

| General description:

The SDO 420 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 PDO 48/42-2000W rectifier modules and batteries under control of advanced PI1 controller.

| Application:

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

| Features:

- + compact construction (2U /19") designed for assembling in 19" cabinets and racks;
- + modern, constant power rectifiers with high power density (2kW at 1U height);
- + 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 PDO 48/42-2000W with nominal output power 2000W is equipped with microprocessor unit controlling its operation parameters. The digital communication between rectifiers and PI1 controller, gives the possibility of remote supervision on individual rectifiers of the system.

The rectifier design is based on high-frequency energy conversion with DSP (Digital Signal Processor) function. This technology means less number of parts, optimized price & performance, better power distribution between rectifiers.

The rectifier uses the PFC module which provides sinusoidal current consumption from the power grid.

| Power supply of the system:

The SDO 420 system is supplied from two independent three-phase AC supply lines 3x230/400 Vac. Failure of specific phases 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 system is intended to installing in 19" cabinets and racks.

The standard version the system consists:

- + PI1 control unit with OLED display, control panels and USB port for PC connection;
- + available space for installing up to 10pcs.of PDO 48/42-2000W rectifiers;
- + battery protections with status monitoring: DD – up to 2 pcs. (max 200A);
- + load protections with status monitoring: MCB – up to 16 pcs. (max 63A);
- + temperature compensation of float voltage with temperature sensor;
- + summary battery current measurement;
- + LVD - automatic disconnection of the batteries from loads (protection against deep discharge);
- + remote monitoring via Ethernet using the SNMP protocol.

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

- + second temperature sensor – 1pc.;
- + remote monitoring via GSM/GPRS using the 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:

Input voltage	Vac	3x230VAC/400VAC
Input phase voltage range	Vac	85 ÷ 300
Frequency range	Hz	45 ÷ 65
AC input configuration	-	2x (3L+N+PE)
Max. phase current	Aac	24
Power factor λ		~1

Output parameters:

Range of voltage	Vdc	46 ÷ 56
Characteristic	-	IPU
Stabilization of output voltage	%	±1
Maximum output current	Adc	420
Maximum output power	kW	20
Output voltage ripples (psophometric value)	mV	< 2

General data:

Range of ambient temperature	°C	-15 ÷ +40
Cooling	-	forced
Rectifier module efficiency	%	96,2 (peak)
Protection class		IP20
Electromagnetic compatibility	-	in accordance with PN-EN 300-386
Safety	-	in accordance with EN 60 950-1
System dimensions (HxWxD)	mm	222 (5U) x 483(19") x 368
System weight without rectifier units	kg	~18
Dimensions of the rectifier unit (HxWxD)	mm	41 x 84,5 x 252,5
Weight of the rectifier	kg	1,13

| Basic functions of the control unit:

- + control & display values of:
 - output current,
 - output voltage,
 - battery current,
 - battery temperature,
 - ambient temperature;
- + 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;
- + creating register of events in control unit's memory;
- + control of the LVD battery contactor - adjustable voltage battery disconnect;
- + 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 communication medium:
 - Ethernet,
 - mobile network (GSM/GPRS) (option),
 - SNMP protocol.