

| General description:

The SDC 140 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 48/35-1700W and batteries under control of advanced Pi1 controller.

| Application:

- + professional telecommunications systems;
- + IT network systems;
- + industrial automation systems.

| Features:

- + compact design of the system (5U/19") adapted for assembling in cabinets (racks) 19";
- + 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;
- + wide range of optional equipment.

| Rectifiers:

The design of constant power rectifier PDC 48/35-1700W with nominal output power 1700W 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 140 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 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 controller Pi1 with LCD display and manipulator;
- + rectifier subrack 2U intended for installing up to 4 pcs. of rectifiers PDC 48/35-1700W;
- + distribution module AC/DC 3U or 5U(option) or 1U(option);
- + battery protections – magnetic circuit-breakers (MCB) - 2 pcs.;
- + load protections – magnetic circuit-breakers (MCB) – max. 18 pcs.;
- + signalling of load and battery protections status;
- + summary battery current measurement;
- + automatic disconnection of the batteries from loads (protection against deep discharge);
- + temperature compensation of float voltage with temperature sensor;
- + 3 alarm outputs as potential-free contact of relay.

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

- + additional battery protections – magnetic circuit-breakers (MCB) - up to 4 pcs.;
- + ambient temperature measurement;
- + computer remote supervision of the system by converter to Ethernet network;
- + computer remote supervision of the system by analog modem;
- + computer remote supervision of the system by converter to MODBUS network..

| 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:

- + output voltage measurement and control – setting of alarm threshold for low and high system voltage and rectifiers blocking voltage,
- + rectifier's current measurement
- + battery temperature and ambient temperature measurement;
- + temperature compensation of float voltage during float operation mode;
- + automatic battery charging;
- + battery asymmetry monitoring;
- + visualization of alarm states;
- + status control of battery protections;
- + status control of load protections;
- + programming of cut-out battery from the loads (protection of the battery against deep discharge);
- + sending alarm signals;
- + automatic reporting of alarm states to WinCN supervisory system;
- + creating register of events with occurrence date and time;
- + possibility of configuration by:
 - locally by PC with RS232 or USB port or user interface (LCD and manipulator),
 - remote by modem or TCP/IP converter;
- + possibility of alarm mapping on any relay contact or sending this as information to WinCN supervisory system.

Basic parameters of the system:

Input parameters:

Input voltage	V_{AC}	3 x 230/400 (-23,5%; +26%)
Frequency	Hz	45...65
Max. phase current	A_{AC}	24
Power factor		≈ 1

Output parameters:

Range of voltage	V_{DC}	48...58
Characteristic	-	UPI
Stabilization of output voltage	%	± 1
Maximum output current	A_{DC}	140
Maximum output power	W	6800
Output voltage ripples (psophometric value)	mV	< 2

General data:

Range of ambient temperature	$^{\circ}C$	5...+40
Cooling	-	fan-cooled
Efficiency	%	≥ 91
Protection class		IP20
Electromagnetic compatibility	-	PN-EN 300-386 PN-T-83101
Dimensions of the power supply system (HxWxD)	mm	134(3U) x 483 x 300 223(5U) x 483 x 300 311(7U) x 483 x 300
System weight without rectifier units	kg	27
Dimensions of the rectifier unit (HxWxD)	mm	88 x 85,5 x 273
Weight of the rectifier	kg	2,4

Extended functions of the control unit:

- + remote supervision of the system by means of WinCN software with using:
 - dial-up line (telephone modem),
 - logical network (TCP/IP).