INSTRUCTION MANUAL

Emergency power supply system

Before using the equipment, please read carefully this instruction manual!

Manufacturer:

POL-EKO-APARATURA sp.j.

Version 1.2
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CONTENTS

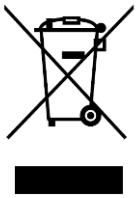
1 SAFETY PRECAUTIONS

	This symbol means that failure to follow the instructions could endanger people's health or life, or damage the device. The manufacturer is not liable for damages resulting from non-compliance with the instructions contained in the manual.

To guarantee your security and the longevity of the emergency power supply system, please comply with the following rules:

1.	**<u>The emergency power supply system cannot be installed:</u>** • outside, • in damp places or places which can be easily flooded, • near flammable or volatile substances, • near acids or in corrosive environments.
2.	**<u>It is forbidden to:</u>** • touch live parts, • operate it with wet hands, • put any objects on emergency power supply, • remove / replace the battery.
3.	**<u>You should:</u>** • connect the emergency power supply to mains with earth, • unplug the power cable holding the protective cover and not the cable itself, • disconnect the emergency power supply from the mains before undertaking any repairs or maintenance work, • protect the power cable and the plug from any damage, • disconnect the power plug before moving the emergency power supply, • disconnect the emergency power supply and protect it from reconnecting if it has any visual fault.

2 EQUIPMENT DISPOSAL



This equipment is marked with the crossed out wheeled bin symbol to indicate that this equipment must not be disposed of with unsorted waste. Instead it's your responsibility to correctly dispose of your equipment at lifecycle -end by handling it over to an authorized facility for separate collection and recycling. It's also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect from health hazards the persons involved in the disposal and recycling of the equipment. For more information about where you can drop off your waste of equipment, please contact your local dealer from whom you originally purchased this equipment.

By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.

Thank you!

As a manufacturer, we inform you that we took the necessary measures to ensure that this device fully meets your expectations and is reliable for a long period of use. Due to the continuous improvement of our products, as well as the expansion of our offer, any suggestions regarding additional functions and equipment functioning are welcome. Visit our homepage www.pol-eko.com.pl/home-en/

3 INTENDED USE

The emergency power supply system protects POL-EKO Aparatura devices against basic power supply failures, such as voltage drop, power outage, surges and network disturbances. It also allows for the continues safe operation of connected devices on battery power until a stable power supply is restored or the battery is completely discharged. The backup time depends on the type of powered device and the purchased model of emergency power supply system.

4 BEFORE THE FIRST USE

	After receiving the emergency power supply system, visually assess its condition and equipment in the presence of the person delivering the goods. A courier company is responsible for any damage caused during transport.

The place of installation of the emergency power supply system should meet the following conditions:

- ambient temperature: 10-30°C (20-25°C for maximum battery life)
- relative humidity: up to 70% (without condensation)
- it should not be exposed to direct sunlight, it should be placed away from heat sources,
- it has not been designed to work in highly dusty environments,
- it should be placed on a clean, hard and stable surface,
- ensure proper ventilation in the room,
- do not cover any vents – they should be placed minimum 100mm away from the walls or other devices.

	The emergency power supply system is powered by alternating current 220-240V / 50Hz. Electrical safety is guaranteed only when it is connected to a power source equipped with PE protective conductors. This basic protection is absolutely necessary.

	Only **one** dedicated equipment specified at the time of purchase can be connected to the emergency power system.

Frequent power failures in the power grid which do not allow the battery to be fully charged in the emergency power supply system, shorten the declared backup time of the equipment.

	After placing the emergency power supply system in the destination secure it against movement by locking the wheels mounted in the housing base.

5 DESIGN

5.1 Converter

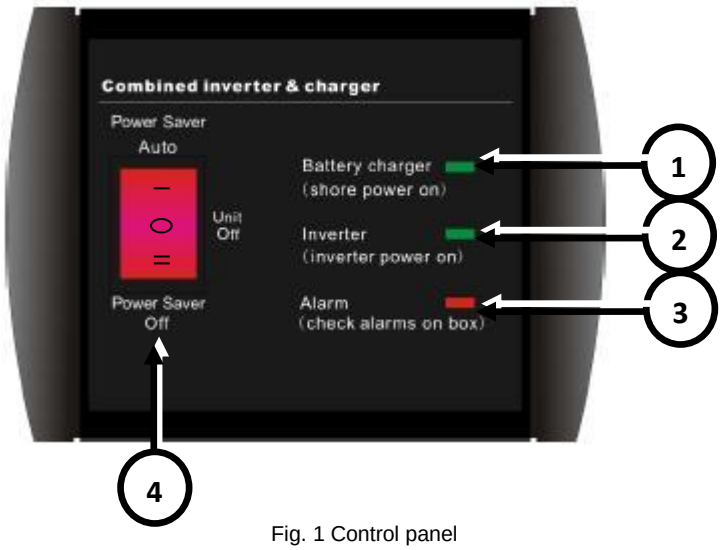


Fig. 1 Control panel

1. Battery charging mode
2. Inverter mode
3. Alarm
4. Main switch:
    a. Power Saver Auto – energy saving mode
    b. Unit Off – turning off the converter
    c. Power Saver OFF – normal operating mode

	The main switch should be in the position „Power Saver Off” during normal operating mode.

The converter is equipped with visual (LED lights) and acoustic signaling, which inform about the operating status of the emergency power supply system, facilitating the operation and diagnosis of possible malfunctions.

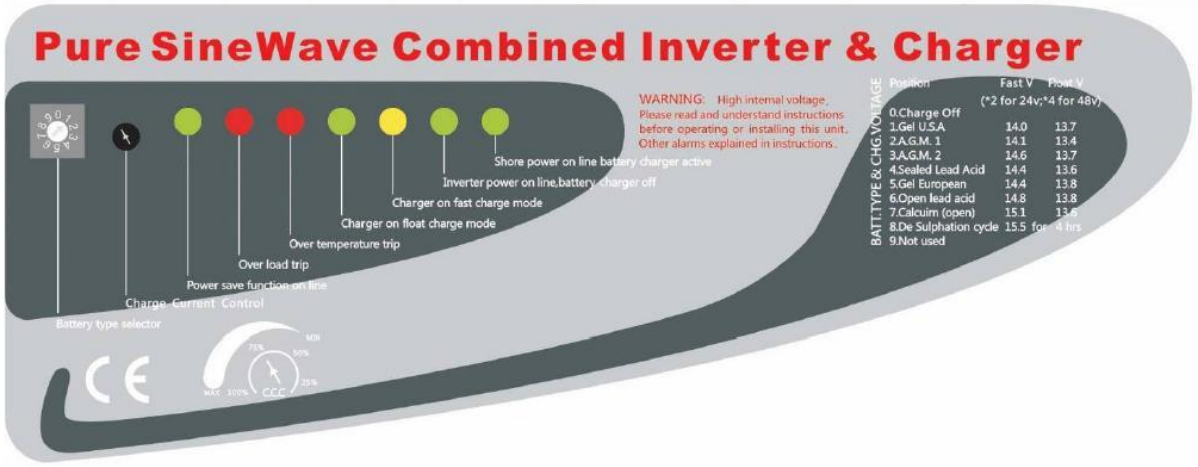


Fig. 2 Control panel

- „Power save function on line” – energy saving mode ON,
- „Over load trip” – load value too high,
- „Over temperature trip” – too high temperature of the emergency power supply system,
- „Charger on float charge mode” – the charger charges the batteries in the "float" mode - The charging current is reduced to the optimum level for a practically charged battery of a given type. In this mode the batteries are constantly recharged and kept at an optimal level of charge ready for use at any time. If this mode is maintained for more than 10 days, the whole cycle will be restarted from the beginning in order to preserve better the battery parameters,
- „Charger on fast charge mode” – continuous light of the diode means that the battery is being charged in the "fast" mode - initial charging phase. The battery is powered by a constant controlled current. The charger will remain in this mode until it detects the voltage level required to enter the absorption mode; LED flashing indicates absorption is charging - absorption mode delivers a constant current to the battery and lowers the DC charging current to ensure the optimal charging current level for the selected battery type. This mode is maintained from 1 to 12 hours.
- „Inverter power on line, charger off” – switch to inverter mode,
- „Shore power on line battery charger active” – battery charging mode ON.

Acoustic signaling:

Low voltage on the battery	0,5s acoustic signal every 5s
High voltage on the battery	0,5s acoustic signal every 1s, error signal and automatic shutdown of the emergency power supply after 60s
Overload in inverter mode	1. 110%<LOAD VALUE<125% (+/-10%) - no audible warning for 14 min, at 15 minutes 0,5s acoustic signal every 1s, after 15minutes automatic shutdown of the emergency power supply occurs 2. 125%< LOAD VALUE <150% (+/-10%) - 0,5s acoustic signal every 1s, after 1 minute automatic shutdown of the emergency power supply occurs 3. 150%< LOAD VALUE <300% (+/-)10% - 0,5s acoustic signal every 1s, after 20s automatic shutdown of the emergency power supply occurs
Too high temperature of the emergency power supply system	0,5s acoustic signal every 1s

5.2 Battery

The batteries are delivered in a charged condition and are located in the housing. Depending on the order, the emergency power system may contain 1, 2 or 3 batteries as standard. Exchanging the battery may be performed only by an authorized service center.

Used batteries which may contain harmful substances for the environment, should be delivered to a recycling point or to the manufacturer, in accordance with the regulations on the disposal of hazardous waste.

6 INSTALLATION OF THE EMERGENCY POWER SYSTEM

Installation:

1. Connect device's power cord, eg CHL, to the socket marked "Emergency support" in emergency power supply system.

2. Connect the power cord from emergency power supply system to the wall socket in the room.

3. Turn main switch in emergency power supply system from "Unit off" to "Power Saver Off".

4. Switch on the device powered from the emergency power supply system.

5. The connected device works on emergency power supply system.

Fig. 3 Correct connection of the device.

	The socket with the description "**Without battery backup**" is not supported by the emergency power supply and is used to connect an external power / temperature data logger, eg RT2014.

7 CLEANING AND MAINTENANCE

Before cleaning the emergency power supply system it is absolutely necessary to disconnect it from the power socket and to set the main switch to "Power Saver Off".

The housing of the device should be cleaned at least once a week, depending on the working conditions. The housing should be cleaned with caution using a soft cloth dampened with water. A mild detergent can be used for more difficult dirt. Electrical parts should not get in contact with water or detergent.

When the emergency power supply system will not be used for a long time

If the device is not used for a long time, make sure that the batteries are charged and that the main switch is in the Unit Off position. The maximum storage time is 6 months. After this period, connect the UPS to a power source and wait until the battery is fully charged.

8 TROUBLESHOOTING

The inverter does not turn on	Are the cables connected correctly?	Connect the wires (see *Section 6*)
	Are the vents covered?	Overheating protection tripped Provide free air flow to cool the converters (minimum 100mm of free space)
	Is emergency power supply turned on?	Switch the power button from "Unit Off" to "Power Saver Off"
After a power failure, the emergency power supply does not maintain the temperature of the equipment	Energy saving mode is on	Switch the on button on the inverter from "Power Saver Auto" to "Power Saver Off".
	The batteries are not charged?	Charge the batteries - by connecting the inverters to the mains
		Batteries are worn out - replace by an authorized service

9 TECHNICAL DATA

Power	continuous 2000W or 3000W
Input voltage range (battery)	12 VDC
Maximum input current	30A
Input voltage range (mains)	184-253VAC
Efficiency	95%
Output voltage	230V 50Hz
Grid / inverter switching time	about 10ms
Charging current	5 – 85 A
Charging voltage	13,7 – 14,6
Overload protection	with 120% load IPS turns off automatically
Short circuit protection	(automatic shutdown)
Working temperature	10-30ºC
Dimensions L x W x H	675x665x670mm (2 and 3 batteries) 660x375x670 (1 battery)
Housing weight	25kg
Inverter weight	20kg (version 3000W -24kg)
100Ah battery weight	30,5kg
200Ah battery weight	61,5kg
Total weight*	From 75,5 to 240kg

* The total weight depends on the type of purchased emergency power supply system.

10 WARRANTY CONDITIONS

Support form and warranty conditions are specified on the manufacturer's website:

http://www.pol-eko.com.pl/en/service

All complaints should be reported to the following address:

POL-EKO-APARATURA Sp.j.
ul. Kokoszycka 172 C
44-300 Wodzisław Śl.

Tel:
32 453 91 96
32 453 91 70
32 453 90 25

E-mail:
serwis@pol-eko.com.pl

11 NOTES

Manufacturer of laboratory equipment
and authorized distributor of:
WTW, Thermo Scientific, Knick.

PN-EN ISO 9001
ISOCERT CERTYFIKAT

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- ❑ drying ovens with nitrogen blow
- ❑ laboratory freezers
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- ❑ Caldera fluid and blanket warmers
- ❑ colony counters
- ❑ laboratory shakers
- ❑ stationary samplers
- ❑ Hydromat water dispensers
- ❑ Eurodrop stations
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We organize:
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We provide:
- ❑ warranty and post-warranty service
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POL-EKO LAB is Accredited by the Polish Centre for Accreditation (a member of ILAC) and provides accredited calibration of:
- ❑ thermostatic and climatic chambers (incubators, drying ovens, thermostatic cabinets, climatic chambers, freezers)
- ❑ water baths and thermo reactors
- ❑ autoclaves
- ❑ electric and electronic thermometers
- ❑ data loggers
- ❑ high temperature laboratory furnaces
- ❑ thermohygrometers
- ❑ laboratory sieves

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AP 115

Calibration is confirmed with the issue of 'Calibration Certificate'.

Services outside the scope of accreditation:
- ❑ checking equipment for physicochemical measurements (meters and probes),
- ❑ carrying out IQ, OQ, PQ qualification procedures,
- ❑ mapping of temperature and humidity in the rooms