



mcr Omega

**central supply-control units for fire ventilation systems
and overpressure systems**

OPERATION

The **mcr Omega units** are designed for control and supply of the equipment included in the fire ventilation systems and overpressure systems. Thus, they play a key role in correct operation of the systems that guarantee safety of persons residing in buildings and property. They can be used in public buildings, collective housings, shopping centres, industrial buildings and logistics facilities.

The central units are manufactured on individual orders. Their versions depend upon the fire spreading scenario accepted for a specific facility (the central unit operating program is modifiable.)

Actuation of the alarm procedure of the mcr Omega central unit is triggered by the signal coming from the fire panel (FP). The mcr Omega central units operate with all types of FP's and perform the following procedure:

- ▶ receiving of alarm signals (their number depends upon number of the fire zones)
- ▶ sending to the FP information on the central unit failure or failure of devices operated by it
- ▶ acknowledgment of completion of setup procedure for the devices under the supervision of the unit to FP
- ▶ sending detailed information on statuses of the devices connected to the FP – option

Moreover, the central units enable:

- ▶ operation of flap or damper actuators i.e. control of location of the limit switches by means of inputs signalling the following statuses:
 - ▶ break (broken line)
 - ▶ short-circuit (shorted limit switch)
 - ▶ check of line continuity by a resistor connected to the limit switch terminals
 - ▶ check of timing parameters for the limit switch dislocation
- ▶ operation of smoke exhaust fans, air intake fans and exhaust fans and ventilation centres for:
 - ▶ setup of the power supply relay
 - ▶ check of operating status of the power supply relay
- ▶ transmission of selected data between individual central units in the open data transmission protocol, RS485
- ▶ transmission of selected data to operator panels, graphical control and monitoring stations and to the BMS's in the open data transmission protocol, RS485-Modbus
- ▶ operation with other smoke evacuation central units and fire alarming systems (FAS).



The central units can be located in zones, e.g. on each floor of a building and can communicate in their local data transmission network.

CONSTRUCTION

Basic components:

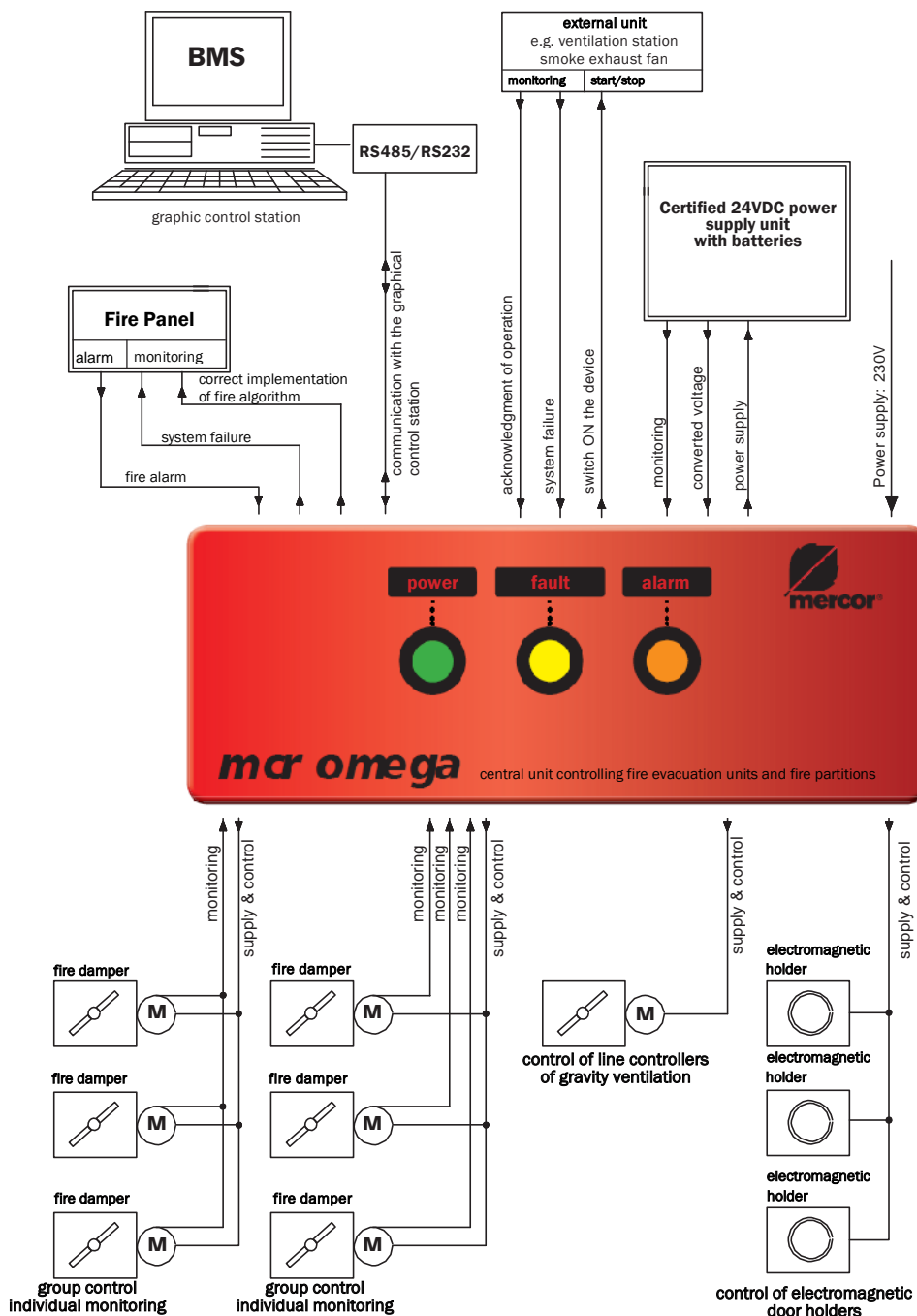
- ▶ dedicated microprocessor monitoring and control modules, mcr MMS 2043, 2063, 2080 & 2081
- ▶ dedicated microprocessor control and communication modules, mcr MZK 2001
- ▶ block of dedicated microprocessor module power supply unit with the mains suppression filter and with surge protection
- ▶ main switch block of the central unit
- ▶ overcurrent protection block for the automatics and supply
- ▶ circuits block of surge protectors (option)
- ▶ integrated system for testing of the connected devices
- ▶ IP55 housing
- ▶ integrated intelligent system for auto-testing of correct operation of the modules



MCR OMEGA 2300

mcr Omega 2300 – it controls and supplies the units included in the fire ventilation systems, such as: fire ventilation dampers, cut-off dampers, transfer dampers (both with and without spring-loaded actuators, dampers with impulse or current break-driven electromagnetic triggers). The central unit can also control operation of fans and other units operating in the system. The mcr Omega 2300 is also used for control of fire partitions or gravity smoke evacuation systems (through supplying of actuators and door holders and window actuators). The central unit monitors the control and power supply circuits and allows real-time monitoring of the connected units.

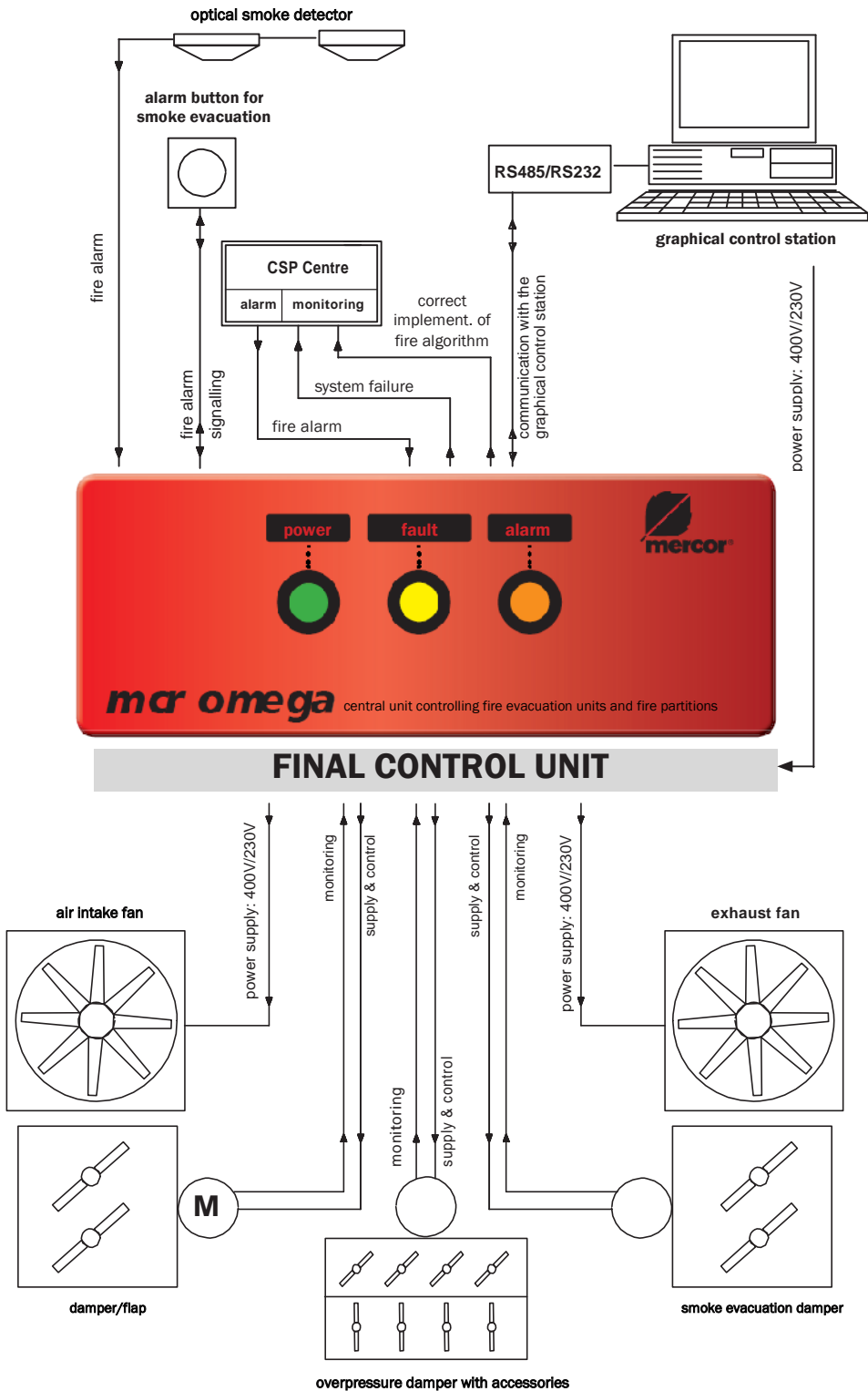
Fig. 1 General diagram of the fire ventilation system using the mcr Omega 2300 central unit



MCR OMEGA 2100

mcr Omega 2100 – it controls and supplies overpressure systems for vertical evacuation that include, depending upon the facility requirements, intake and exhaust fans, regulating dampers with actuators and overpressure dampers, transfer dampers, discharge components and pressure sensors.

Fig. 2 General diagram of the fire ventilation system using the mcr Omega 2100C central unit



DESIGN SOLUTIONS

Fig. 3 Example of the fire dampers and air intake dampers control system that uses the mcr Omega 2300C central control unit

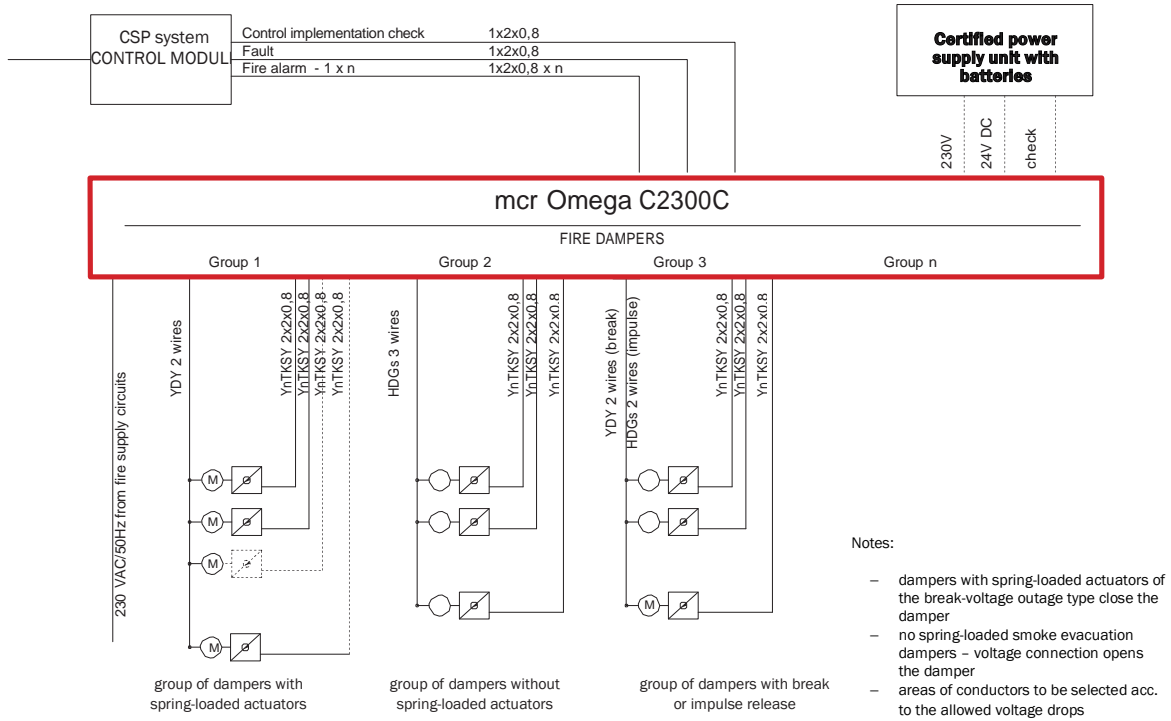
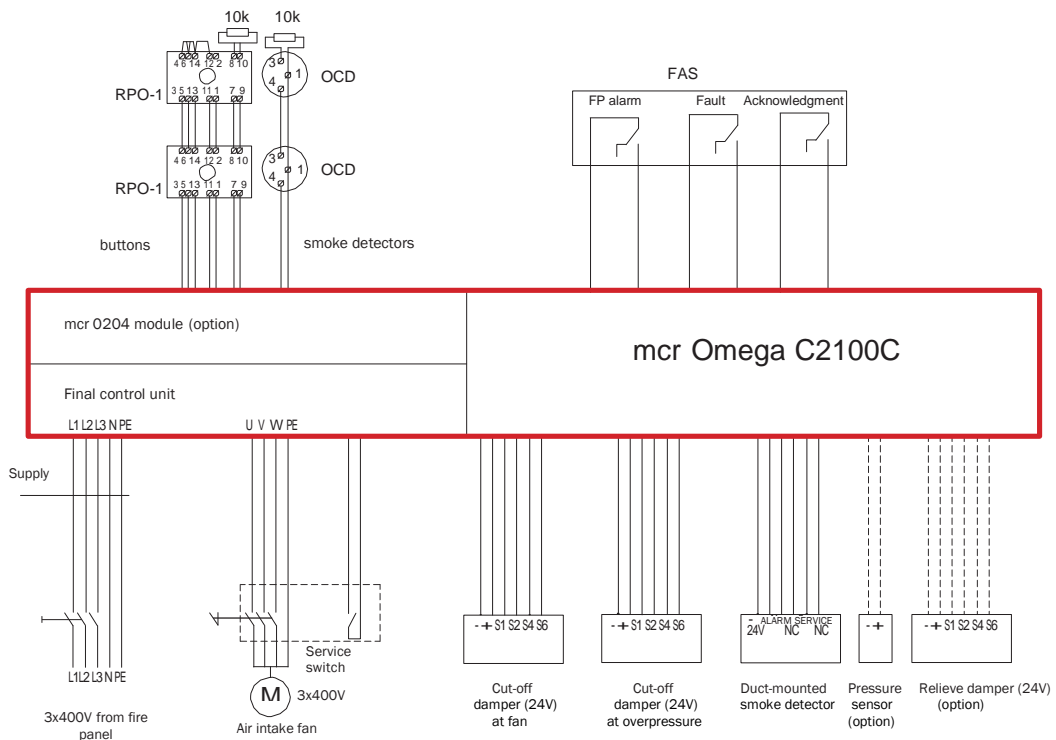


Fig. 4 Example of overpressure system based on the mcr Omega 2100 central unit with mcr 0204 module. Control of the air intake fan and cut-off dampers



The mcr Omega central units can be supplied with graphical monitoring station containing the software package of the HMI / SCADA / MES class that allows implementation of the computerized systems for visualization, monitoring and control. With the use of the software package, it is possible to display any information read from the units connected to the central unit both in real time and in the test mode.

ADVANTAGES

- ▶ **modular construction** – easy and quick designing of control and supply systems
- ▶ **safety** – microprocessor solution for control of fire ventilation guaranteed by the CNBOP Certificate
- ▶ **reliability** – integrated control of the external and internal circuits of the central unit
- ▶ **simplicity** – all supplying and control systems contained in one housing (only connecting of individual units and power supply required)
- ▶ **flexibility** – event development scenario during fire can be adapted to the needs of a specific facility
- ▶ **comprehensiveness** – control of units powered by voltage impulse and voltage break, with the use of 24V AC/DC and 230V AC voltages
- ▶ **cost optimization** – modular structure allows achievement of optimal price / performance ratio



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