

| General description:

The SDC 500 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 PDC 48/41-2000W and batteries under control of advanced Pi1 controller.

| Application:

- + telecommunications and teletransmission;
- + IT applications;
- + industrial automation systems.

| Features:

- + high flexibility for system extension;
- + 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;
- + immunity to short-circuits and overloads of output circuits;
- + immunity to electromagnetic interferences.

| Rectifiers:

The design of constant power rectifier PDC 48/41-2000W with nominal output power 2000W is based on high-frequency technology of energy transformation with DSP (Digital Signal Processor) function. It means less number of components, optimized operation and active load sharing for increased reliability. The digital communication between rectifiers and control unit, gives operator the possibility of remote supervision on individual rectifiers of the system.

| Power supply of the system:

The SDC 500 system is supplied from three-phase AC supply line. 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 intended for stand-alone mounting or wall mounting. The system enclosure may be equipped with leveling feet.

The standard version the power supply system consists:

- + Distribution area AC/DC – height 19U;
- + Rectifier subrack 4U for installation up to. 12pcs. of PDC 48/41-2000W rectifiers;
- + microprocessor control unit Pi1 with OLED color display, manipulator and RS232 or USB port for PC connection;
- + battery protections – fuse holder NH00 with fuses 160A – 2 pcs.;
- + loads protections: max. 14 x NH00 fuse holders or 26x MCBs;
- + signaling of load and battery protections blow-out;
- + LVD - automatic disconnection of the batteries from loads (protection against deep discharge);
- + measurement of output current and voltage;
- + summary battery current measurement;
- + independent current measurement of battery 1 and 2 (option);
- + separated battery charging by rectifiers allocated from the system (option).

| 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 parameters of the system:

Input parameters:

Input voltage	Vac	3x230 /400
Range of phase input voltage changes	Vac	184...253
Frequency	Hz	45...65
Max. phase current	Aac	52
Power factor		1

Output parameters:

Range of voltage	Vdc	48...58
Characteristic	-	UPI
Stabilization of output voltage	%	±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	°C	5-40.
Cooling	-	forced
Efficiency	%	≥ 91
Protection class		IP20
Electromagnetic compatibility	-	PN-EN 300-386
Safety requirements	-	EN 60 950
Dimensions of the power supply system (HxWxD)	mm	1000x600x400
System weight without rectifier units	kg	~40
Dimensions of the rectifier unit (HxWxD)	mm	87,9 x 85,3 x 272
Weight of the rectifier	kg	2,4

Basic functions of the control unit:

- + Measurements:
 - output voltage,
 - summary battery current,
 - two temperatures: e.g. battery and ambient;
- + Alarms:
 - load or battery fuse blow out,
 - LOW or HIGH output voltage,
 - LOW or HIGH temperature,
 - many other alarms,
 - mapping and sending alarm in form of potential-free relay contacts – 3 relay outputs;
- + temperature compensation of float voltage;
- + battery asymmetry control;
- + control of the LVD battery contactor with adjustable voltage battery disconnect;
- + visualization of alarm states;
- + sending alarm status as potential-free relay contact;
- + automatic reporting of alarm states to WinCN supervisory system;
- + control & display values of:
 - loads voltage,
 - rectifiers, loads and battery current,
 - first battery temperature,
 - second battery temperature (option);
- + output voltage control (LOW and HIGH voltage alarm, rectifiers blocking alarm);
- + automatic battery charging mode with possibility to set initial and final parameters of process;
- + limitation of battery charging current,
- + signaling of battery protections blow-out;
- + signaling of load protections blow-out;
- + register of event history.

Extended functions of the control unit:

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