU (IRITEL) or monitoring system SUNCE-M (Network Manager, IRITEL) can be used to communicate with SN12/3300 (monitoring of values, control of system by changing system working parameters, data collecting). Also, some already existing monitoring system at user or just PC based software (delivered with SN12/3300) are also suitable.