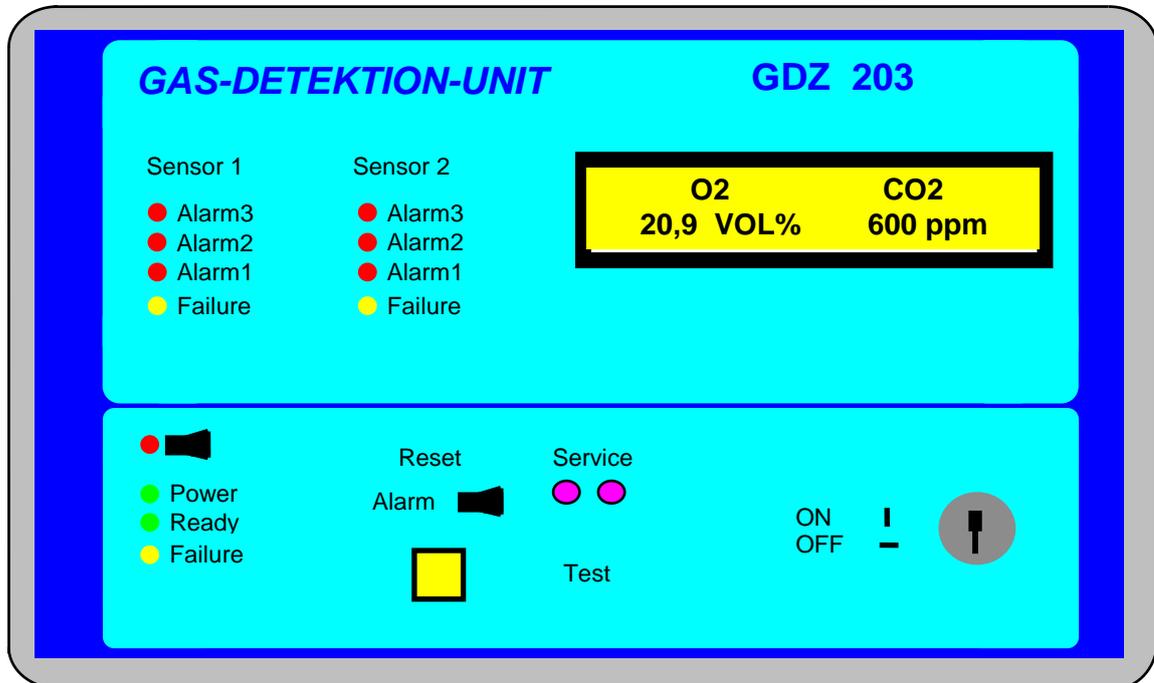


## INSTRUCTION MANUAL

VN 10 45 98

## Gas-Detection-Unit GDZ 203

VN 10



### ▼ IMPORTANT!

The device may only be operated if this operating instruction has been understood and is applied.

The alarm central unit and the sensors are not admitted for the use in explosion-endangered areas!

The appendix "Notes on technical safety for installers and operators" is absolute to heed!

### Liability for function and damages

The liability for the function of the instrument becomes the property of the owner or operator, in so far as the instrument is maintained by persons that do not belong to the service of the manufacturer, or is repaired improperly, or if a handling, that does not correspond to the due application, takes place.

The manufacturer is not liable for damages, that happen through the non-observance of the preliminary hints.

### Instrument-maintenance

The device is subject to regular inspections executed by qualified technical personnel. The maintenance interval depends on the sensors connected and additionally is required by law. It is recommended to conclude a service contract in order to keep to the regular maintenance interval.

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## Due application

The instrument serves the measurement and evaluation of gas concentration in the environment-air

- to the purpose of the warning with overconcentrations and its possible health consequences,
- to the control of shut-off valves, switches, ventilation.

## Turn-key-switch-function

In most cases, the main device is equipped with a turn-key-switch to disable alarm-outputs. Is the turn-key-switch in the vertical position, alarms are enabled and the system is normal working.

Is the turn-key-switch in horizontal position, all alarm-outputs are suppressed (disabled for service works and in special cases). Keep in mind, the system is not real working.

To avoid illegal operation, the key must be removed in vertical position (normal condition) and reserved from the service department or service person.

Each operator must be aware that he can disable the alarm-output by the turn-key-switch (horizontally position = disabled, blocked alarm-output) and possibly consequential damages can occur.

Furthermore the key is not allowed to be stored negligently accessible for uninstructed persons or is handed over to persons without admission.

In case of disabled-alarms (service mode) the LED „Service“ indicates it. The failure relay „GSM“ is inactive and the signal can optional be send to an external alert box.

## Ready light

Is the supply-voltage for the instrument in order, shines the green LED „Power.“

Is the instrument and the attached sensors operational, shines also the green LED „Ready.“

The brightness of these LEDs is varied cyclically. So the controller reports its function.

With disturbances goes out the LEDs „Ready“ and the yellow failure-indication-LED flashes. The flash of the failure-indication-LED takes place also in the off-load condition for some days, since the LED is accumulator-buffered.

## Service over infrared-light-route

The instrument is equipped with an infrared-interface.

The instrument and the attached sensor is configured over the interface with help of a service-control-panel with LCD. This also is usable for adjusts, readouts and tests.

Heed the instruction manual of our Service-Handy to this.

## Sensor-connection

To the supply of gas measuring device, the instrument supplies an unadjusted DC-voltage of 24 ..28V.

At the instrument can be connected two sensors.

As standard-sensor-cable, the shielded cable JY(St)Y 2x2x0.8mm can be applied.

The wire-colors of the standard-cable can be assigned as follows:

Red: +24V (clamp 1), white: 4-20mA (clamp 2), black: 0 V (clamp 3), yellow: PE (clamp 4)

**The supplementary shield wire core is to be twisted with the yellow wire and to connect to clamp 4 (protective conductors PE).** The supplementary wire core is connected in the cable with the shield.

The supplementary wire core is to be connected at the sensor with the metal case, however not, if the metal case is mounted on an earthed steel-bearer.

In this case it is allowed to connect the supplementary wire core and the wire for clamp 4 (PE) only at the alarm central unit to the avoidance of ground loops to the sensor.

With the installation, it is to be kept an eye on it that the naked supplementary wire core cannot come in contact with the circuit.

## Adjustment of alarm-thresholds

Per measuring position, three alarm-thresholds can be set within the measuring range. The thresholds values are inputed over the control panel. The Service-Handy puts the threshold-values in the alarm central unit.

Following threshold parameters can be put in:

- Alarm with climbing or dropping concentration
- Alarm self-clearing or self-locked, until alarm-reset button is pressed.

## Relay-exits

Three relays can be programmed to switch with any threshold.

Two alarm-relay-exits and the central-fault indicator relay are equipped with 3 contacts. The sequence of the contacts is in reading-direction: closing contact, transfer contact, opener.

The closing contact is closed with pending alarms as well as present disturbances.

The relay-exits for warning light and horn are closing contacts.

## Alarms

The instrument supervises the signals of the sensors (4 ..20mA) on overstepping of 3 thresholds (according to instrument-implementation) within the measuring range. Reaches the measuring signal a threshold, the corresponding alarm is set. The affiliated LED shines, and the affiliated relay is activated.

The alarm-steps can be programmed self-clearing - i.e. if the gas concentration sinks under the threshold again, the corresponding alarm is set off - or alternatively self-locked. In this case, the alarm signal can be set off only through pressing the central reset button or an attached external button (closing contact). Prerequisite is that the measuring signal has returned to normal level already again.

Ex factory, the instruments are put in standard as follows:

Alarm 1 is programmed self-clearing. With threshold 1 is activated alarm-relay 1 and the relay for the connection of warning lights.

This relay is impulsed and warning lights can be connected without additional flasher unit.

Alarm 2 is programmed self-locked. With threshold 2 is activated alarm-relay 2 as well as the internal buzzer and the relay for the connection of acoustic signalling device (horn relay).

The internal buzzer and the horn relay can be reset with help of the reset button or an attached external button (closing contact) anytime.

Alarm 3 is programmed self-clearing. With threshold 3 will light up the affiliated LED as concentration-indicator.

Special switch-functions can be programmed customized with the hand-control panel.

## Device check

Press the „test“-button, that itself is on the instrument-front under the text „test“, so all alarms and a device fault are activated, so that attached warning - and switch-facilities can be checked.

With the „Service-Handy“ a singles-test of the alarm-functions and the attachments can be made.

## Instrument defect

The instrument defect indicator outputs are activated under following conditions:

- power breakdown,
- with active faulty-alarm-suppression in the stabilization-phase of the sensors, (until approximately 1 min after power-return)
- cable failure or short-circuit fault of the sensor cable,
- measuring range-injury (<2.5mA as well as >25mA,
- sensor-defect,
- controller-defect, AD-converter failure, parameter-failure in the EEPROM
- An EEPROM-failure lasts 4 minutes long - up to the next checkup
- overvoltage or undervoltage of sensing device power supply / controller power failure
- fuse breakdown

With a defect, the ready-for-operation-LED is deactivated, and the contacts 21 and 22 of the central fault indicator relay closes, contact 23 is separated by 22.

Sensors failure are indicated by a yellow LED additionally to each sensor.

If isolating valves as well as circuit breakers are connected to the instrument, so the the fault indicator relay has to be connected into the control line , so that no gas concentration can exhaust in the failure case.

## Instrument failure checklist

Instrument failures can be read out through keystroke at the GDZ. As important piece of information for the customer service it eases the analysis.

In order to read out the simple failure status, you must press the reset button 5 seconds approximately. The display first switches after it to LED-test - finished, 8 LED should have shined.

Current failures are then shown through now blinking LED:

### Measuring position 1:



Alarm3

Sensor 2 out of range  
(cable failure or short circuit cable)



Alarm2

Sensor 1 out of range  
(cable failure or short circuit cable)



Alarm1

EEPROM failure  
printed circuit / CPU defect ?



Failure

A/D-converter / reference diode /  
5V-supply defect or  
EEPROM data failure?

### Measuring position 2:



Alarm3

24 V measuring device supply  
(overvoltage >35V)



Alarm2

24 V measuring device supply  
(undervoltage <19V)



Alarm1

Program error  
possible CPU defect



Failure

Power supply breakdown has been  
happened (transient fault)

Power supply breakdown and program-errors are events, that have appeared in the proceeding operation. If the reset button is pressed 30 seconds long, these LED-indicators are reset.

If the errors are to be not repaired with simple measures, you immediately inform the service team.

## Power supply breakdown alarm suppression

The instrument owns an one-minute delay, that is activated after each power supply voltage breakdown. Alarms, that would occur inevitably through unstabilized sensors are suppressed. During this time, the failure indicator relay is activated.

A minute after supply is switched on, the instrument is ready, provided no defects are present.

If shut-off valves or circuit breakers are connected to the instrument, so first fault indicator relay must be interconnected the control line and then the relay of alarm 2, so that the facilities are active during this time until the instrument is operational and notices a possibly gas concentration.

Please notice that through the loop, during the instrument is defect, contact 13 of the alarm 2 relay is dead.

If no shut-off valves or circuit breakers are attached, the alarm-suppression function is to be put down beside so that alarm is caused automatically after a power breakdown, if its not guaranteed otherwise that no alarm-concentrations can form itself while power breakdown.

Furthermore, failure indicator warning lights are to be connected, which indicate optically a fault of the instrument in the areas and before the entrances to the areas, in which gas concentration can occur. With it this indicates also on the possible existence of an alarm-concentration,

With intact instrument during 1 minute approximately these signals are activated after return of power supply.

**Take notice: During a power breakdown, only external supplied warning signals are active.**

## Alterations of the instrument-configuration

At the instrument, following alterations can be made with help of the Service-Handy:

- Warning light static instead of flashing
- Horn-release through alarm 1 or alarm 3 instead of through alarm 2
- Alarm 1 stores instead of self-clearing
- Alarm 2 self-clearing instead of stores
- Alarm 3 stores instead of self-clearing
- Alarm output deactivated while instrument failure occurs - instead of alarm output ready

## Expansions

If double relay-contacts are required, for example in order to switch potential-separated control voltages, it is possible to widen the instrument with an additional relay-output.

The corresponding circuit board is delivered like the instrument in a wall-construction-casing and is to be connected over a ribbon cable-connection with the instrument-masterboard.

By it the indicator relays alarm 1, alarm 2 and failure are doubled.

## Start up

All functions of the installation are to be controlled while commissioning the instrument through a test gas feeding and it is a test report to prepare.

## Maintenance

**To the maintenance of the function-security, an annual or biannual maintenance as well as re-calibration is necessary.**

With an inspection, the alarm-functions are to be activated per "test"-button. Furthermore, with help of the „Service-Handy“, the sensors supply voltage and the measuring signals will be checked.

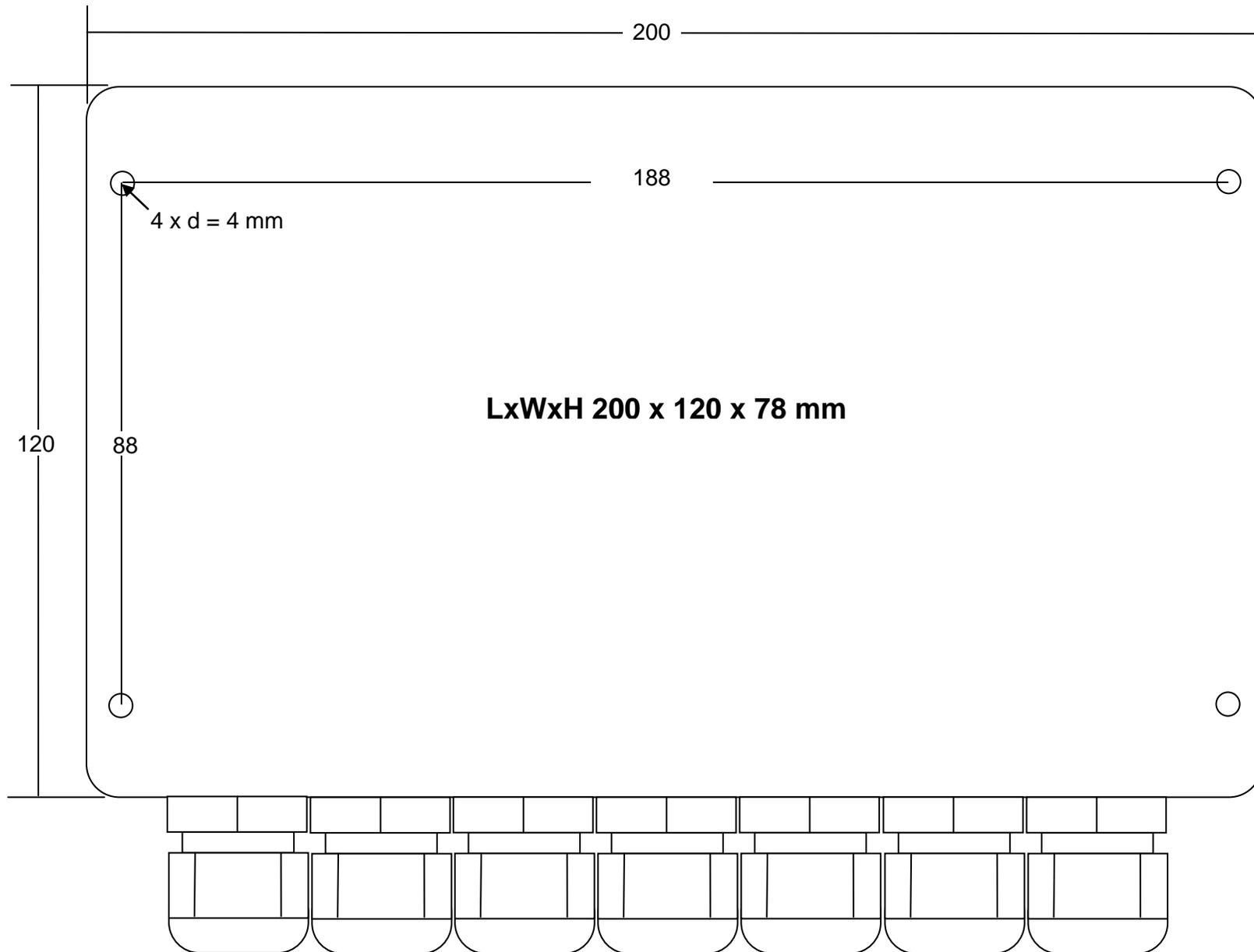
While gas feeding, with help of the Service-Handy, the measuring signals of the sensors can be remeasured, and the threshold values can be re-adjusted.

## TECHNICAL SPECIFICATION

Housing:	plastic-construction-housing WxH(incl. PG)xD 200x140x60mm <sup>3</sup>
Protection-class:	IP 54 on wish IP 65
Sensor channels:	<b>GDZ 203-1:</b> 1 sensor channel <b>GDZ 203-2:</b> 2 sensor channels
Measuring signal input:	4-20mA
Alarm-switch points:	3 per sensor
Alarm-version:	collective-alarm
Alarm 1, alarm 2:	per alarm 1 potential-free wiper-relay, 250V/2,5A
Warning light:	1 potential-free wiper-relay, 250V/2,5A, flashing or permanent
Horn:	1 potential-free switch, 250V/2,5A, resettable
Instrument defect:	1 potential-free wiper-relay, 250V/2,5A
Control lights:	LED-display for condition-code, alarm and defect
Display:	LCD measuring point display
Other functions:	lock-key-operated switch to prevent the alarm from exiting during maintenance, built-in piezo-buzzer 98dB at 1m, connection for external reset, internal function control, line function control, cold-start-faulty-alarm-suppression, IR-programming- and service-interface
Supply:	230V/50/60Hz and/or 24V DC, 110V AC on order
<b>Optional:</b>	Alarm-duplication in the addition-casing, IR-Service-Handy

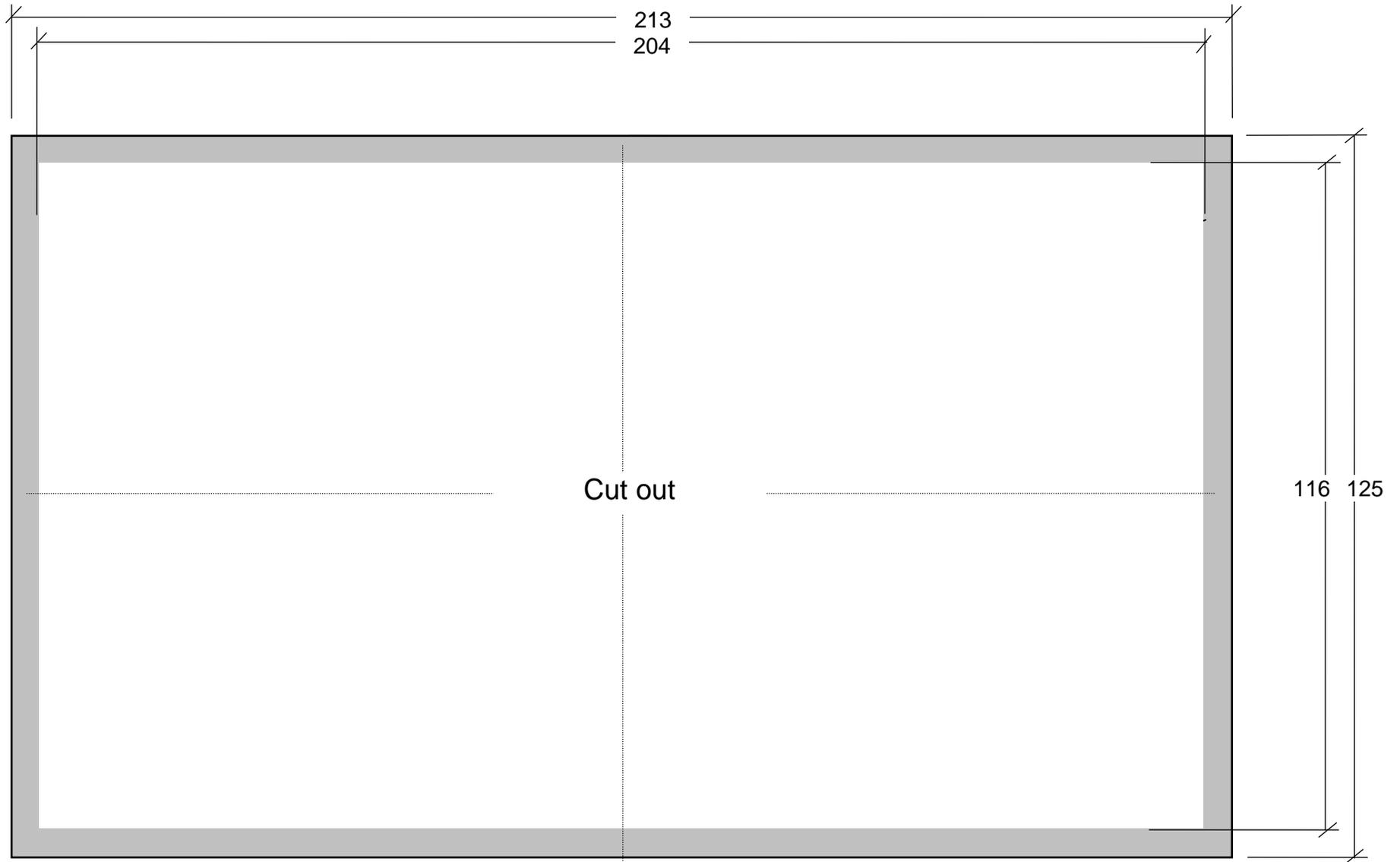
Technical alterations reserved

**Dimensions GAZ 203**



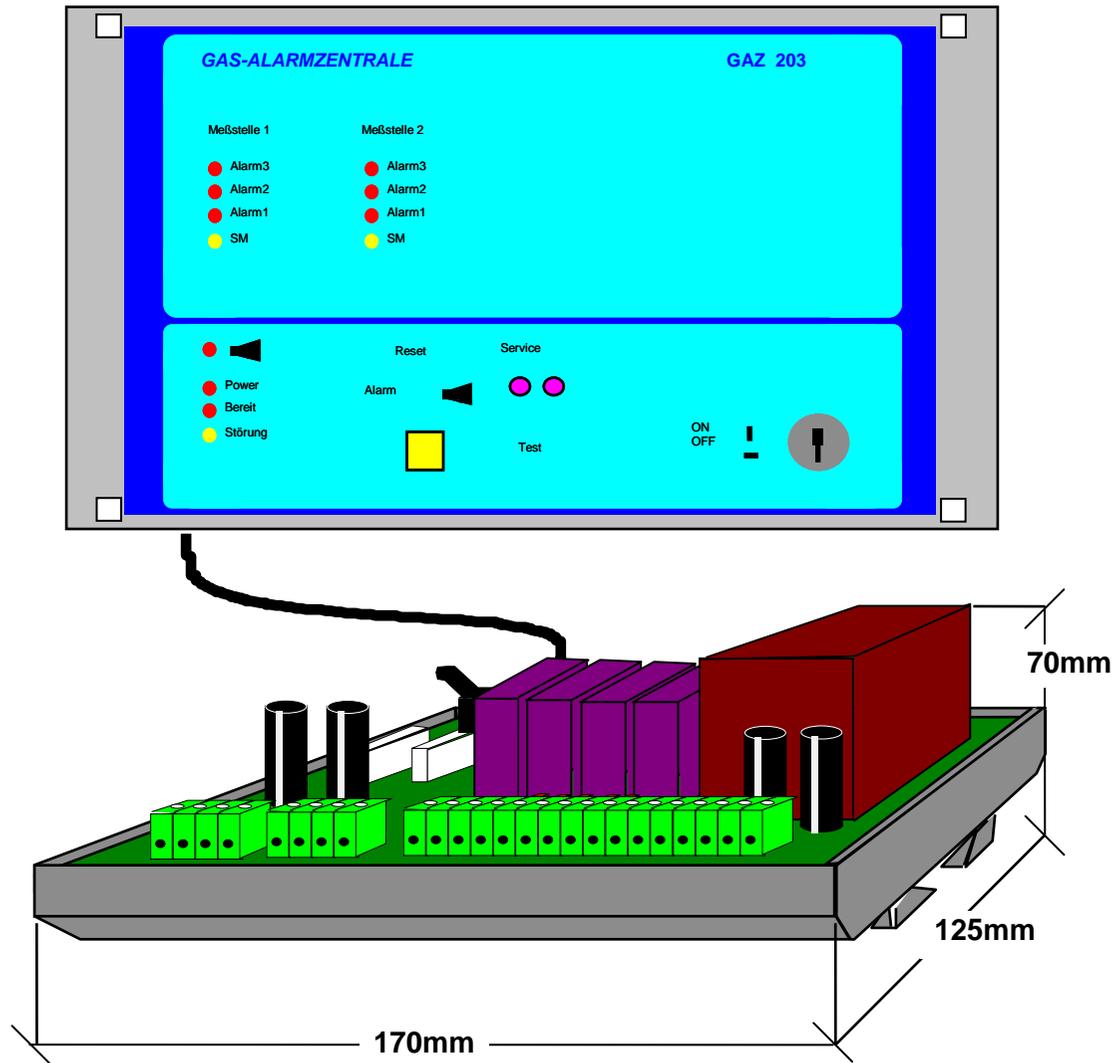
**Cut out for electric control cabinet installing housing model GAZ/GDZ 203-SS for front installation**

Depth of installing housing: 35 mm

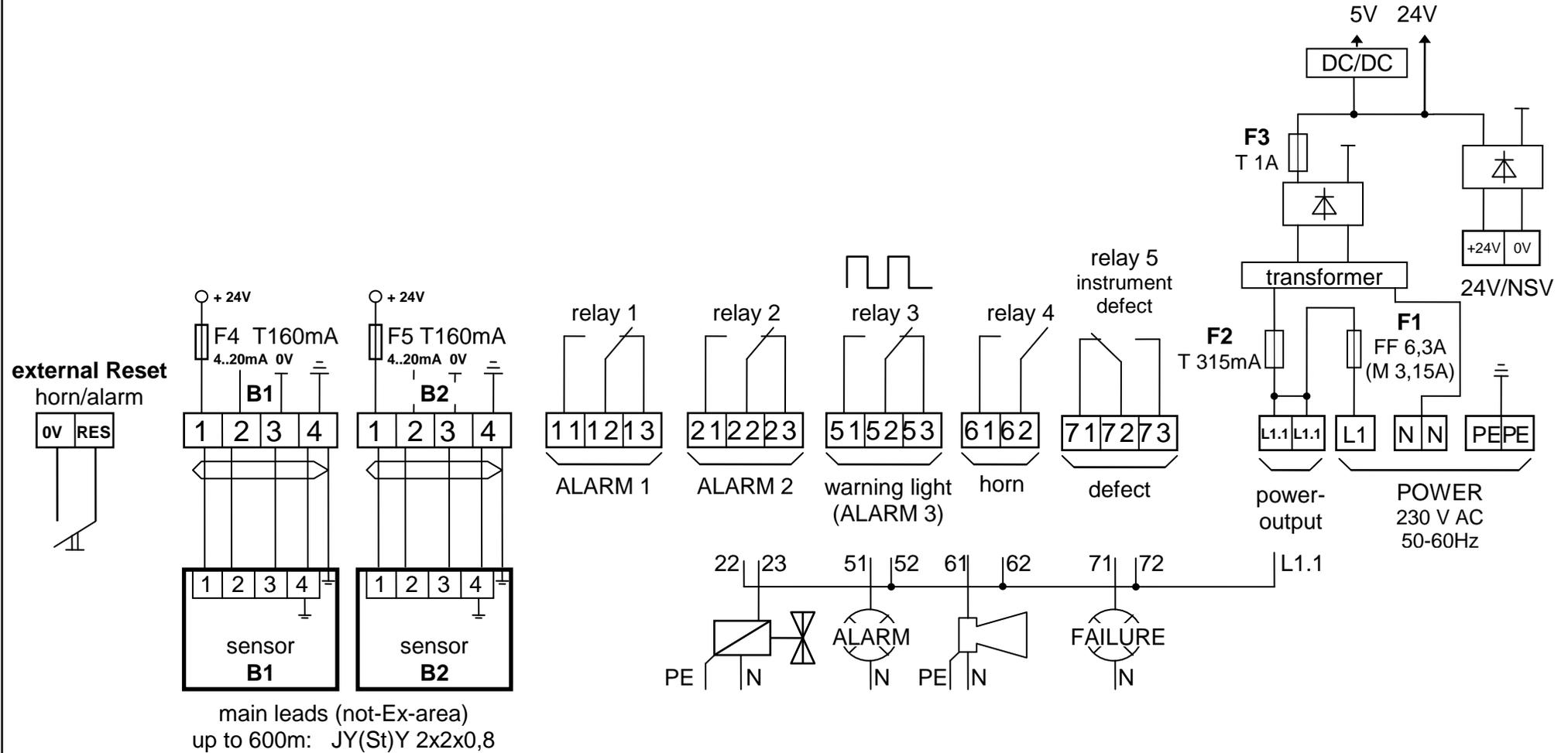


External dimensions : 213 x 125

Electric control cabinet installing housing model GAZ/GDZ 203-SS for front installation: Cap rail modul



# Wiring diagram GDZ 203



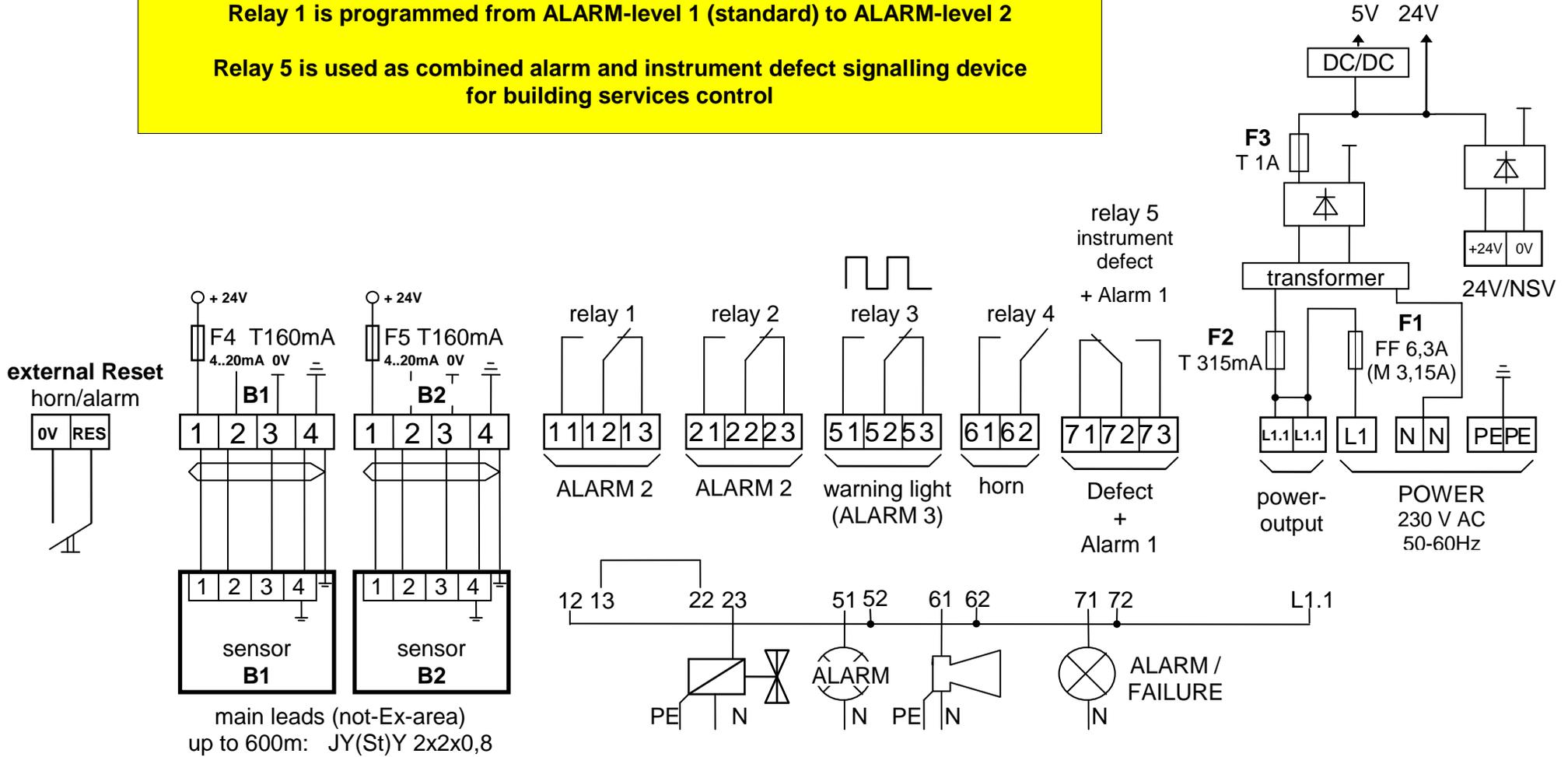
main leads (not-Ex-area)  
up to 600m: JY(St)Y 2x2x0,8



Sensor connection: see specific sensors technical manual!

**Wiring diagram GDZ 203-2-RD with application of relay 1 as redundant valve relay**

**Relay 1 is programmed from ALARM-level 1 (standard) to ALARM-level 2**  
**Relay 5 is used as combined alarm and instrument defect signalling device for building services control**



Sensor connection: see specific sensors technical manual!

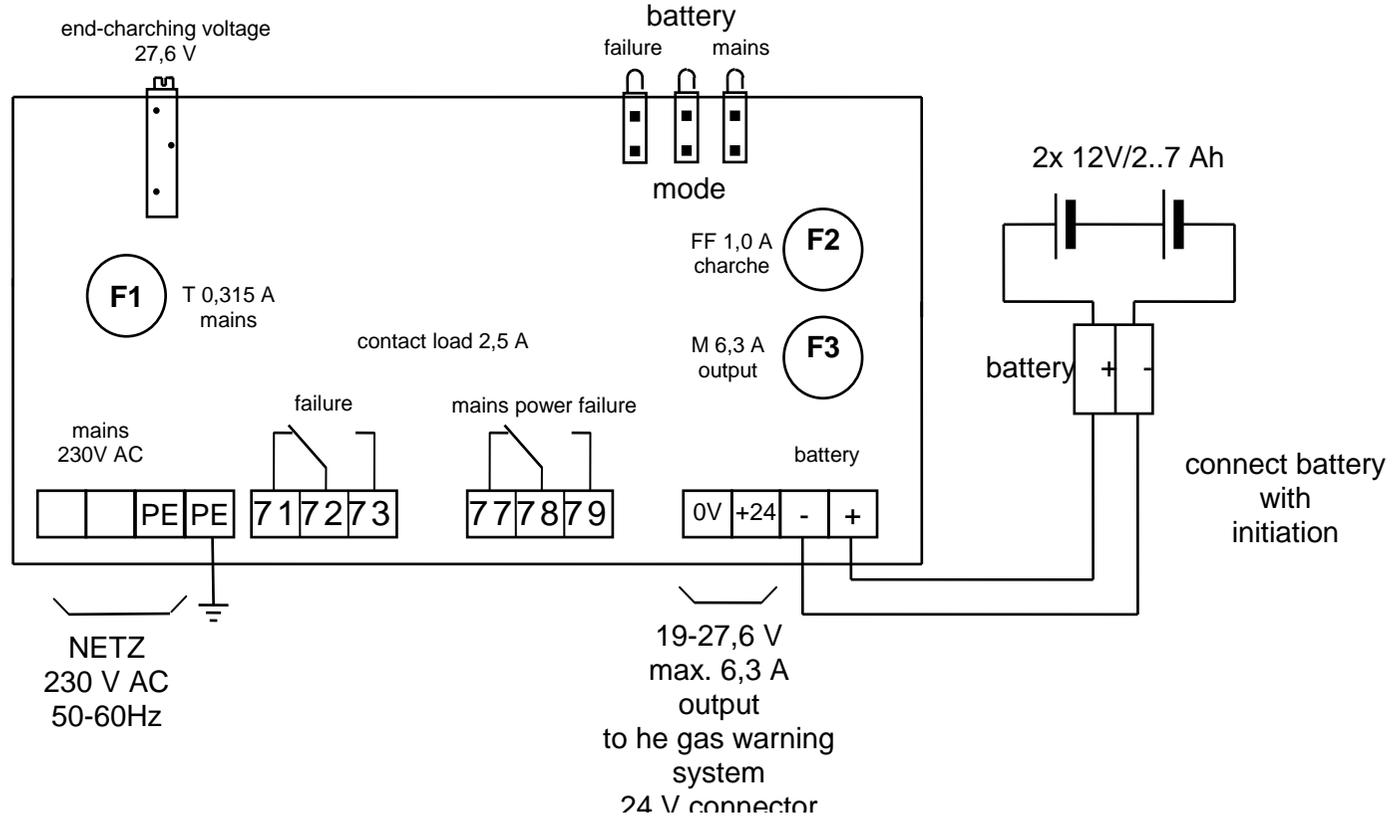
**Emergency power supply in case of mains failure : NSP-Z-L wall mounted housing to supply Gaz203 .. GDZ801 centrals**

Housing dimensions:  
B x H x T 300 x 260 x 90 mm  
over all



**Connecting diagram: Emergency power supply NSP-B-L for switch boards and NSP-Z-L (wall mounted housing)**

**Supply voltage: 230V AC**  
**Output: 24V DC / 6,3A / 2..7 Ah**



Capacity: 2..7 Ah depending on the battery  
 capacity connected

Output current: 6,3 A max.

Charging current: 0,5 A max.

Deep discharge protection: yes

Housing NSP-Z-L: steel plate housing WxBxT

300x200x80(120)mm

Rittal KL 1517(H=80mm) bzw. 1503(H=120mm)