

### | General description:

The SDMB 500-02 power supply system is intended for uninterruptible supply of 48Vdc loads by direct current in direct full-float operating mode. The construction of the system using cooperation of rectifiers type PDM 48/41-2000W and batteries under control of advanced PI1 controller.

### | Application:

- + telecommunication and teletransmission;
- + IT systems;
- + industrial automation systems.

### | Features:

- + modern, constant power rectifiers;
- + easy installation of rectifier (replacement or extension) during normal operation status (hot-swap);
- + continuous control of system's operation and fast reporting of alarm states by means of controller;
- + easy and full safe operation;
- + high efficiency – less energy consumption and heat dissipation;
- + immunity to short-circuits and overloads of output circuits;
- + immunity to electromagnetic interferences;
- + wide range of optional equipment.

### | Rectifiers:

Constant power rectifier PDM 48/41-2000 with nominal output power 2000W is equipped with microprocessor card controlling its work's parameters. The digital communication between rectifiers and control unit, gives operator the possibility of remote supervision on individual rectifiers of the system.

The PDK rectifier design is based on high-frequency energy conversion technology with DSP (Digital Signal Processor) function. This feature means less number of parts, optimized price & performance, better power distribution between rectifiers. In addition, the rectifier is equipped with a PFC provides sinusoidal current consumption from the mains.

### | Power supply of the system:

The SDMB 500-02 system is supplied from three-phase AC supply line 3x230/400 Vac. Failure of one or two phases of mains supply does not cause the whole power supply system to be switched off (individual rectifier units are supplied from different phases).

### | Design of the system:

In its standard version the power supply system is in form of stand-alone cabinet. Height of the cabinet is 1800mm, 2000mm lub 2200mm.

The standard version the power supply system consists:

- + microprocessor control unit PI1 with OLED display, control buttons and USB port for PC connection;
- + available space for installing up to 12pcs. of PDM 48/41-2000 rectifiers;
- + free space depends on used battery type and capacity;
- + adjustable every 1U battery space depends on used battery type;
- + battery protections with status monitoring – NH00 fuse holders – up to 2 pcs.;
- + load protections with status monitoring –
  - critical group – max. 20x MCB,
  - not critical group – max. 12x MCB and 4xNH00, or
  - critical group – max. 20x MCB,
  - not critical group 1 – max. 6x MCB and 4xNH00,
  - not critical group 2 – max. 6x MCB;
- + summary battery current measurement;
- + LVD - automatic disconnection of the batteries from loads (protection against deep discharge);
- + temperature compensation of float voltage with temperature sensor;
- + 7 alarm outputs as potential-free contact of relay.

Optionally the power supply system can be equipped with additional modules and elements:

- + ambient temperature measurement;
- + remote supervision by: Ethernet / Analog modem (PSTN) / GSM/GPRS / SNMP protocol.

### | Safety and Environmental aspects:

During the system design process following aspects related to environmental protection have been taken into consideration:

- + compliance with the European Union's directive RoHS - restrict the use of certain hazardous substances;
- + compliance with the European Union's directive WEE regarding waste of electrical and electronic equipment;
- + compliance with the European Union's directives LVD and EMC - electrical safety and electromagnetic compatibility;
- + reduce of used electrical energy as the result of high efficiency;
- + reduce the amounts of used materials and wastes as a consequence of system dimensions minimization and high reliability.



### | Basic functions of the control unit:

- + control & display values of:
  - output current,
  - output voltage,
  - battery current (option),
  - battery temperature,
  - ambient temperature (option);
- + temperature compensation of float voltage;
- + battery charging current limitation (only with battery current measurement system);
- + enforcing automatic battery charging mode;
- + signaling of load and battery protections blow-out;
- + battery asymmetry control;
- + creating register of events in control unit's memory;
- + control of the LVD battery contactor - adjustable voltage battery disconnect (option);
- + visualization of parameters and actual state of the system on OLED screen;
- + sending an alarm by the potential-free contact;
- + automatic reporting of alarm states to WinCN supervisory system (option).

### Basic parameters of the system:

#### Input parameters:

Input voltage	$V_{AC}$	3x230VAC/400VAC
Frequency	Hz	45 ÷ 65
Max. phase current	$A_{AC}$	52
Power factor $\lambda$		$\approx 1$

#### Output parameters:

Range of voltage	$V_{DC}$	48 ÷ 58
Characteristic	-	UPI
Stabilization of output voltage	%	$\pm 1$
Maximum output current	$A_{DC}$	500
Maximum output power	W	24000
Output voltage ripples (psophometric value)	mV	< 2

#### General data:

Range of ambient temperature	$^{\circ}C$	0 ÷ +40
Cooling	-	fan-cooled
Rectifier module efficiency	%	96,5 (peak)
Protection class		IP20
Electromagnetic compatibility -		in accordance with PN-EN 300-386
Safety -		in accordance with EN 60 950
System dimensions (HxWxD)	mm	2200 x 600 x 600 2000 x 600 x 600 1800 x 600 x 600
System weight without rectifier units & battery	kg	100
Dimensions of the rectifier unit (HxWxD)	mm	86 x 84,5 x 272
Weight of the rectifier	kg	2,4

### | Extended functions of the control unit:

- + remote computer monitoring of the system by selected Communications medium:
  - Ethernet,
  - Analog modem (PSTN),
  - mobile network (GSM/GPRS),
  - SNMP protocol.