

CENTRAL BATTERY SYSTEM



Central Battery System, shortly Central Battery is characterized by this, that all emergency luminaires are supplied from one source. It is only adapted to one nominal voltage ie 230VAC/3x230VAC.

At presence of mains voltage all luminaires are supplied by mains or from battery 220VDC when mains fails. The system is prepared for final circuits with type IT during battery mode. System is designed in accordance to standards PN-EN 1838, PN-EN 50171, PN-EN 50172, PN-EN 50272.

Central Battery System CBS may consist of central station alone or central station together with substations. It is allowed to supply 12 slave luminaires in final circuits with total max load 700W. Central station and substations are connected together by means of RS485 bus. Testing of luminaires is attained by measure of current in final circuit or by individual address of luminaire in final circuit.

System is constructed in cabinet, where one can find following components:

- UKN module for battery charging and control
- H-505 computer for system supervision and data gathering
- rectifier for battery charging
- USO module - line controller, checks luminaire status (light sources and electronic ballasts)

Battery is placed in the same cabinet or in additional rack (depends on volume of battery). In CBS are applied valve regulated lead acid batteries with 10 year design life. These batteries have small self discharging and are maintenance free. There is always string of 18 pcs. 12V batteries connected in series thus giving 245V float voltage.

SZC may be supplied from one or three phase mains. Maximum allowable power in one cabinet system is 27kW at 3 phase supply. In such system may be maximum 42 final circuits.

TECHNICAL DATA

CATEGORY	PARAMETER
Battery mode	IT type electrical network
Output voltage	230VAC or 220VDC
Final circuits	
- Circuit control	700W max (1kW option)
- Luminaire control	20 luminaires with identity modules in circuit
Float battery voltage	245V

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CBS essential components

1. Battery charger EPS-700

Charger is made in 6U 19" to fit to EuroCard system. Connection with 19" rack is made by means of H15b connector ensuring hot swap of charger. Applied number of chargers gives redundancy.

Green LED in front panel shows presence of output voltage. Fuses F1 (mains) and F2 (output) are placed inside. Charger is specially designed to meet requirements of batteries. Number of parallelly connected modules ensures proper current for charging with redundancy (N+1). Maximum output current for single modul is 3A.

There are following solutions applied in charger:

- Limitation of inrush current
- Soft start, constant voltage- constant current output characteristics
- Overvoltage protection 110%-120% output voltage
- Potential free contacts for fault detection
- Optical signalization of failure
- Limitation of inrush battery current enabling hot swap
- Turning on fan at 30% of load current
- Protection against fan failure by limiting output current to 40% of maximum current
- Temperature compensated charging voltage
- Equal current sharing between modules

*2. Changeover module plus addressing module*

Changeover relay MP-30P is applied to switch on or off luminaires connected to maintained final circuit by means of local switches. This module is supplied from both local and maintained final circuit from central battery. In case of local mains failure, luminaire is supplied from central battery. Maximum luminaire power is 150W. These modules can be installed in luminaires working with maintained lighting mode. Can be ordered as changeover+addressing module as well as only as changeover module.

*3. USO line and luminaire controller*

USO module is designed to measure and control final circuit luminaires status. Controlled line can be created with the use of 12 identical luminaires when supervising line status or 20 different luminaires with overall power <700W. Work mode can be set in H-505 computer. One USO module can supervise two final circuits.

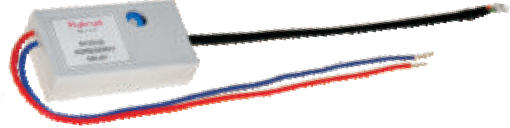
There are 4 LEDs for every circuit in the front panel:
 Green LED indicates "Mains".
 Yellow LED indicates "Battery work".
 Another green LED indicates activated line.
 Red LED indicates circuit fuse failure.



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4. Luminaire Identity Module MA-01 (for 12 luminaires) or MA-02 (for 20 luminaires)

Luminaire Identity module should be placed in every luminaire where identity is necessary. Photosensitive component placed in module should be oriented towards lamp.



Identity switch should be set on luminaire number. In one final circuit may be maximum 20 lamps. One module can supervise one luminaire. Communication between central battery unit and luminaire is done with the use of power supply line.

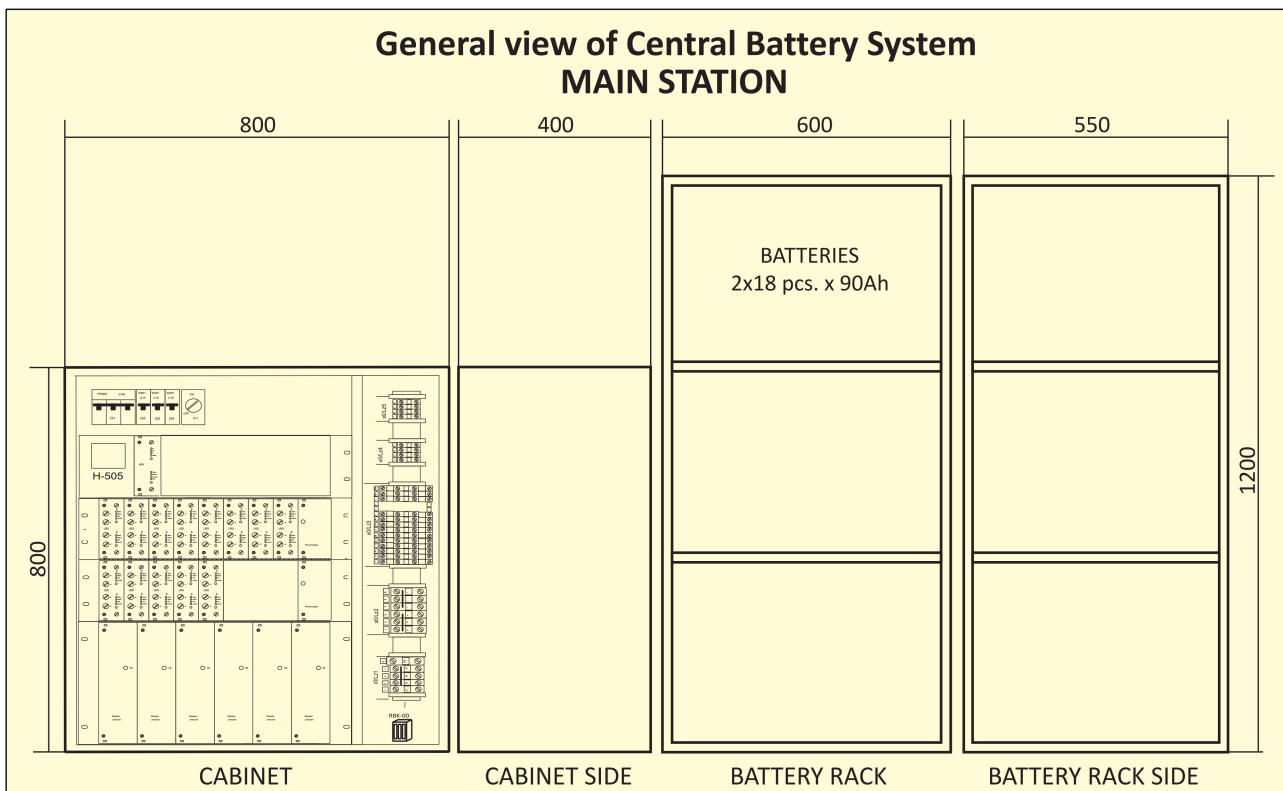
5. H-505 computer

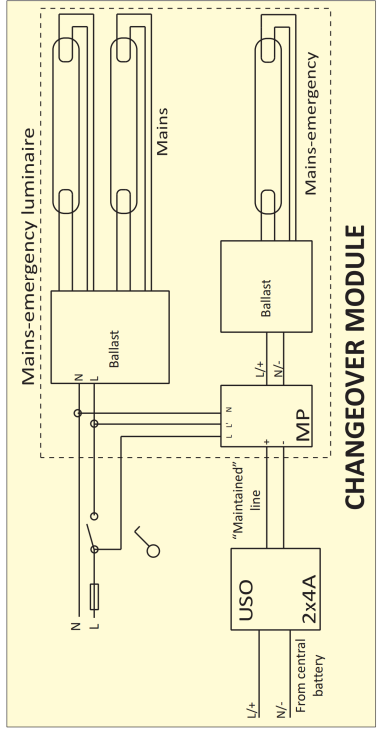
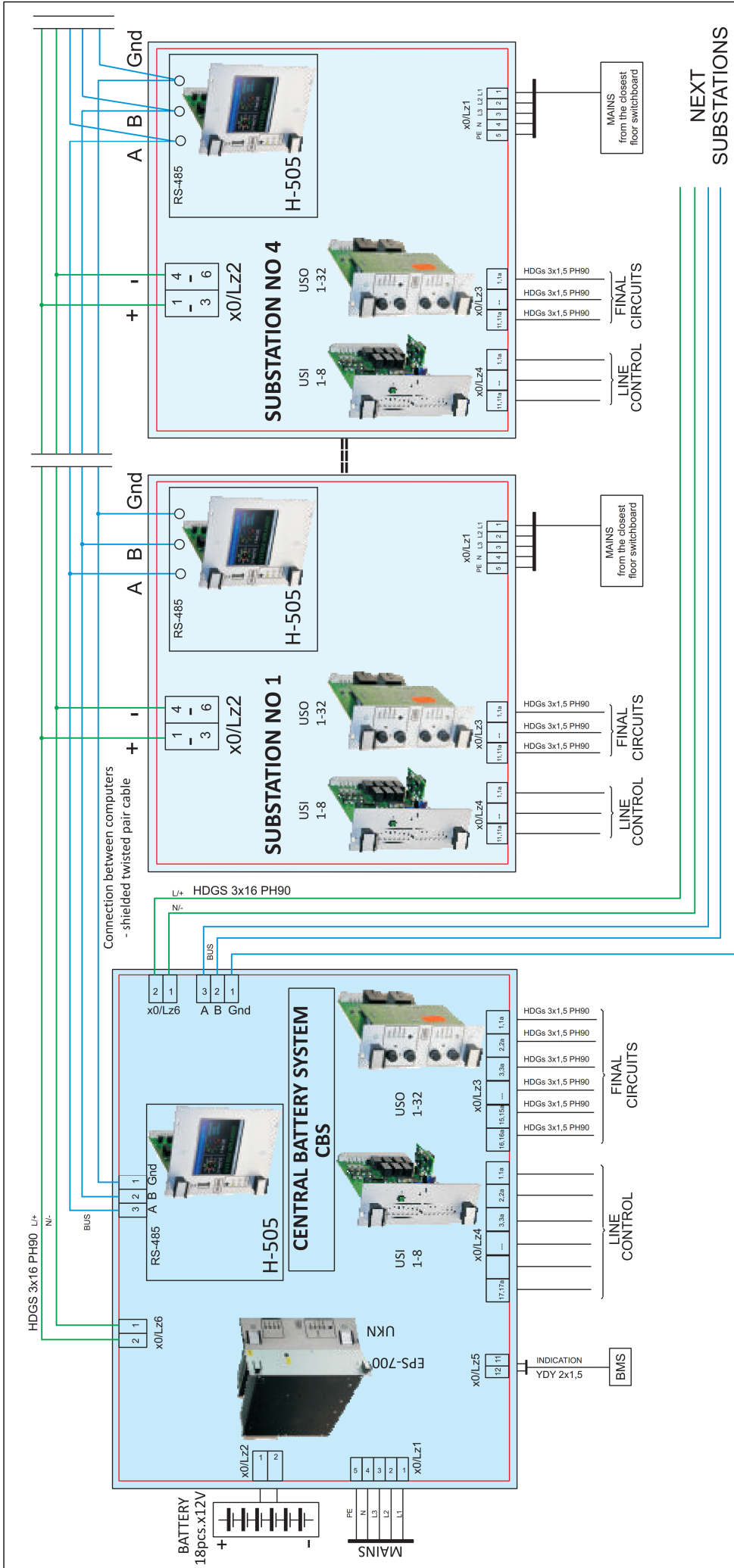
H-505 computer can be used to gather and supervise the system and additionally to print reports. The device is equipped with touch panel showing system status and information. Emergency state is simultaneously indicated by the potential-free joint relay. BMS signalisation can be connected. RS485 port is used to communicate with substations.

Information about system status is presented in written form.



H-505 computer automatically initiates functionality tests according to designed schedule. System parameters can be presented in the form of PC printed document with the use of USB. Saved file has txt format and can be printed from any computer. System remembers tests for two years and saves them on SD card.





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