MAIN STATION FIREPROOF HOUSING

High Voltage Central Battery System (HVCBS) enables to supply and control of emergency and evacuation lighting luminaires.

It is designed according to EN 50171:2007, EN 50172:2005, EN IEC 62485-2:2018-09, EN IEC 62485-1:2018-09 standards.

It may include a main station and sub-station or main station only. Owing to the possible extension with sub-stations, HVCBS system is proper for use in small, medium-sized and large buildings.

Emergency and evacuation lighting luminaires connected to the Central Battery System are located in end circuits. Communication with luminaires takes place by means of the power supply line.

A controller with a touch display has a simple and intuitive interface and it allows for fast system configuration. Automatic performance of tests in accordance with EN 50172:2005 from the controller level. Both test results and reports on errors and failures are saved and kept on the internal SD card. It is also possible to save test results and reports on errors and failures on the external USB memory. Such a solution facilitates reporting and keeping the Incident Log (in accordance with EN 50172:2005).

HVCBS uses hermetic and maintenance-free batteries paired in terms of internal resistance and voltage what allows for long-term correct operation. The selection of batteries depends on loading and system operation time during emergency operation.

The system has the signalisation of batteries discharging in accordance with EN 50171:2007. The use of dedicated safety devices for circuits, automatics and batteries affects the increase in the safety level. HVCBS System is dedicated to supply the emergency and evacuation lighting circuits in the IT network in the battery mode.

SYSTEM FEAUTURES

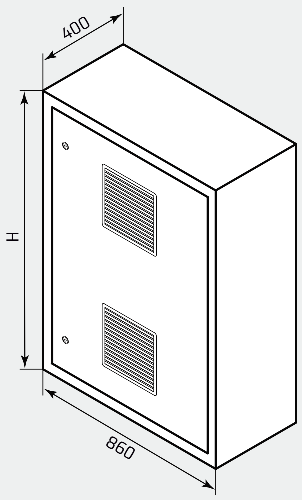
- Power supply voltage: 3x230V AC
- Output voltage: 230V AC or 220V DC
- Max power of reception: 5kW
- Touch LCD with user-friendly menu
- Automatic performance of tests, acc. to EN 50172:2005
- Safe test result to SD card, acc. to EN 50172:2005
- Possibility of the individual configuration of access to the system
- Monitoring the presence of voltage from basic lighting switching stations, acc. to EN 50172:2005
- Possibility of extending the system with substations (up to 32)
- Max 32 circuits for one system unit
- Monitoring luminaires or circuits
- Communication with luminaires by means of a power supply line
- Configuration of luminaires operation modes, maintained/non-maintained
- System compensating current surge at switching the lighting on
- Hot swap technology
- USB socket
- Ethernet socket
- EIA/TIA-485 connector
- Cooperation with BMS
- Cooperation with back-up power supply systems
- Lockout function
- 10 years lifespan battery
- Battery discharging signalisation
- Temperature probe
- Fireproof housing with fire resistance class EI30, EI45, EI60

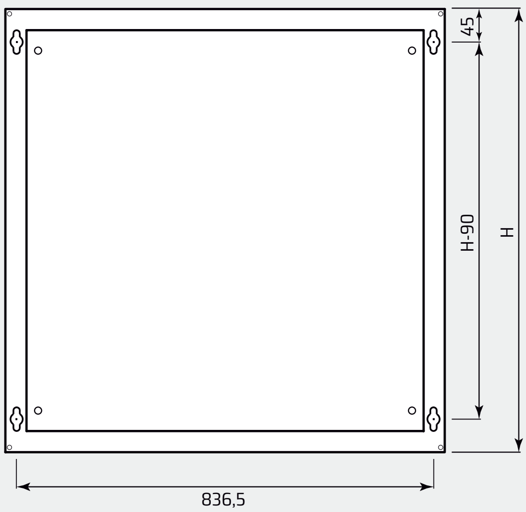
TECHNICAL DATA

	HVCBS FP-16		HVCBS FP-32	
Power supply	3x230V AC		3x230V AC	
Frequency	50Hz		50Hz	
Network type	TN-S/IT		TN-S/IT	
Power of reception	≤ 2,5kW	≤ 1,2kW	≤ 5kW	≤ 2,4kW
Emergency operation time	1h	2h	1h	2h
Battery capacity	≤ 20Ah		≤ 40Ah	
Number of lines	≤ 16		≤ 32	
Number of potential-free inputs [1]	5		5	
Number of relay outputs [2]	4		4	
Ext panel [3]	1		1	
Number of substations [3]	≤ 32		≤ 32	
USE [3]	7 [4]		7 [4]	
USO ext [3]	≤ 16 [5]		≤ 16 [5]	
Charger	4x1A		4x1A	
Charger height	3U		3U	
Protection class	I		I	
Dimensions (width x height x depth) [mm]	860 x 1080 x 400		860 x 1300 x 400	

[1] maximum number of potential-free inputs = 29; [2] number of information outputs (BMS); [3] additional option; [4] the total number of USI + USE modules cannot exceed 7 (56 potential-free contact inputs); [5] the total number of circuits cannot exceed 64

DIMENSIONS





The height H depends on the system implementation (see technical data).

SYSTEM CONSTRUCTION

The system is made in a fireproof housing with fire resistance class (EI30, EI45 or EI60). The system structure is made in 19-inch standard, which includes the following modules:

H-505 module is the main control unit in the HVCBS system, its main functions include:

- Monitoring and control of all internal system components
- Communication with substations
- Communication with Building Management Systems (BMS)
- Local interface based on the colour TFT LCD touch screen
- Automatic testing in acc. with the EN 50172:2005
- Saving tests results on SD card
- Saving tests results and settings on USB stick.

UKN module – allowing the measurement of parameters such as battery voltage, battery charging and discharging, load current and insulation state monitoring.

USI module – with potential-free contact inputs and relay outputs. Potential-free contact inputs may be paired with any lines and control them.

USO module – checking the condition of the luminaires in the final circuit. A single module allows to connect two final circuits.

Rectifier – used for battery charging, designed according to the EN IEC 62485-2:2018-9 standard. Owing to solutions adopted in the module, current surge after connecting to the network is ensured. Output specification of the rectifier with impulse output current limitation of the constant voltage-constant current type. It has over-voltage protection at the level 110-120% of nominal voltage (infinitely variable adjustment). Output voltage adjusted to temperature changes according to the requirements of batteries manufacturers.

External modules allows to extend the system capabilities:

USE module – external module allowing for extending the system with 8 additional inputs of potential-free contacts. Potential-free contact inputs may be coupled with any circuits and controlled. It is possible to select the mode of inserting potential-free contact inputs (short-circuiting, opening controlled input, impulse controlled input). HVCBS may be extended max to 56 inputs of potential-free contacts.

USO ext – it is an external module allowing for extending the Central Battery system with additional 4 end circuits. This module as USO module allows for controlling end circuits. Owing to a small size and ergonomic shape, it may be installed in places where the use of a sub-station is not possible. An additional asset of this appliance is economy resulting from fewer lines.

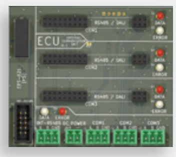
USE voltage module – external module allowing for extending the system with 8 additional inputs of potential-free contacts. Potential-free contact inputs may be coupled with any circuits and controlled. The module detects a power failure/power outage. The total number of additional USI + USE modules cannot exceed 7.

PW-01 module – allows for remote control of HVCBS condition. Basic parameters, such as voltage, current, operation mode, information on errors, tests and operation state is displayed on a transparent modern LCD.

Bus connected phase control module MCZF-1 allows you to monitoring of the presence of three-phase voltage. The PSCL (Power suply & communication line) allows for the parallel connection of many sensors in a star, bus or mixed topology. It saves communication cable, by using the two-wire (communication and power) line. It is an alternative to additional USI modules and standard phase control sensors connected by separate cables. Each module has its own individual address, set using the switches. It is possible to address 61 sensors.

ECU (External Communication Unit) – used to isolate and separate the internal communication of the system. It allows you to connect up to three additional communication modules (UART or PSCM) that allow you to connect up to 64 external lines and up to 61 MCZF-1 modules.

PSCM (Power Supply & Communication Module) is a module that allows you to connect MCZF-1 phase control sensors or a battery control system. It can be placed in a free port of the H-505 unit or ECU module.



COMMUNICATION

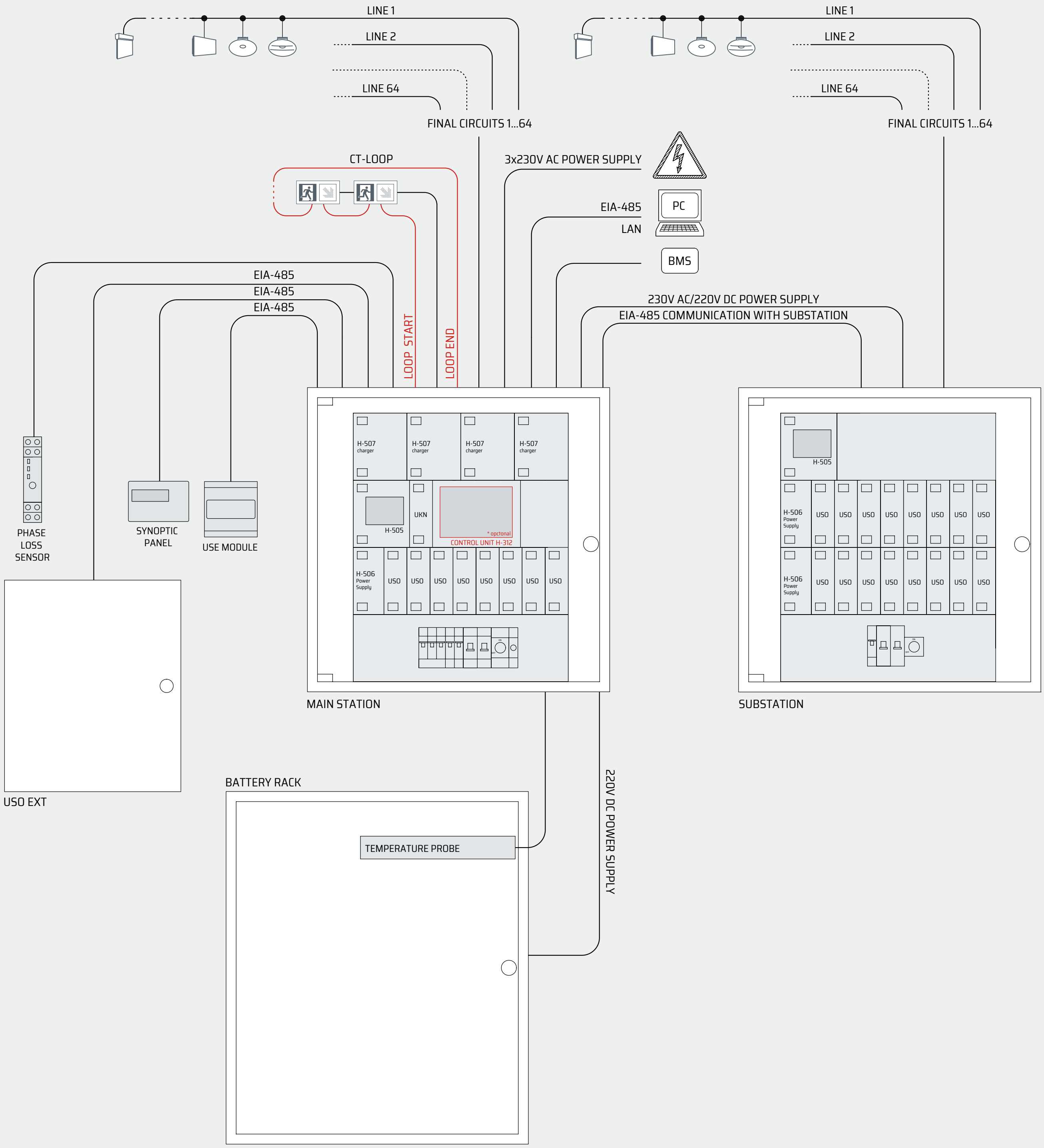
Communication between the main station, sub-stations and external modules takes place by means of EIA/TIA-485 bus. The communication line uses 2 wires shielded twisted pair, e.g. HTKSHekw 1x2x0,8.

In HVCBS the working order of luminaires may be checked through line control (end circuit current measurement) or through the individual control of luminaires with the use of address modules. Communication with luminaires takes place along the power supply line, the system does not require a separate communication line.

The communication of the main station controller with H-312 Control Unit or computer set takes place through the Ethernet connector and allows for extending HVCBS with remote monitoring and convenient management.

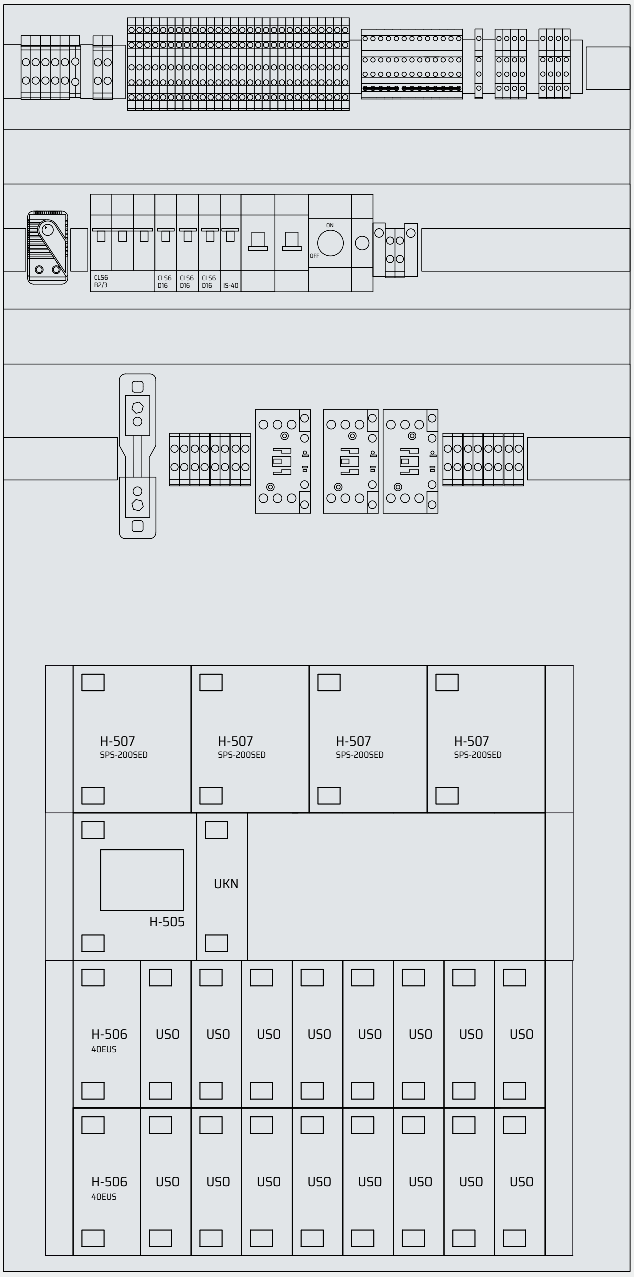
HVCBS controller (e.g. H-505) cooperates with BMS (Building Management System) by means of MODBUS TCP/IP or RTU protocol and with back-up power supply systems. System configuration allows for monitoring the presence of voltage from basic lighting switching stations in accordance with EN 50172:2005.

NETWORK TOPOLOGY

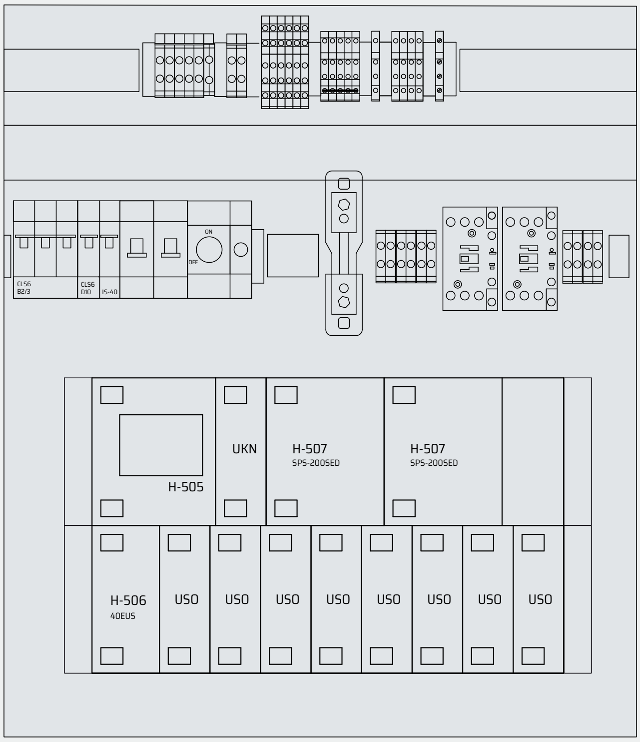


APPEARANCE

HVCBS FP-32



HVCBS FP-16



ORDERING

HVCBS SYS 0 0 0 1 - EN - F - 049 - N08 - N16 - 05 - C - 1 - 12 - 020 - 1h - 3F - DC - 0 - 0 - 0

Type of terminal blocks:
0 – standard
1 – WAGO
2 – WEIDMULLER
3 – PHOENIX CONTACT
4 – WIELAND
...

Language version:
EN – english

Type of central unit housing:
D – double section
S – single section
P – mounting plate
H – ingress protection increased to IP65 housing
F – fireproof housing

Nominal power:
005 – 0,5KW
007 – 0,7KW
008 – 0,8KW
011 – 1,1KW
012 – 1,2KW
013 – 1,3KW
014 – 1,4KW
015 – 1,5KW
016 – 1,6KW
017 – 1,7KW
018 – 1,8KW
021 – 2,1KW
023 – 2,3KW
025 – 2,5KW
026 – 2,6KW
030 – 3,0KW
033 – 3,3KW
035 – 3,5KW
039 – 3,9KW
043 – 4,3KW
049 – 4,9KW
052 – 5,2KW
058 – 5,8KW
065 – 6,5KW
071 – 7,1KW
078 – 7,8KW
087 – 8,7KW
097 – 9,7KW
117 – 11,7KW
139 – 13,9KW
156 – 15,6KW
160 – 16,0KW

Number of lines installed:
N02 – 2 lines
N04 – 4 lines
...
N64 – 64 lines

Maximum number of lines:
N06 – 6 lines
N16 – 16 lines
N32 – 32 lines
N48 – 48 lines
N64 – 64 lines

Number of potential-free inputs:
05 – 5 inputs
13 – 13 inputs
21 – 21 inputs
29 – 29 inputs

Battery housing type:
X – lack
C – cabinet
R – rack
F – fireproof cabinet

verte

HVCBS SYS 0 0 0 1 - EN - F - 049 - N08 - N16 - 05 - C - 1 - 12 - 020 - 1h - 3F - DC - 0 - 0 - 0

Number of branches connected in parallel:

X – no battery and charging system
1 – single branch with 18 batteries of 12V or 36 batteries of 6V
2 – two branches with 18 batteries of 12V or 36 batteries of 6V
...

Battery voltage:

12 – VRLA AGM batteries with a 12V voltage
06 – VRLA AGM batteries with a 6V voltage
00 – no battery and charging system

Total battery capacity:

000 – no battery
012 – 12Ah
018 – 18Ah
020 – 20Ah
026 – 26Ah
028 – 28Ah
033 – 33Ah
040 – 40Ah
055 – 55Ah
060 – 60Ah
075 – 75Ah
090 – 90Ah
120 – 120Ah
150 – 150Ah
200 – 200Ah
...

Emergency operation time:

1h – 1 hour
2h – 2 hours
3h – 3 hours

Central unit power supply method:

1F – single-phase supply
3F – three-phase supply

Emergency power supply:

DC – 216V DC
AC – 230V AC 50Hz

First substation protection:

X – no protection and connector
0 – 6A fuse protection
1 – 10A fuse protection
2 – 16A fuse protection
3 – 20A fuse protection
4 – 25A fuse protection
5 – 35A fuse protection
6 – 40A fuse protection
7 – 50A fuse protection
8 – 63A fuse protection

Second substation protection:

X – no protection and connector
0 – 6A fuse protection
1 – 10A fuse protection
2 – 16A fuse protection
3 – 20A fuse protection
4 – 25A fuse protection
5 – 35A fuse protection
6 – 40A fuse protection
7 – 50A fuse protection
8 – 63A fuse protection

Third substation protection:

X – no protection and connector
0 – 6A fuse protection
1 – 10A fuse protection
2 – 16A fuse protection
3 – 20A fuse protection
4 – 25A fuse protection
5 – 35A fuse protection
6 – 40A fuse protection
7 – 50A fuse protection
8 – 63A fuse protection

Use this table when ordering.