

| General description:

The SDK 120-02 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 PDK 48/20-1000W and batteries under control of advanced PI1 controller.

| Application:

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

| Features:

- + compact design (5U/19") adapted for assembling in cabinets (racks) 19", 21" (reduction brackets);
- + optional side panels to create enclosure (possibility of wall or ground mounting);
- + 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 48/20-1000W with nominal output power 1000W 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 120-02 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 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 6pcs. of PDK 48/20-1000W rectifiers;
- + battery protections with status monitoring – TYTAN fuse holders 6A ÷ 63A – up to 4 pcs.;
- + load protections with status monitoring – MCB up to 8 pcs. TYTAN fuses up to 4 pcs.;
- + temperature compensation of float voltage with temperature sensor;
- + 7 alarm outputs in the form of potential-free relay contacts.

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

- + summary battery current measurement;
- + additional temperature sensor – 1pc.;
- + LVD - automatic disconnection of the batteries from loads (protection against deep discharge);
- + control of AC mains presence (KZF);
- + side panels intended for creating floor mounting and wall mounting versions of the system;
- + 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 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	-	3xL+ N+ PE
Max. phase current	Aac	9,6 (three-phase)
Power factor λ		~1

Output parameters:

Range of voltage	Vdc	48 ÷ 58 (adjustable)
Characteristic	-	IPU
Stabilization of output voltage	%	±1
Maximum output current	A _{dc}	120
Maximum output power	W	6000
Output voltage ripples (psophometric value)	mV	< 2

General data:

Range of ambient temperature	°C	+5 ÷ +40
Cooling	-	Forced (fan-cooled)
Rectifier module efficiency	%	92 (peak)
Ingress protection		IP20
Electromagnetic compatibility	-	in accordance with PN-EN 300-386
Safety requirements	-	in accordance with EN 60 950-1
Dimensions of the power supply system (HxWxD)	mm	221,5 (5U) x 483(19") x 300
System weight without rectifier units	kg	~12,5
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 with standard module:

- + 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;
- + 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).

| 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;
- + possibility of supervising up to 7 additional external signals (dry contact).