

### | General description:

The SDK 30 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 PDK 48/10-500W and batteries under control of advanced PI1 controller.

### | Application:

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

### | Features:

- + compact design (1U/19") adapted for assembling in cabinets (racks) 19", 21" (reduction brackets);
- + 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;
- + flexible cable terminals configuration: system may be prepared as Front Terminal (all terminals and connectors are located on the front panel of the system) or in version with terminals located on the rear panel of the system;
- + immunity to electromagnetic interferences;
- + wide range of optional equipment.

### | Rectifiers:

Constant power rectifier PDK 48/10-500W with nominal output power 500W 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.

PDK 48/20-1000W rectifier can also be supplied from DC source – 220Vdc.

### | Power supply of the system:

The SDK 30 system is supplied from single-phase AC supply line.

### | Design of the system:

In standard version the enclosure of the system is intended to installing in standard 19-inch cabinets (racks).

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 3pcs.of PDK 48/10-500Wrectifiers;
- + battery protections with status monitoring 34A – 2 pcs.;
- + load protections - fuse with status monitoring – (16A) – up to 4 pcs.;
- + temperature compensation of float voltage with temperature sensor;
- + 3 alarm outputs in the form of potential-free relay contacts;
- + 8x digital input;
- + summary battery current measurement;
- + LVD - automatic disconnection of the batteries from loads (protection against deep discharge);
- + remote supervisory by Ethernet and WEB server and HTTP protocol;
- + remote supervisory by Ethernet and SNMP protocol.

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

- + additional temperature sensor - ambient temperature measurement;
- + side panels intended for creating floor mounting and wall mounting versions of the system.

### | 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:

Nominal voltage	Vac	3x230/400 Vac / or Vdc 220 Vdc
Range of phase input voltage changes	Vac	85 ÷ 300
Frequency	Hz	45 ÷ 65
Configuration of AC mains	-	L+ N+ PE
Max. phase current	Aac	9
Power factor $\lambda$		$\approx 1$

### Output parameters:

Range of voltage	Vdc	48 ÷ 58
Characteristic	-	IPU
Stabilization of output voltage	%	$\pm 1$
Maximum output current	A <sub>dc</sub>	30
Maximum output power	W	1500
Output voltage ripples (psophometric value)	mV	< 2

### General data:

Range of ambient temperature	°C	-35 ÷ +45
Cooling	-	Forced
Rectifier module efficiency	%	92 (peak)
Ingress protection		IP20
Electromagnetic compatibility	-	in accordance with PN-EN 300-386
Safety requirements	-	in accordance with EN 30 950-1
Dimensions of the power supply system (HxWxD)	mm	44(1U) x 482,6(19") x 324,5
System weight without rectifier units	kg	$\approx 4,5$
Dimensions of the rectifier unit (HxWxD)	mm	44 x 88 x 241
Weight of the rectifier	kg	1,25

## | 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;
- + current limitation of battery charging;
- + 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;
- + optional control of cut-out battery from the loads – programming cut-out voltage
- + optional manage of contractor for cut-out not-critical group of loads – programming cut-out voltage;
- + visualization of parameters and actual state of the system on screen and LED;
- + sending out an alarm by the potential-free contact;
- + automatic reporting of alarm states to WinCN supervisory system (option).