SIEMENS

# FC1008/12-A/ -B/ -C

# Fire control unit

## Technical specification

**Fire & Security Products**

Siemens Building Technologies

Liefermöglichkeiten und technische Änderungen vorbehalten.
Data and design subject to change without notice. Supply subject to availability.
Sous réserve de modifications techniques et de la disponibilité.

# 1 About this document

**Purpose and scope**
This document describes the installation, function, commissioning, maintenance, troubleshooting and disposal of the product FC10xx. The consistent observance of the instructions ensures a trouble-free and safe application.

**Application area**
The information in this document applies from the hardware / software version 5.x.

**Target group**
This documentation and the instructions therein are intended for the following group(s) of persons who perform the tasks mentioned and have had the corresponding training.

| Group of persons | Activity | Qualification |
|---|---|---|
| Product Manager (PM) | He is in charge of local product management and is responsible for the interchange of information between the plant supplying the equipment and his DU for his product line. He co-ordinates the flow of information between the individual groups of people for the various projects. | He has had training appropriate to his function and product range and has attended the product manager training course. |
| Project Manager | The project manager is responsible for the local project management. He co-ordinates the schedules of all groups of people working on a project as well as resources. He also continuously obtains the technical information required for project realization. | He has had the technical training appropriate to his function and the size of a project or the product line used in the project and has attended the training courses for project managers at the supplier's works. |
| Project Engineer | Provides the parameterization of products, devices and systems in the DU for a specific country or customer. He monitors the serviceability and gives the go-ahead for the commissioning of products, devices and systems at the place of installation. He is also responsible for trouble-shooting. | He has had the training appropriate to his function and to the products, devices and systems to be parameterized and has attended the technical training courses for project engineers at the supply plant. |
| Commissioning personnel | The configuration of the products, devices or systems for specific customers at the place of installation. They check serviceability and officially clear the product, device or system for use by the operator / customer. They are also responsible for trouble-shooting. | They have had the training appropriate to their function and to the commissioning of the products, devices or systems and have attended the technical training courses for commissioning personnel. |
| Maintenance Personnel | They carry out all the maintenance work indicated in the product documentation and check equipment for total serviceability. | They have had the technical training appropriate to their function and the product. |

**Operational and safety regulations**

Before groups of persons begin work on the system they must have read and understood the related documents, in particular Chapter 2 *Safety regulations*.

**Disregard of the safety regulations**
The products are designed for an appropriate use and were tested for faultless functioning. Siemens disclaims all liability for damage or personal injuries caused by the incorrect application of the instructions or disregard of warnings of danger contained in the documentation. This applies in particular to:

- Personal injuries or damage caused by improper use and incorrect use;
- Personal injuries or damage caused by disregarding information relevant for safety in the documentation or on the product;
- Personal injuries or damage caused by poor maintenance or a lack of maintenance.

### Reference documents

| Number/Version | Name |
|---|---|
| 005001 | Operating Manual |
| 004656 | Product data sheet FC10 |

### Download

The most recently released technical documentation for customers can be found in the Siemens Intranet under the following address: http://web4.cerberus.ch/.

### Standard symbols

| | |
|---|---|
| ➔ | Result, note |
| *Text in italic* | Quotation, exact match |
| ➔ see | Cross reference |
| (…) | Brackets contain supplementary text, suggestions etc. |

### Abbreviations

| Abbreviation | Explication |
|---|---|
| DU | Divisional Unit |
| EOL | End of line element |
| LED on, slow, fast | LED on, flashes slowly, flashes fast |
| NC / NO | (Contact) normally closed / normally open |
| PMI | Person Machine Interface (operating panel) |
| RT | Remote transmission |

### Document identification

| Position | Signification |
|---|---|
| Title page | – System names<br>– Product type<br>– Purpose of the document |
| Last page bottom left | – Document number<br>– Date of edition |
| Last page bottom right | – Manual<br>– Register |

### Modification index

| Version | Date | Brief description |
|---|---|---|
| 005000_c_en_-- | 11.2003 | First edition FC10 |
| 005000_b_en_-- | 11.2002 | Update to version 4.2<br>Chapter 5.1; jumper PU11<br>Chapter 5.3.2; new LED 17<br>Chapter 5.3.3; additional function of key 11<br>Various programming extensions |
| 005000_a_en_-- | 05.2002 | First edition BC10 |

# 2 Safety regulations

This chapter describes the danger levels and the relevant safety regulations applicable for the use of our products. Please read the work instructions as well as the chapter *About this document* thoroughly before beginning any work.

## 2.1 Signal words and symbols

### 2.1.1 Classification and meaning of signal words

The danger level – that is, the severity and probability of danger – is indicated by the signal words listed below. Non-observance may lead to the consequences indicated:

| | |
|---|---|
| **DANGER!** | Imminent danger!<br>● May cause danger to life or serious bodily injury! |
| **WARNING!** | Dangerous situation!<br>● May cause serious bodily harm. |
| **CAUTION!** | May cause dangerous situations!<br>● May cause light injuries! |
| **NOTE!** | Possibly harmful situation!<br>● May cause damage to the product or to objects in the immediate vicinity of the product! |

### 2.1.2 Symbols and their meaning

The symbols listed below indicate the nature and origin of the danger.

**General danger**

**Electrical voltage**

**Examples of danger warnings**

The example below illustrates the appearance and form of danger warnings in our documents.

| | |
|---|---|
| **DANGER** | **External voltage**<br>Disconnect the module from the power supply. |

### 2.1.3 Classification and meaning of additional symbols

Tips and information


Refers to extremely important or critical decisions to be taken into account before continuing the work.

# 2.2 Safety-relevant working instructions

**Country-specific standards**
The products are developed and produced in compliance with the relevant international and European safety standards. Should additional country-specific, local safety standards or regulations concerning project planning, mounting, installation, operation and disposal of the product apply in the place of operation, then these standards or regulations must also be taken into account in addition to the safety regulations mentioned in the product documentation.

**Electrical installations**

| | |
|---|---|
| **DANGER** | Work on electrical installations<br>Any work on electrical installations may only be carried out by qualified electricians or instructed persons working under the guidance and supervision of a qualified electrician, in accordance with the electrotechnical regulations. |

- Control units must be disconnected from the power supply during commissioning or maintenance work.
- Terminals with an external voltage supply must be provided with a sign *DANGER - External voltage*.
- Mains leads to the control unit must be installed separately and provided with a clearly marked fuse.
- Earthing must be carried out in compliance with local safety regulations.

**Assembly, installation, commissioning and inspection work**
- If any tools or accessories such as ladders are required, safe and suitable devices must be used.
- Prevention of spurious tripping of the remote transmission must be assured.
- Always inform the fire brigade before testing the remote transmission.
- The activation of fire control installations for test purposes must not cause damage to the system or parts thereof.
- Fire control installations must only be activated after the test has been completed and the system has been definitely handed over to the customer.
- Third party systems or devices must only be activated in the presence of the responsible person.

**Modifications to the system design and the products**
Modifications to a system or to individual products may cause faults or malfunctioning. Please request written approval from us and the relevant authorities concerning intended system modifications and system extensions.

**Modules and spare parts**
- Locally procured modules and spare parts must comply with the technical specifications laid down by the manufacturer. This compliance is always ensured for original spare parts supplied by us.
- Only use fuses with the specified fuse characteristics.
- Wrong battery types and improper battery exchange may lead to exlosion risk. Only use the specified battery type or an equivalent battery type recommended by the manufacturer.
- Batteries require environmentally safe disposal. They must be handed in at the local collecting points.

# 3 System description

## 3.1 General

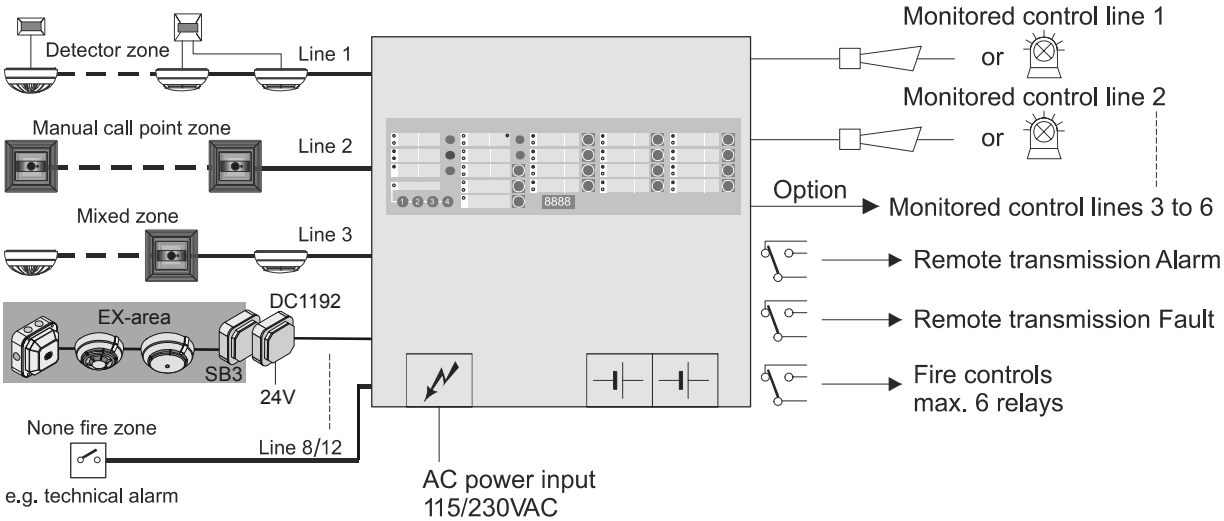
A conventional fire detection control unit for unconventional function characteristics. The FC10 has all the functions that are necessary to build up small and medium size fire detection systems in a very efficient way.

| Control unit variants | |
|---|---|
| 8 zones:<br>● FC1008-A «STANDARD»<br>● FC1008-B «GB»<br>● FC1008-C «NORDIC» | 12 zones:<br>● FC1012-A «STANDARD»<br>● FC1012-B «GB»<br>● FC1012-C «NORDIC» |

## 3.2 Main features

- Microprocessor-controlled fire detection control unit
- For collective fire detectors
- Programmable parameters for
  - alarm organization
  - alarm verification
  - cross zoning
  - horn control lines
- Processing technical alarms
- Optional: Display for alarm counter, clock, event memory etc.
- Programming on site via operating panel
- Emergency power operation up to 72h
- Compliance with EN54

## 3.3 System overview



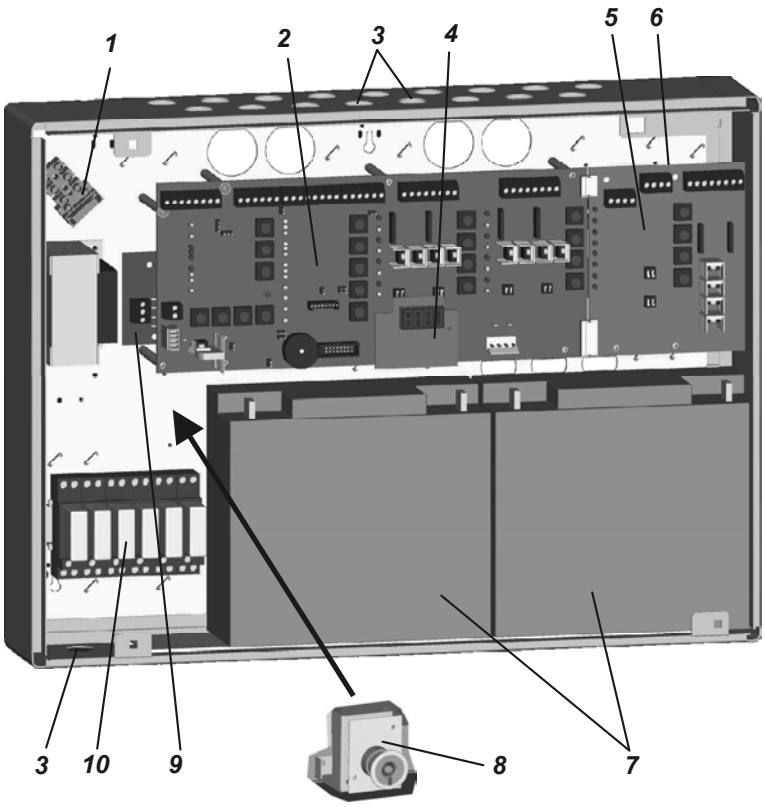
# 3.4 Technical data

| | |
|---|---|
| Collective lines (zones) | 8 or 12 |
| Number of detectors per line | max. 32 |
| Compatible detector series | – *Cerberus* (DS1100, MS24, MS9, MS7, MS6)<br>– *Standard* (*Synova* Series 300) |
| **Ratings detector line**<br>Operating voltage / quiescent current<br>Line resistance / capacitance<br>– Type *Cerberus*<br>– Type *Standard*<br>Alarm criteria<br>– Type *Cerberus*<br>– Type *Standard*<br>Alarm-Trigger<br>– Type *Cerberus*<br>– Type *Standard*<br>Line termination<br>– FC10xx-A/ -C<br>– FC10xx-B | <br>18 … 22V / max. 3.2mA<br><br>≤ 80Ω or ≤ 50Ω / ≤ 1µF **1)**<br>≤ 100Ω or ≤ 50Ω / ≤ 1µF **1)**<br><br>17.5 ... 39mA and > 5.1V<br>17...83.6mA<br><br>resistor 820Ω or Z-diode 5.6V, **2)**<br>resistor 820Ω or Z-diode 5.6V, **3)**<br><br>resistor 3k9<br>EOL FCE1003-B |
| **Monitored control lines**<br>Voltage/current in state active<br>Line termination | 2 + 4 optional<br>24V max. 500mA per per line<br>EOL FCE1002 |
| Potential –free contacts | 1 x Alarm, 1 x Fault / max. 1A/30V |
| Control inputs | 6 x 24V switched via contact |
| Fire control outputs | 6 + 1 per zone / max. 40mA/24V |
| Fire control relays | max. 6 (optional) / max. 10A/230VAC |
| **Power supply**<br>Mains voltage<br>Power consumption<br>Secondary power (current low voltage side)<br>System supply voltage | <br>115/230VAC; +10% / -15%<br>25 ... 45VA<br>max. 1.5A<br>21 ... 28VDC |
| **Emergency power**<br>Operation time<br>Battery size<br>Quiescent current<br>– 8 zones<br>– 12 zones:<br>– with additional control line extension card<br>– with additional display module<br>Alarm current per zone<br>Battery low discharge cut off<br>Charging temperature compensated | <br>max. 30h (12Ah) or max.72h (15 - 18Ah)<br>2 x 12V/12Ah or 2 x 12V/15 - 18Ah, lead acid<br><br>125mA<br>155mA<br>84mA<br>7.5mA<br>+ 30mA (without current of external alarm devices)<br><18.5VDC<br>yes |
| **Cabinet**<br>Assembly<br>Color<br>Protection degree<br>Dimension (W x H x D) | <br>metal frame with plastic cover<br>metal frame grey RAL9006 / cover white RAL9003<br>IP40<br>506 x 378 x 125mm |
| Temperature range (operation) | 0 ... 50°C |

*1)* Line resistance ≤ 50Ω if option 4 is selected in step 3 and option 8 is selected in step 15.
*2)* Use 5.6V z-diode if option 4 is selected in step 3 and option 8 is selected in step 15.
*3)* Use 5.6V z-diode if option 4 is selected in step 3 and option 8 is selected in step 15. In all other cases, use 820Ω resistor or standard call point with integrated alarm detection.

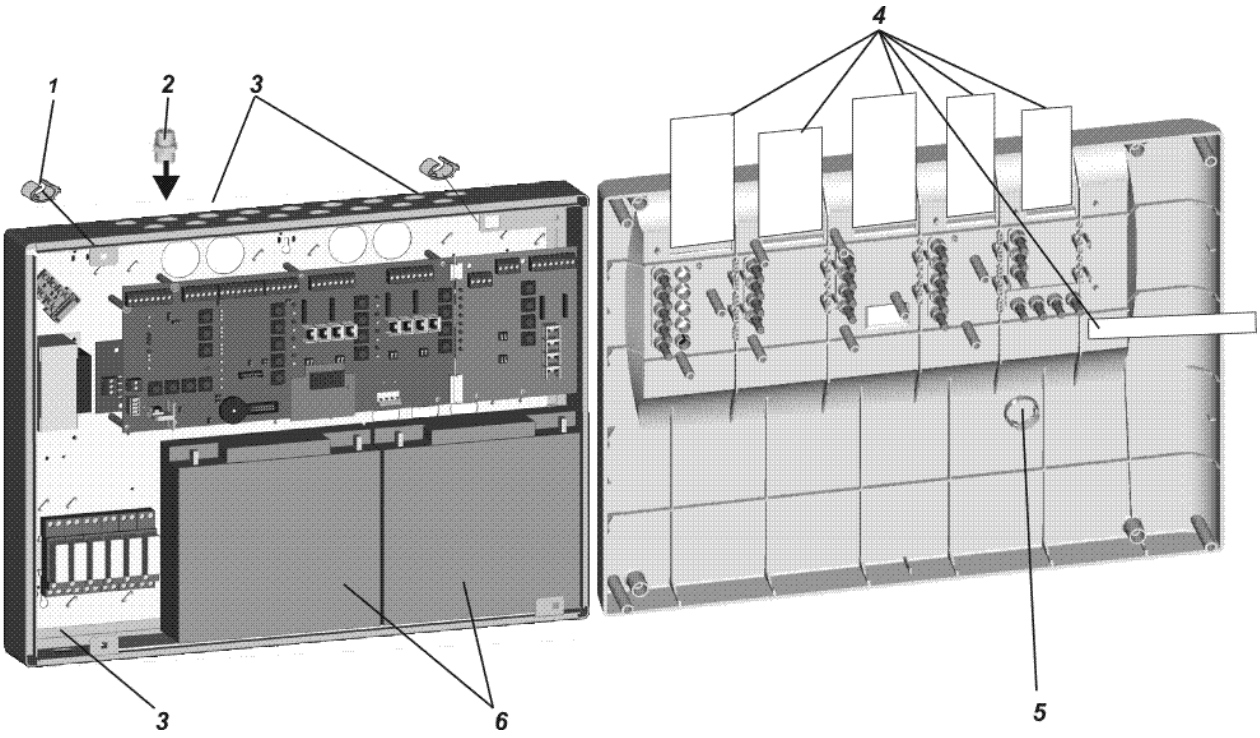
# 4 Installation

## 4.1 Assembly




| Pos | Components |
|---|---|
| 1 | Mains connection and circuit breaker (fuse), factory mounted |
| 2 | Mainboard |
| 3 | Nock-outs for cable entries 20mm; top 17, bottom 3 |
| 4 | Display module (option) |
| 5 | Line extension card, FC1012 only |
| 6 | Control line extension card (optional) under Line extension card |
| 7 | Batteries |
| 8 | Key switch Nordic (variant Nordic only) or key switch set (option) |
| 9 | Power supply card |
| 10 | Optional fire control relays |

# 4.2 Mounting




**Procedure**

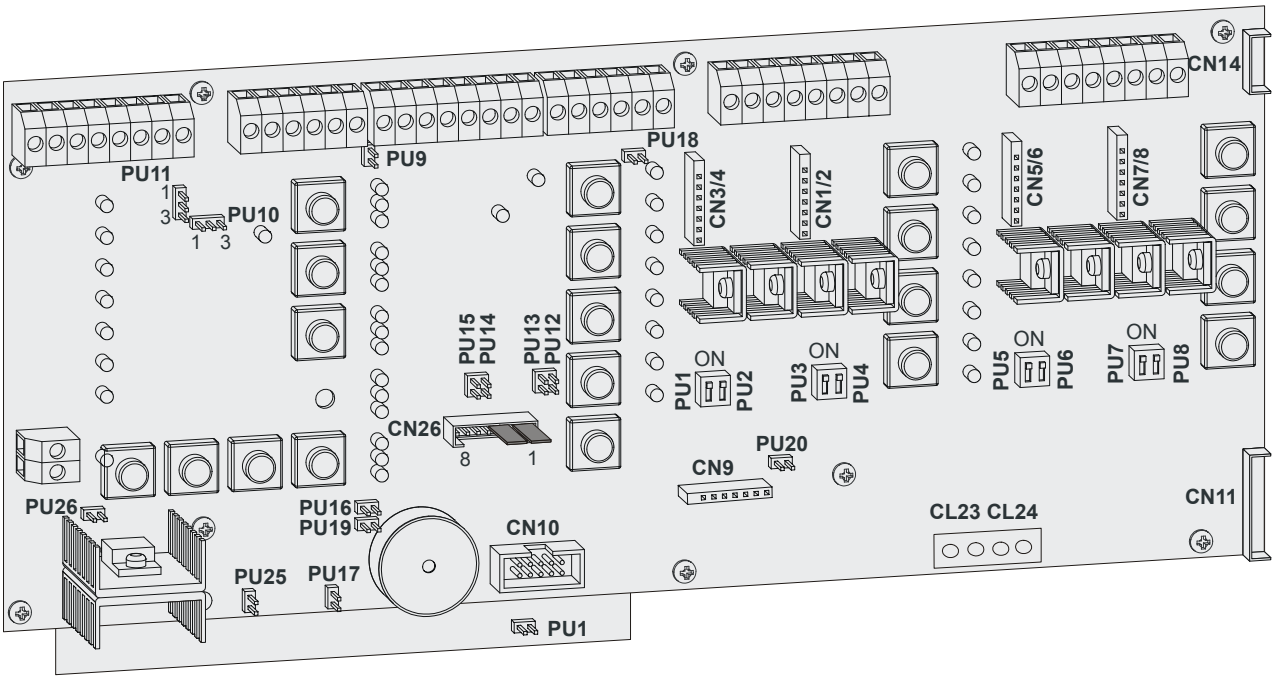
**1.** Remove front cover
**2.** Determine mounting location (not behind a door)
**3.** Mark position of mounting screws (use enclosed drilling template) and drill holes.
Installation accessories not included in cabinet:
- screws min. 4x50mm
- plastic dowels
- c-shaped washers or lock washers

**4.** Mount chassis, if required with distance sleeves *(1)*
**5.** Break out cable entries *(3)* and mount cable glands (PG11) if required *(2)*
**6.** Insert inscription stripes *(4)*
**7.** Remove the recess *(5)* if optional key switch is used
**8.** Insert batteries *(6)*
**9.** Connect all periphery devices (refer to page 14 – 18)
**10.** Set jumpers on main board (refer to page 13)
**11.** Commission system (refer to page 27)
**12.** Adapt the user functions where required (refer to page 29 – 38)
**13.** Mount front cover

Protect the mounted unit with its shipping carton during construction phase by using the shipping carton

# 5 Function and design

## 5.1 Mainboard hardware settings

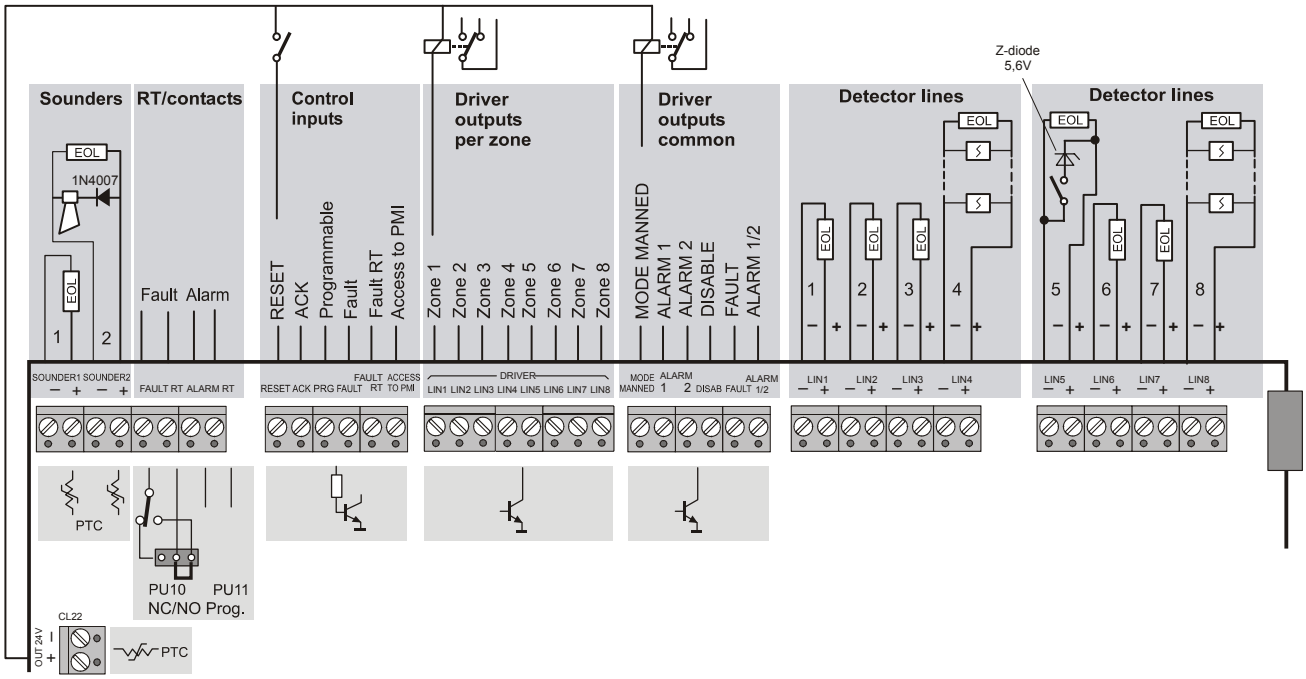



| Ref | Function | Parameter | Remark |
|---|---|---|---|
| PU1... PU8 | Detector line 1 to 8 | ON = none current limited (*Cerberus*)<br>OFF = current limited (*Synova*) | factory-set = ON |
| PU9 | not used | must be OFF | factory-set |
| PU10 | Contact *RT-Fault* | Pos. 1-2 = NC Pos. 2-3 = NO | set as required |
| PU11 | Contact *RT-Alarm* | | |
| PU12 | Fabrication | must be OFF | |
| PU13 | 8 or 12 zones | ON = 12 zones<br>OFF = 8 zones | factory-set *1)* |
| PU14 | Line card FCA1007-B<br>(support diode bases BS5839Pt1) | ON = FCA1007-B used<br>OFF = FCA1007-B not used | |
| PU15 | Control line extension card | ON = used<br>OFF = not used | factory-set = OFF |
| PU16 | To provide temporary operating access level 2 or to connect key switch | ON = operating access level 2 permanent provided<br>OFF= operating access level 2 via password only | for commissioning only |
| PU17 | Earth fault detection | ON = enabled<br>OFF = disabled | factory set = ON |
| PU18 | Evacuation | ON = enabled<br>OFF = disabled | |
| PU19 | Buzzer | ON = enabled<br>OFF = disabled (for commissioning only) | |
| PU20 | Panel extension zones 13 - 24 | ON = connected<br>OFF = not connected | |
| PU25 | not used | must be OFF | |
| PU26 | not used | must be ON | |
| CL23 CL24 | Connector for RS485 interface | not useable | |
| CN1… CN8 | Connector for line card FCA1007-B line 1…8 | line card GB factory-equipped with FC10xx-B | |
| CN9 | Connector for display module | | |
| CN10 | Connector for control card or panel extension zones 13 – 24 | | |
| CN11 CN14 | Connectors for line extension card (9 - 12) | | |
| CN26 | Fabrication / Firmware | Pos. 1-2 and 3-4 = must be ON | |
| **Power supply print** | | | |
| PU1 | Start up without mains | ON = to start up system without mains (temporary) | if mains is not available |

*1)* depending on type of control unit

# 5.2 Peripheral connections

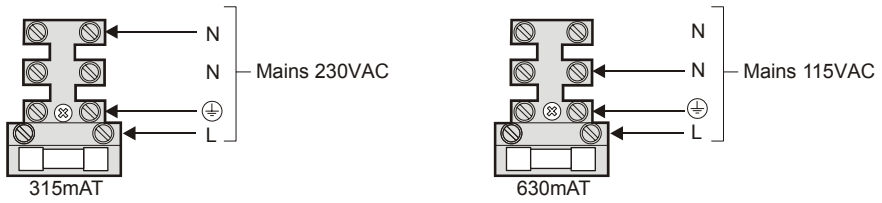
## 5.2.1 Mainboard




| **Detector and control lines that are not used must be terminated** | |
|---|---|
| ● detection line with FC10xx-A /-C | resistor 3k9 |
| ● detection line with FC10xx-B | EOL FCE1003-B |
| ● control line | EOL FCE1002 |

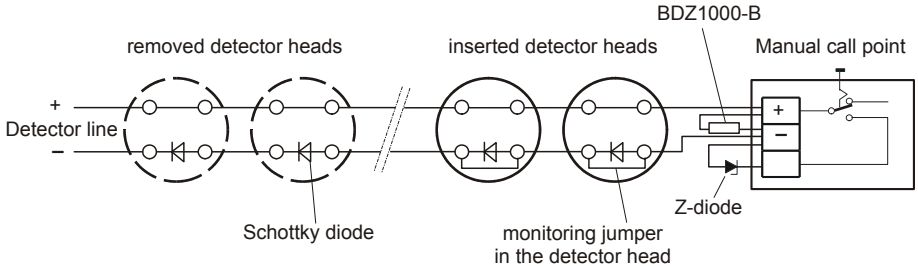
| **Inputs** | **Function / Application** | | **Remarks** |
|---|---|---|---|
| Detector lines 1 - 8 | – to process collective detectors<br>– various parameters (see programming user functions) | | |
| **Control inputs** | | | |
| Reset | to reset system on *Alarm* (pulse); optional also on *Fault* | | – for internal and external use<br>– inputs always accessible (independent from state operating access provided at the PMI) |
| Ack | to acknowledge system on *Alarm* and *Fault* (pulse) | | |
| Programmable | ➔ see programming step 16 | | |
| Fault | to initiate general Fault as long as positive potential is applied | | |
| Fault-RT | to initiate RT-Fault as long as positive potential is applied | | |
| Access to PMI | to provide operating access as long as positive potential is applied | | |
| **Outputs** | **Function / Application** | **Load / rating** | **Remarks** |
| Power output 24V | To provide minus and positive potential for driver outputs and control inputs | – max. 500mA<br>– short circuit proof | for internal and external use |
| Control lines Alarm devices | – To activate alarm devices (horn or flash light)<br>– active on Alarm 1 and Alarm 2 until *Acknowledge* or *Reset*<br>– various activation modes programmable<br>-> see programming step 5 | – max. 500mA/24V<br>– short circuit proof | |
| Relay contact *RT-Fault* | – To provide state *Fault* to 3rd party systems<br>– active on *RT-Fault* until Acknowledge<br>– blocked with *RT-Fault* disabled | – max. 1A/30V<br>– type of contact NO or NC | – NO/NC programmable via jumper PU10<br>– also activated on system fault |
| Relay contact *RT-Alarm* | – To provide state *Alarm* to 3rd party systems<br>– active on *RT-Alarm* (Alarm 2) until Reset<br>– blocked with *RT-Alarm* disabled | – max. 1A/30V<br>– type of contact NO or NC | NO/NC programmable via jumper PU11 |
| **Driver outputs** | | | |
| Mode manned | active if system is in mode manned | – max. 40mA/24V<br>– short circuit proof | for internal and external use |
| Alarm 1 | active on *Alarm 1* (inactive on Alarm 2) | | |
| Alarm 2 | active on *Alarm 2* until Reset | | |
| Disable | active if any part of the system is disabled | | |
| Fault | active on *Fault* until restored | | |
| Alarm 1/2 | active on *Alarm 1* and *Alarm 2* until Reset | | |
| Zone 1 - 8 | Active on zone alarm, or zone fault, switched off or test<br>➔ see programming step 8 | | |

## 5.2.2 Power supply




## 5.2.3 Line bridging at removed detector head

If a detector head is removed from a detector line, the control unit signal a fault, while the manual call point is still able to set off an alarm (support diode bases BS5839Pt1)

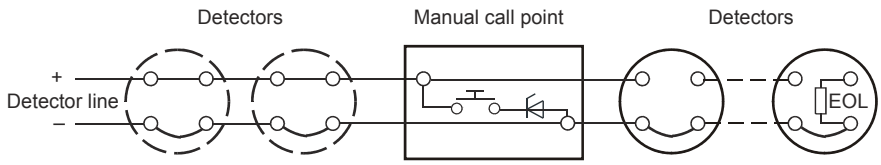



Achieved with

- special add-on line card «BML1000» (factory equipped)
- special resistor EOL «FCE1003-B» (included in panel accessories) and Z-diode
- special detector base (eg. DB1102A, part number 534851) equipped with Schottky diode (1N5819) in parallel to the monitoring jumper inside detector head

## 5.2.4 Manual call point detection

It is possible to differentiate whether a detector or a manual call point has initiated alarm on the detector line. In this case manual call points must be equipped with a z-diode 5.6V/1W.

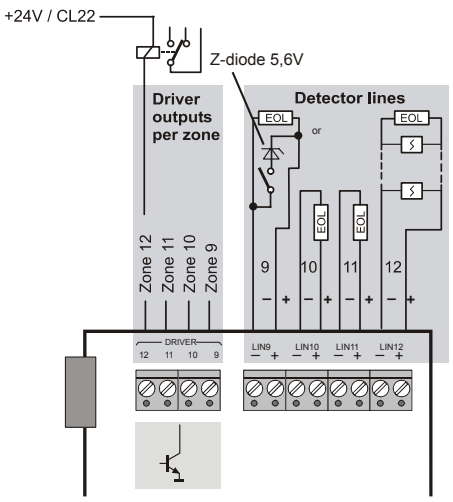


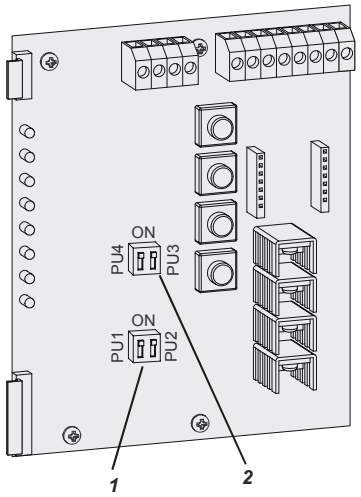

Achieved with

- option 4 selected on programming step 3 or
- option 8 selected on programming step 15

Note: A z-diode in series with a resistor and a LED is not possible for *call point detection*.

## 5.2.5 Zone extension module




**Connections for zone extension**

➔ see chapter 5 *Peripheral connections Mainboard*

**Settings for detector lines**

| Pos | Ref | Function | Parameter | Remark |
|---|---|---|---|---|
| 1 to 2 | PU1... PU4 | Detector line 9 to 12 | ON = none current limited (*Cerberus*)<br>OFF = current limited (*Synova*) | Factory set |

## 5.2.6 Control line extension card

**Summery**

The optional control line extension card features 4 monitored control outputs (control line 3 - 6). The following devices can be connected to the control outputs:

– Alarm devices like horns or flashlights
– Remote fire control installations
– RT devices

**Functionality**

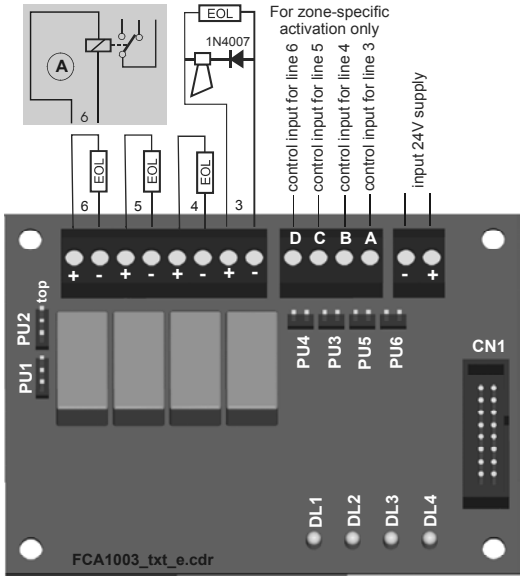
The control outputs of control lines 3 – 6 have basically the same features as the control outputs of control lines 1 and 2. For the control lines 3 - 6, attention should be paid to the following:

– It is defined in programming step 5 when and how the control outputs are activated. In addition, each control output (control line 3 – 6) has a control input (A – D). Input A is related with output 3 etc. An AND combination between the setting in programming step 5 and the control input is enabled with a Jumper, e.g. control output 3 shall only be activated in case of alarm 2 AND driver output of zone 4 is active.
– Only control line 6 can be activated in case of a RT fault (see programming step 5, option 14). If so, the Jumpers have to be set accordingly (see table below).
– A LED is assigned to each control output. If the LED flashes, the corresponding control output has either a line break or a short line.

**Connection**

– The board will be connected via the enclosed ribbon cable on the connector CN10 to the main board.
– For power supply, a separate line has to run from the power supply card (terminals on the right side of the card) to the control line extension card.
– If a control line is not used, it to has to be terminated with an EOL (FCE1002; included in delivery).

The allocation of connection can be seen in the following board illustration.




| Ref. | Control line | Setting / Function |
|---|---|---|
| PU1, PU2 | 6 | Pos. top = if option 14 progr. step 5 is selected<br>Pos. bottom = if option 1-13 in progr. step 5 is selected |
| PU3 | 5 | OFF = zone-specific activation (control input used)<br>ON = common activation (control input not used) |
| PU4 | 6 | |
| PU5 | 4 | |
| PU6 | 3 | |
| DL1 | 3 | LED flashing upon break or short |
| DL2 | 4 | LED flashing upon break or short |
| DL3 | 5 | LED flashing upon break or short |
| DL4 | 6 | LED flashing upon break or short |
| CN1 | | Connector for flat cable to main board |

**( A)** Special Application: Line 6 used as remote control of state *RT-fault*
- Function: Line is activated in normal operating state and inactive in state *system fault* and on *power off* (FC10)
- Only possible with line 6
- Program option 14 in programming step 5
- Set jumper PU1 and PU2 on FCA1003 to position *top*
- Connect load between 350…2500 Ohm (without EOL)

## 5.2.7 RT-blocking card

**Summery**

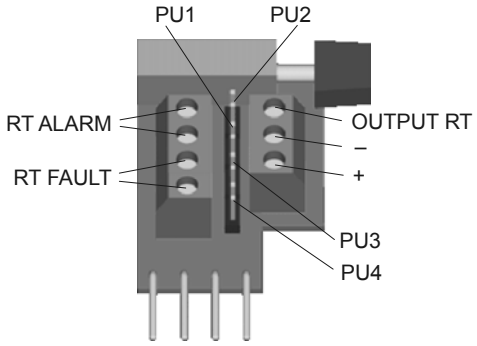
With the optional RT-blocking card, the remote transmission of alarms and faults can be temporary isolated via a switch. This switch is located on the card and, therefore, is only accessible when the unit is open.

**Connection**

- The RT-blocking card will be connected to the mainboard on the terminal screws for remote transmission.
- The power supply (+, –) is provided via a connection between the RT-blocking card and mainboard (terminals *CL22*).
- In order that the display of RT-Blocking is also visible on the PMI, a connection between the RT-blocking card (*OUTPUT RT*) and the mainboard (programmable control input *PROGRAM*) has to be enabled. In addition, option 4 in the programming step 16 has to be defined.

**Functionality and settings**

- The switch on the card has the same function as key 11 on the PMI (temporary disconnection of *RT-Alarm* and/or *RT-Fault*)
- While switch is snapped in, the yellow LED lit on the board as well LEDs for the RT-Blocking on the PMI (*RT-Fault* and *RT-Alarm* disabled)
- The switch on the RT-blocking card has higher priority than the RT-disabling function on the PMI.
- Jumpers are used for settings whether the output is used as NO or NC (see table). This setting depends on the connected RT device.




| Ref | Setting / Function |
|---|---|
| PU1,<br>PU2 | RT-Alarm<br>– ON: NC contact<br>– OFF: NO contact |
| PU3,<br>PU4 | RT-Fault<br>– ON: NC contact<br>– OFF: NO contact |

# 5.3 Event processing

## 5.3.1 Alarm

The processing of alarm events is programmable mainly to prevent the unnecessary turnout of fire department for minor incidents. It involves personnel in the alarming sequence and relies on the operating mode *manned*. The system has to be run in operating mode *manned* as long as the responsible personnel is present. Mode *manned* has to be de-activated if the responsible personnel leaves the building.

Programmable parameters
Zone type

- via timer *V1/V2* in mode *manned* ; for detectors
- *direct* ; for manual call point, sprinkler alarms, etc.
- *internal* ; for non-fire-events, e.g. technical alarm

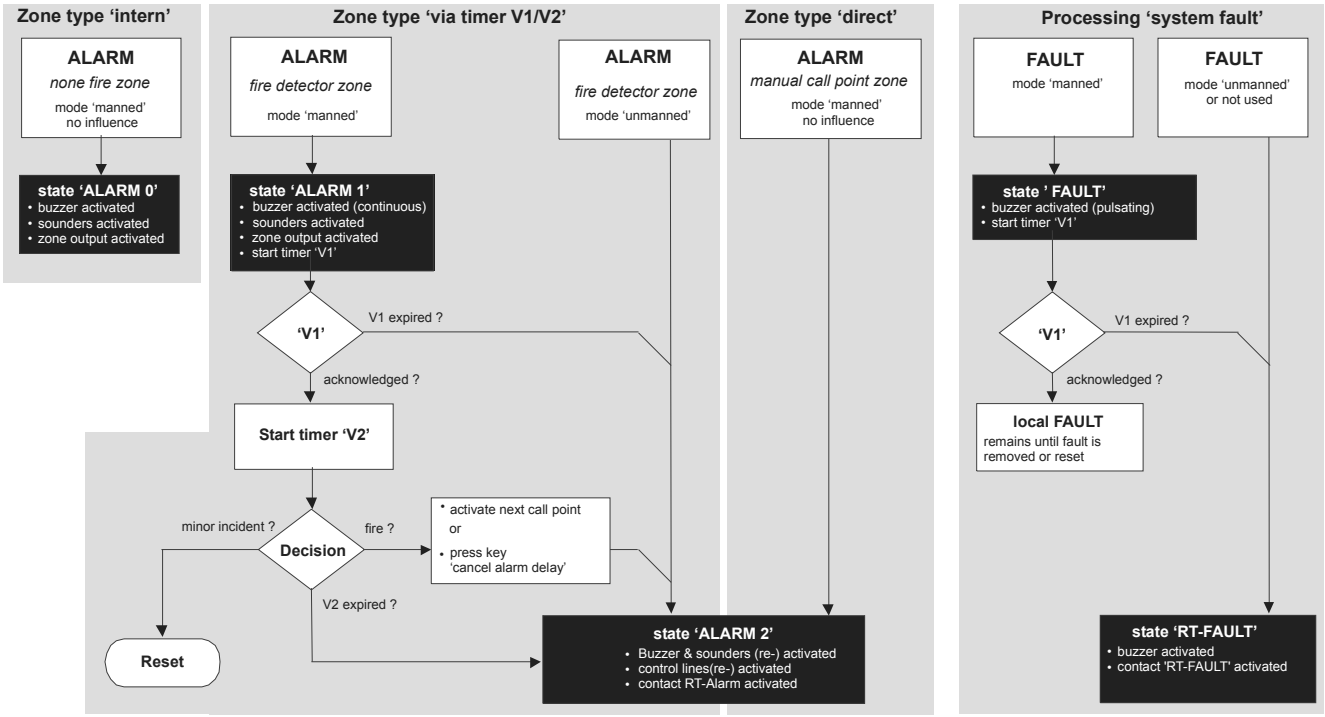
Timer for detector zones in mode *manned*

- range of *V1* 0.5 ... 4min; time to acknowledge the system before *RT-Alarm* is initiated
- range of *V2* 2 ... 10min; time to investigate the fire incident before *RT-Alarm* is initiated

## 5.3.2 Fault

The timer *V1* is also valid for *RT-Fault*. If the reported Fault is acknowledged before *V1* has expired then the contact *RT-Fault* will not be triggered.

## 5.3.3 Processing diagram




If all zones are set to zone type *direct* or *internal* then mode *manned* cannot be activated.

# 6 Operation and indicator elements, mode of operation (PMI)

## 6.1 Operating panel

### 6.1.1 General

The system operating panel is also called **P**erson **M**achine **I**nterface - PMI.

**Overview operating functions**

| Related to Alarm | Related to disable system parts | Related to system test |
|---|---|---|
| ● Acknowledge<br>● Reset<br>● Resound<br>● Evacuation<br>● Cancel alarm delay<br>● Mode manned / unmanned | ● Disable / Enable zones 1 to xx<br>● Disable / Enable alarm horn<br>● Disable / Enable fire controls<br>● Disable / Enable remote alarm<br>● Disable / Enable remote fault | ● Mode *detector test* / Cancel<br>● Mode *walk test* / Cancel<br>● Test alarm horn for 30s<br>● Simulation of *zone alarm*<br>● Simulation of *zone fault*<br>● Lamp test<br>● Service function |

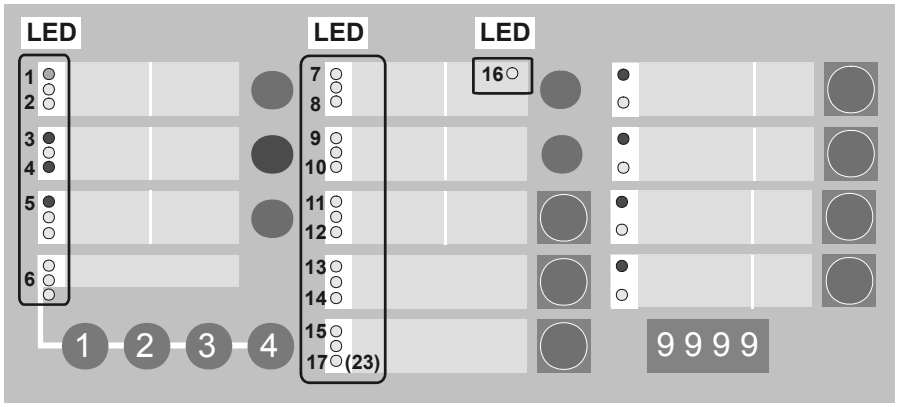
**Operating access**

| | |
|---|---|
| Level 1 | Operating functions always possible |
| Level 2 | Operating functions accessible via access code or key switch<br>**The default access code is 4233**<br>● set individual access code, preferably 6 digits<br>● disable access code if a key switch is used |
| Level 3 | For user programming only, with additional access code |

**Inscription stripes**

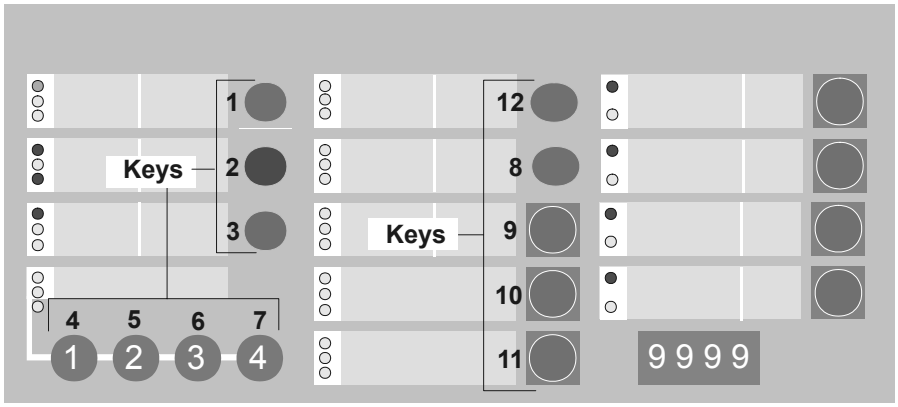
- Label the individual zone texts in the *Word* template (available via hotline).
- Each zone LED must have a clear individual zone text, which indicates the geographical location of the corresponding detectors and / or manual call points.
- Inserting inscription stripes

## 6.1.2 Indicators



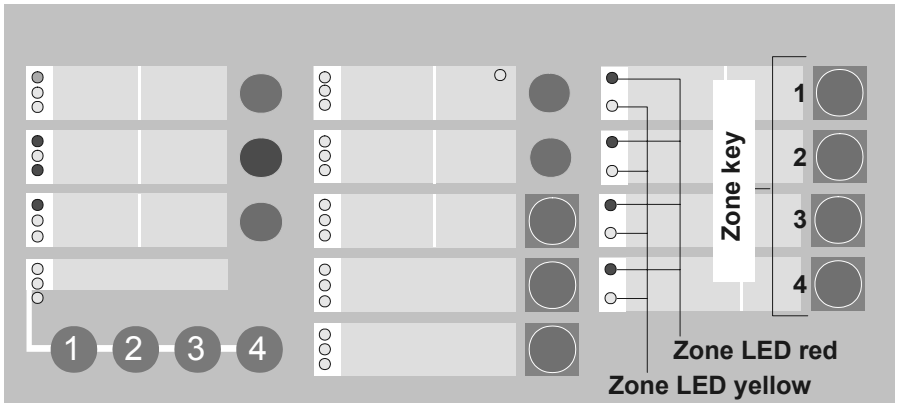

| LED | Labeling | LED | State active |
|---|---|---|---|
| 1 | System ON | on | if system is in operation (micro computer working) |
| 2 | Mode manned | on | if system is in operating mode *manned*<br>– function suspended if all zones are set to *direct* or *internal,*<br>– **->** see chapter *processing diagram* |
| 3 and 4 | ALARM | on<br><br>slow<br><br>fast | if system is on *Alarm*<br>**either**<br>flashing alternating while *V1/V2* are running (programmable step 4)<br>**or**<br>flashing synchronous on *unacknowledged (programmable step 4)* |
| 5 | Remote transmission | on | if contact *RT-Alarm* is *active*<br>– if programmed also if contact *RT-Fault* is active |
| 6 | Operating access | on | if operating access is provided<br>– timeout 3min after last key operation |
| 7 | System part disabled | on | if any system part is disabled or a zone is in mode *detector test* |
| 8 | Detector test | slow | if any zone is in mode *detector test* |
| 9 | Fault | fast | if any system part is on *Fault*<br>– buzzer with pulsating sound |
| 10 | Earth fault | fast | if any system part has short circuit to earth |
| 11 | Power fault | fast<br>slow | if battery is disconnected or low<br>if mains supply voltage is missing or to low (after delay has expired) |
| 12 | System fault | on | if micro-computer has failed (system not working) |
| 13 | Alarm horn disabled / fault | on<br>fast<br>slow | if horn control lines are disabled<br>if horn control line has a *break* or *short*<br>if horn control lines are in mode *walk-test* |
| 14 | Controls disabled | on<br>fast | if zone control outputs are disabled<br>if control line programmed as fire control has a *break* or *short* (step 5, option 12, 13) |
| 15 | RT-Fault disabled / fault | on<br>fast | if contact *RT-Fault* is disabled<br>● if programmable control input with option 1 is active (Fault remote transmission device)<br>● control input Fault RT is active<br>● if control line programmed as fire control has a *break* or *short* (step 5, option 14) |
| 17 (2/4)<br>23 (8/12) | RT-Alarm disabled | on<br>fast | if contact *RT-ALARM* is disabled<br>if control line programmed as *RT-Alarm* has a *break* or *short* (step 5, option 11) |
| 16 | Evacuation | on | if mode *Evacuation* is in process<br>– during *Evacuation*, sounder control lines and buzzer are active<br>– only usable if jumper on mainboard is set to enable |

## 6.1.3 Operating keys




| Nr | Labelling | Access | Function |
|---|---|---|---|
| 1 | Manned<br>Unmanned | Level 2 | to activate or de-activate mode *manned* (blocked in state *Alarm*)<br>– function suspended if all zones are set to *direct* or *internal,*<br>➔ *see chapter processing diagram* |
| 2 | Acknowledge | Level 1<br>or<br>level 2 | ● to acknowledge *Alarms* and *Faults*<br>● to silence buzzer and horn control lines<br>● to resound, 2nd activation starts horns again<br>● to stop horn test before running time (30s) is expired<br>● to de-activate mode *Evacuation* |
| 3 | Reset | Level 2 | to reset *Alarm* (and also Fault, if programmed) |
| 4...7 | 1 / 2 / 3 / 4 | -- | ● to provide operating access **Level 2** (also possible with optional key switch)<br>– enter password<br>● also used for other purposes |
| 8 | Cancel alarm delay | Level 1 | to cancel alarm delay while timers *V1/V2* are running in status *Alarm*<br>– sets timers *V1/V2* to zero |
| 9 | Lamp test<br>Sounder test | Level 1<br><br>Level 2 | ● to initiate lamp test if key is pressed for 1s<br>– sets all LED and buzzer to state *active* for 5s<br>● to initiate horn test if key is pressed for >5s or hold numeric key 3 followed by pressing key 9<br>– activates horn control lines for 30s (stop, either with key *Acknowledge* or renewed pressing of key 9)<br>– function is suppressed on *Alarm* |
| 10 | Disable<br>Enable<br>(Sounder controls) | Level 2 | to temporarily disable the horn control lines and/or the fire controls<br>– 1st key actuation disable horn control lines<br>– 2nd key actuation disable controls<br>– 3rd key actuation disable both<br>– 4th key actuation enable both |
| 11 | Disable<br>Enable<br>(Remote transmission) | Level 2 | to temporary disable the contacts *RT-Alarm* and/or *RT-Fault*<br>– 1st key actuation disable RT-Fault<br>– 2nd key actuation disable RT-Alarm<br>– 3rd key actuation disable both<br>– 4th key actuation enable both |
| 12 | Evacuation<br>(can also be disabled) | Level 2 | ● to activate mode *Evacuation* (horn control lines and buzzer)<br>– only usable if jumper on mainboard is set to enable<br>● to de-activate mode *Evacuation* (also possible via key Acknowledge)<br>– function also possible on *Alarm* (override) |

## 6.1.4 Zone indicators and keys




| Possible operating states zone | LED zone red | LED zone yellow |
|---|---|---|
| *Alarm* unacknowledged | fast | -- |
| *1st Alarm* acknowledged | slow | -- |
| Sub sequent alarm acknowledged (Alarm active) | on | -- |
| Fault line break or line short | -- | fast |
| Zone disabled | -- **1)** | on |
| Zone in mode *detector Test* | -- | slow |
| Zone in mode *detector Test* with temporary alarm activation (≤10s) | on | slow |

*1)* state *disabled* does not apply for *line short alarms* (option 2 step 10) if option 4 step 15 is programmed

| Possible action with key zone | Function | Result / subsequent function |
|---|---|---|
| 1st activation | zone is disabled | Detector line set to 0V<br>zone LED yellow = on |
| 2nd activation | zone is set to mode d*etector test,* allows to test each detector via test alarm on site | zone LED yellow = slow<br>test-alarm activated:<br>● detector alarm indicator on<br>● zone LED red = on<br>● automatic *Reset* of test alarm after 10s |
| 2nd activation<br><br>**and additionally**<br>≤ 2s activation of numeric key 4 | zone is set to mode detector test and additionally<br>mode walk test is active | Same as above but<br>**additionally**<br>● sounder control lines are activated for 3s with each test-alarm |
| 3rd activation | to enable zone | detector line in normal operation |

| Auxiliary functions with key 'zone' | Function | Result / subsequent function |
|---|---|---|
| Hold numeric key 1 followed by pressing key zone | set zone to Alarm<br>(Alarm simulation) | ● Alarm is initiated according to the setting of zone parameter<br>● normal Alarm processing |
| Hold numeric key 2 followed by pressing key zone | to set zone to Fault<br>(Fault simulation) | ● Fault is initiated<br>● normal Fault processing<br>Except:<br>● simulated zone Fault must be Reset |

# 6.2 Display module

## 6.2.1 General

Optional display module that can be added on request in order to provide the functions listed below.

**Functions and displayed information**

| | |
|---|---|
| Alarm counter | Counts up to 9999 alarms<br>– spontaneous display<br>– selectable RT-alarms only or RT-alarms and zone-alarms<br>– internal alarms and test alarms are not counted |
| Expiry time *V1/V2* (min/s) | Displays alarm delay<br>– spontaneous display on alarm<br>– shows the countdown of the time delays V1/V2 |
| Clock | Displays actual system time<br>– spontaneous display, possibly alternating with alarm counter<br>– mainly used to switch automatically from mode manned to unmanned<br>– also used for event memory |
| Event memory | History for register events with date and time<br>– available upon polling<br>– registers alarms, related events and other states<br>– non-volatile memory that stores up to 320 events |
| Programming steps | For commissioning<br>– displays the currently selected programming step |
| Service information | The display module displays the following information<br>– last change of configuration (time and check sum)<br>– last test alarm (time and zone)<br>– version of firmware |

**Note:**
The functions alarm counter, clock and event memory can be individually disabled if not required (see programming step 22)

**Display mode**

| | | |
|---|---|---|
| Battery operation **and** locked access | **.** | flashing dot (power save mode) |
| Counted RT alarms | 0 2 5 7 | -- |
| Counted zone alarms | 0 **.** 1**.** 3 **.** 4 | flashing dots |
| Date and time (h/min) | 1 4 **.** 3 8 | flashing dot except for the year indication |
| Time not set or not correct | 8 8 . 8 8 | all digits flash |

## 6.2.2 Poll event memory

System must be on operating access level 2 and in state non-alarm

| **Polling** | **Input** | **Display** | **Remark** |
|---|---|---|---|
| Newest event | hold key *Acknowledge* then enter code 1122 | **E.001.** | always lowest event number |
| Year of event | press numeric *key 1* | **2003** | |
| Date of event | press numeric *key 2* | **05.11.** | |
| Hour and minute of event | press numeric *key 3* | **15.37** | |
| Next event (one event number upwards) | press key *Reset* | **E.002.** | 2nd , 3rd, lowest event number etc. |
| Back to the newest event | press numeric *key 4* | **E.001.** | back to lowest event number |
| Exit | press key *Acknowledge* | | at any step possible |
| Abort | | | on alarm and 1min after last key operation |

The type of event is always shown by the corresponding indicator at the PMI according to table below.

| **Indicator PMI** | **Type of event** | **Remark** |
|---|---|---|
| Red zone LED | *Alarm* corresponding zone | includes also simulated alarms, but no test alarms |
| LED 5 | *RT-Alarm* | events with zone alarm and remote alarm simultaneously are registered as 2 events |
| LED 7 | System part disabled | |
| LED 9 | *Fault* | includes all types of fault events also simulated zone faults |
| LED 16 | *Evacuation* | |

## 6.2.3 Set clock

**Set date and time**

**1.** Give operating access on level 2
  – the system may not display any alarm or fault

**2.** Hold key *reset*, key in 4233 and confirm by pressing key *acknowledge*
  – LED *manned* and *operating access flash alternately*

**3.** Set year with the numeric keys 1 and 2
  – confirm setting with zone key 1 before proceeding to next option (month, day, etc.) by pressing key *reset* (backward by pressing zone key 1 and key *acknowledge*)

**4.** To end input sequence, press numeric key 4
  – timeout 3min after last entry
  – automatic stop after alarm or fault

| **Option** | **Selection** | **Setting digit 3 and 4** | **Display** | | | | |
|---|---|---|---|---|---|---|---|
| | | | digit 1 | digit 2 | dot | digit 3 | digit 4 |
| 1 | Year (03 to 99) | ● with numeric key 1 = up<br>● with numeric key 2 = down | 1 | --- | . | X | X |
| 2 | Month (01 to 12) | | 2 | | | X | X |
| 3 | Day (01 to 31) | | 3 | | | X | X |
| 4 | Hour (00 to 23) | | 4 | | | X | X |
| 5 | Minute (00 to 59) | | 5 | | | X | X |
| 6 | Adjustment +/- 20sec per day | key 1 to set clock 1-20sec faster<br>key 2 to set clock 1-20sec slower | 6 | - (-)<br>= (+) | | x | x |

It is only possible to go to the next option if the current entry is completed and accepted; otherwise, the buzzer will sound.

## 6.2.4 Poll service informations

The following information can be displayed on the display module:
- last change of configuration (date/time and check sum)
- last test alarm (date/time and zone number)
- version of firmware

**Requirement**
Queries about service information are only possible if there is no alarm and operating access on level 2 is given.

**Procedure**
1. Hold key *acknowledge* then, enter the password for the corresponding service information by using the numeric keys.
2. The requested query can be selected with the corresponding numeric keys.
3. To end the query, press key *acknowledge*. The request will be automatically stopped if an alarm occurs or if there is no further entry for more than a minute.

**Query about the last change of configuration**

| Entry | Meaning | Display (example) |
|---|---|---|
| Hold key acknowledge and enter 11114444 | password | P R O G |
| 1 | year (yyyy) | 2 0 0 3 |
| 2 | date (dd.mm.) | 2 1.0 5. |
| 3 | time (hh.mm) | 1 5.3 7 |
| 4 | check sum user function | 8.2.3.6. |

**Query about the last test alarm**

| Entry | Meaning | Display (example) |
|---|---|---|
| Hold key *acknowledge and* enter 33331111 | password | T E S T |
| 1 | year (yyyy) | 2 0 0 3 |
| 2 | date (dd.mm.) | 2 1.0 5. |
| 3 | time (hh.mm) | 1 5.3 7 |
| 4 | zone | 0 8 |

**Request about the firmware**

| Entry | Meaning | Display (example) |
|---|---|---|
| Hold key *acknowledge* and enter 2211 | password entry<br>firmware version is displayed | V _ 5.1 |

## 6.2.5 Delete alarm counter and event memory

Common command to delete both alarm counter and event memory.

| | | | |
|---|---|---|---|
| 1. Start | hold key *acknowledge* and key in code 3, 3, 2, 2, 1, 4, 4, 3 by using numeric keys | D E L | static |
| 2. Approve | hold key r*eset* and key in code 3, 4, 4, 1, 3, 3, 2, 1 by using numeric keys | . D E L . | flash simultaneously |
| 3. Delete | press numeric key 2 | . D E L . | static |
| 4. Confirm | press simultaneously all numeric keys | 0 0 0 0 | flash for 15s |
| 5. End | press key *acknowledge* | possible at any time | |
| Automatic stop | | when *alarm* or 15s after last entry | |

# 7 Commissioning

## 7.1 Procedure

**Work to be done before commissioning**

- installation of detector lines must be completed
- the connection of all detector bases and manual call points must be tested
- control unit must be mounted
- inscription stripes must be labeled and inserted
- all accessories must be available on site
- mains supply voltage must be available
- list of all field devices with clear geographical location must be available

**Check electronic hardware**

- check position of all jumpers and DIP switches
- connect detection lines or terminate with EOL
- connect horn control lines or terminate with EOL
- check whether the EOL is connected at the last detector, manual call point or horn of each line
- remove mains fuse inside the control unit

**DANGER** External voltage

- connect mains supply line according to the local mains voltage
  - check mains fuse and earth connection
- place battery (but do not connect)
- insert mains fuse inside the control unit
- connect battery

**Commissioning**

- check the correct functioning of the system
- remove possible faults
- set the individual user functions as required and fill out log sheet
- initiate lamp test and check all LED
- test each operating key for correct functioning
- test all detectors, manual call points, horn control lines and remote transmission facility, see chapter *Testing peripheral devices*

**The commissioning work is completed if**

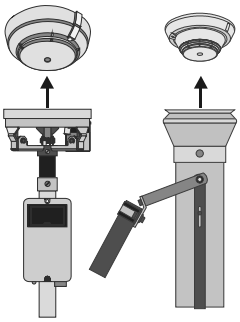
- the alarm processing of each zone is individually tested
- all detectors, manual call points, horn control lines and remote transmission facility have been tested and function correct
- the log sheet of user functions is completely filled out
- the system is set to normal operation and all system parts are enabled
- no fault message is reported
- the buzzer is enabled (jumper on mainboard)
- temporary operating access is removed (jumper on mainboard)

The system can now be handed over the customer

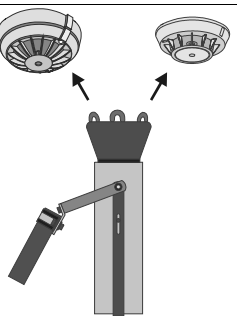
# 7.2 Testing peripheral devices

**Procedure**

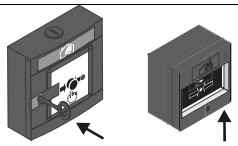
### Testing smoke detectors with DZ1193 or RE6

| | |
|---|---|
| **1.** Set zone to mode *detector test*<br>**2.** Place testing unit on detector head<br>**3.** Wait until LED at detector head is on<br>**4.** Remove testing unit<br>- automatic Reset of test alarm after 10s<br>**5.** Set zone to mode *normal operation* |  |

### Testing heat detectors RE6T

| | |
|---|---|
| **1.** Set zone to mode *detector test*<br>**2.** Place testing unit on detector head and turn on heater<br>**3.** Wait until LED at detector head is on<br>**4.** Remove testing unit<br>– automatic Reset of test alarm after 10s<br>**5.** Set zone to mode *normal operation* |  |

### Testing manual call points

| | |
|---|---|
| **1.** Set zone to mode *detector test*<br>**2.** Depending on type of call point, insert test key or open cover to activate<br>**3.** Wait until LED is on<br>**4.** Remove test key or close door<br>- automatic Reset of test alarm after 10s<br>**5.** Set zone to mode *normal operation* |  |

### Testing horn control lines

| | |
|---|---|
| ● Initiate *horn test* with key at the control unit<br>● Check whether the sound intensity is correct | |

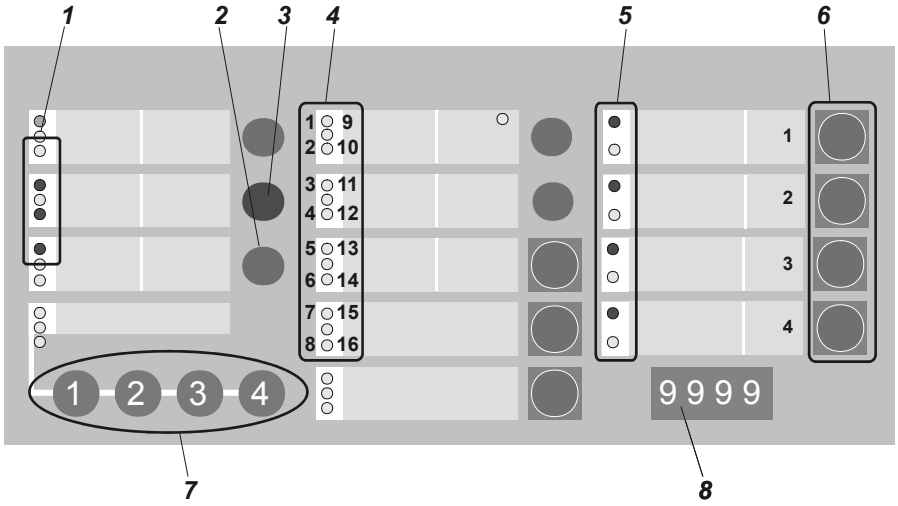
### Testing fire controls

| | |
|---|---|
| ● Make sure that the activation causes no damage to any building equipment<br>● Activate each fire control by initiating a real alarm and check whether the fire control functions are correct |  |

# 8 Configuration

## 8.1 Programming user functions

In order to fulfill the local requirements, the programmable user functions may be adjusted by the single programming steps.




**Procedure to enter programming mode**

**1.** Set system to state non-alarm and provide operating access level 2 (see Operating access, page 20)

**2.** Hold key *(3)* and press numeric keys *(7)* 1, 4, 2, 4, 2, 3, 2, 1 one after the other
- Continuous top-down flash up of LED block *(1)*; indicates mode *programming*

**Procedure to exit programming mode**

**1.** Press numeric keys *(7)* 1 and 4 simultaneously
- automatic timeout if no further key is pressed for more than 4min; LED block *(1)* stops flashing

**Poll checksum (without display module)**

In order to find out whether the user functions have been changed since the last visit of the service engineer.

**1.** Set system to mode *programming* (LED 1 = on)

**2.** Press numeric keys *(7)* 2 and 3 simultaneously

**3.** Read out LED sequence *(4)* within 10s (only possible once within programming sequence)
- LED 1 and 8 are flashing slowly; indicating state *checksum*

**4.** write sequence of LED 2 to 7 into the checksum list

**Note:** Control unit with an equipped display module
➔ see under *poll service information*

**Set user functions to factory default settings**

The user functions of all programming steps can be set to factory default values with one operation.

**1.** Disconnect mains and battery
**2.** Press and hold numeric keys *(7)* 1, 2, 3, 4 simultaneously followed by reconnecting mains
  – LED block *(1)* starts flashing
**3.** Release numeric keys *(7)*
**4.** Press numeric keys *(7)* 1, 2, 3, 4 simultaneously again
  – LED block *(1)* stops flashing and double beep of buzzer occurs
  – System is now set to default
**5.** Reconnect battery

**Note:** For factory default settings
➔ see under *Log sheet for programmed user functions*

**Set user functions to pre-settings 1 - 8**

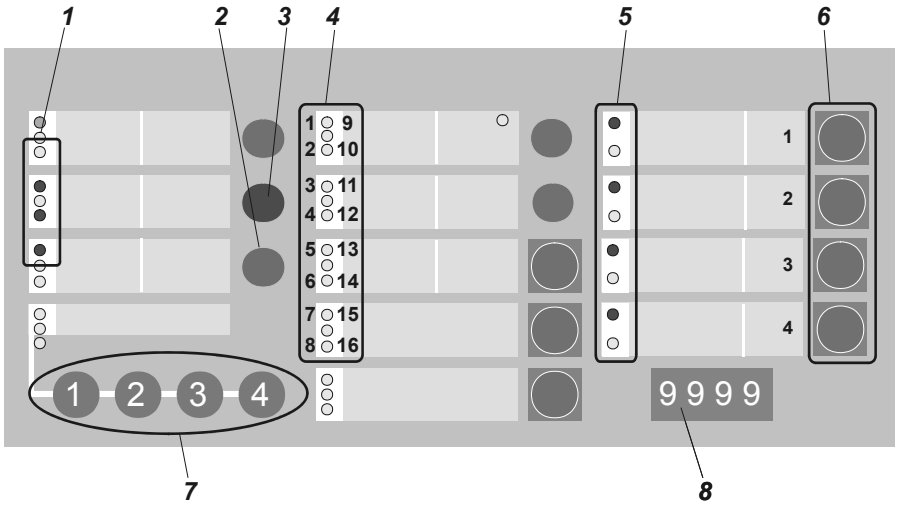
**Note:** The *selectable pre-settings* will be implemented with a later software release.

The user functions of all programming steps can be set to a selectable pre-setting with one operation.

**1.** Disconnect mains and battery
**2.** Press and hold numeric keys *(7)* 1, 2, 3, 4 simultaneously followed by reconnecting mains
  – LED block *(1)* starts flashing
**3.** Release numeric keys *(7)*
**4.** Select your pre-setting with key *(3)* upwards and key *(2)* downwards
**5.** The selected pre-setting is **either** indicated at LED block *(4)* LED 1 – 8, **or** at the optional display module *(8)*
**6.** Press numeric keys *(7)* 1, 2, 3, 4 simultaneously again
  – LED block *(1)* stops flashing and double beep of buzzer occurs
  – System is now set to the selected pre-setting
**7.** Reconnect battery

**Note:** For pre-settings 1 - 8
➔ see details under *Log sheet for programmed user functions*

# 8.2 Programming steps




The selected programming steps are either indicated

- by the LED block (4), or
  - for programming steps 1 to 8 the corresponding LED is lit,
  - for programming steps 9 to 16 the corresponding LED is flashing
- by the optional display module (8)

The setting of an option can be selected with the zone keys *(6)* and is indicated with the corresponding red and yellow zone LED *(5)*.

**Select a programming step**

- press key *(3)* to move upwards
- press key *(2)* to move downwards

## Basic programming steps

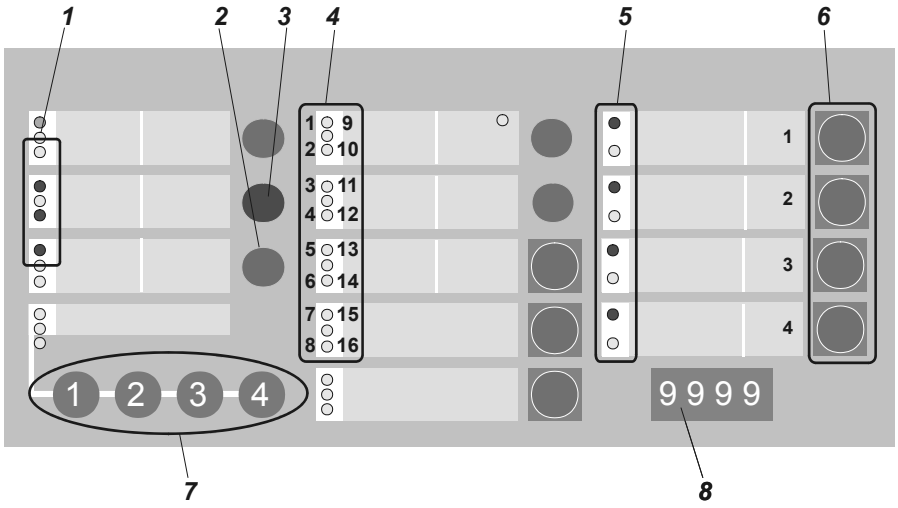
| LED | STEP | Define function |
|---|---|---|
| **on** | 1 | Timer *V1* |
| | 2 | Timer *V2* |
| | 3 | Processing of zone *Alarm* (zone type) |
| | 4 | LED activation mode<br>● LED *Remote transmission*<br>● LED *Alarm*<br>● LED *System part disabled* on mode *manned* |
| | 5 | Activation mode of (horn) control lines 1 - 6 |
| | 6 | Measures against false alarms<br>● alarm verification<br>● zone disabled in mode *manned* |
| | 7 | Control lines on *Alarm* |
| | 8 | Special zone parameters<br>● behavior on immediate *Alarm* after *Reset*<br>● function of zone control outputs |
| **flashing** | 9 | Suspend zone state self-hold on *Alarm* (technical *Alarms*) |
| | 10 | Detector line evaluation on *line short* or *line break* |
| | 11 | Cross-zoning |
| | 12 | Access code (password)<br>● operating access<br>● operating access for *acknowledge* |
| | 13 | Special PMI parameters<br>● reminder beep on *fault* and *system part disabled*<br>● *Fault* messages to be *Reset*<br>● Suppress *battery fault* |
| | 14 | Delay on mains failure |
| | 15 | Special parameters<br>● external *Acknowledge* and *Reset*<br>● zones with special disabling procedure<br>● *Remote transmission* on operating access<br>● all zones with option 1 in step 3 react like option 4 |
| | 16 | Programmable control input |

Do not assign functions *cross zoning* (step 11) and *alarm verification* (step 6) simultaneously to the same zone!

## Display programming steps

| Step | Define function |
|---|---|
| 22 | indicating mode display<br>● Function display mode<br>● Function alarm counter |
| 23 | switching mode manned/unmanned |
| 24 | display switching time |
| 25 | switching time summer/winter time |
| 26 | switching time manned/unmanned<br>● Time 1<br>● Time 2 |

# 8.3 Programmable functions




**Procedure**

**1.** Select the desired step with key *(2)* or *(3)*

**2.** Press the zone keys *(6)* as many times until the desired option is indicated with the corresponding zone LED *(5)* according to the following tables.

## 8.3.1 Step 1, timer V1

| Option | Setting | Key | LED zone 1 | | LED zone 2 | |
|---|---|---|---|---|---|---|
| | | | red | yellow | red | yellow |
| **Function: Timer V1 on alarm or fault in mode manned** | | | | | | |
| 1 | 0.5min | zone 1 | off | | | |
| 2 | 1min | | on | | | |
| 3 | 2min | | | on | | |
| 4 | 3min | zone 2 | | | on | |
| 5 | 4min | | | | | on |

## 8.3.2 Step 2, timer V2

| **Option** | **Setting** | **Key** | **LED zone 1** | | **LED zone 2** | |
|---|---|---|---|---|---|---|
| | | | red | yellow | red | yellow |
| **Function: Timer V2 on alarm in mode manned** | | | | | | |
| 1 | 2min | zone 1 | off | | | |
| 2 | 3min | | on | | | |
| 3 | 4min | | | on | | |
| 4 | 5min | zone 2 | | | on | |
| 5 | 6min | | | | | on |
| | | | **LED zone 3** | | **LED zone 4** | |
| 6 | 7min | zone 3 | on | | | |
| 7 | 8min | | | on | | |
| 8 | 9min | zone 4 | | | on | |
| 9 | 10min | | | | | on |

## 8.3.3 Step 3, zone processing on alarm

| Option | Setting | Key | LED zone 1 - x | |
|---|---|---|---|---|
| | | | Red | yellow |
| **Function: Zone alarm processing (zone type)** | | | | |
| 1 | via timer *V1/V2* | Zone 1 - x | off | |
| 2 | *direct* (timer bypassed) **1)** | | on | |
| 3 | *internal* **1)**<br>- *RT* and timer *V1/V2* not initiated<br>- Horn activated (unless disengaged in step 7) | | | on |
| 4 | via timer *V1/V2*, but call points always initiate *Alarm 2* (direct)<br>➔ see also chapter 5 manual, manual call point detection | | on | on |

*1)* If all zones are set to *direct* or *internal*, the function manned/unmanned is disabled.

## 8.3.4 Step 4, LED activation mode

| Option | Setting | Key | LED zone 1 | | LED zone 2 | |
|---|---|---|---|---|---|---|
| | | | Red | yellow | Red | yellow |
| **Function: Activation of LED remote transmission** | | | | | | |
| 1 | on *RT-Alarm* only | zone 1 | off | | | |
| 2 | on *RT-Alarm* and *RT-Fault* | | on | | | |
| **Function: Flashing mode of the two LED Alarm** | | | | | | |
| 3 | alternating while *V1/V2* run | zone 1 | | off | | |
| 4 | simultaneously on *unacknowledged* alarms | | | on | | |
| **Function: LED system part disabled on mode manned** | | | | | | |
| 5 | off in mode *manned* | zone 2 | | | off | |
| 6 | on in mode *manned* | | | | on | |

## 8.3.5 Step 5, activation mode of (horn) control lines

| Option | Setting | Key | LED zone 1 – 6 | |
|---|---|---|---|---|
| | | | Red | yellow |
| **Function: Activation mode of (horn) control lines 1-6** | | | | |
| 1 | continuous on *Alarm 1* and *2* | | off | |
| 2 | continuous on *Alarm 1*<br>pulsating on *Alarm 2* | **zone 1 = control line 1**<br>**zone 2 = control line 2**<br>**zone 3 = control line 3**<br>**zone 4 = control line 4**<br>**zone 5 = control line 5**<br>**zone 6 = control line 6**<br><br>control lines 3 – 6 with 8/12 zone panel only and additional control card | on | |
| 3 | pulsating on *Alarm 1*<br>continuous on *Alarm 2* | | slow | |
| 4 | pulsating on *Alarm 1* and *2* | | fast | |
| 5 | continuous on *Alarm 1*<br>not activated with *Alarm 2* | | on | on |
| 6 | pulsating on *Alarm 1*<br>not activated with *Alarm 2* | | slow | on |
| 7 | not activated with *Alarm 1*<br>continuous on *Alarm 2* | | on | slow |
| 8 | not activated with *Alarm 1*<br>pulsating on *Alarm 2* | | slow | slow |
| 9 | continuous on *Alarm 1* and *2* | | on | fast |
| 10 | not activated with *Alarm 1*<br>continuous on *Alarm 2* | | fast | on |
| 11 | continuous on *RT-Alarm*<br>– same facility as *RT-Alarm* | | | on |
| 12 | continuous on *Alarm 1* and *2*<br>– same facility as driver output (fire controls) | | | slow |
| 13 | continuous on *Alarm 2*<br>– same facility as driver output (fire controls) | | | fast |
| 14 | continuous on *RT-Fault*<br>– same facility as *RT-Faul*t (until inactive)<br>– possible with control line 6 only | | fast | fast |

Option 1 to 8 active until *Acknowledge*
Option 9 to 13 active until *Reset*

## 8.3.6 Step 6, measures against false alarms

| Option | Setting | Key | LED zone 1 - x | |
|---|---|---|---|---|
| | | | Red | yellow |
| **Function: Zone with alarm verification** | | | | |
| 1 | no alarm verification | zone 1 - x | off | |
| 2 | Alarm only if second Alarm within 60sec<br>1st alarm = automatic Reset with short flash up of zone LED | | on | |
| **Function: Zone disabled in mode manned** | | | | |
| 3 | not disabled | zone 1 - x | off | |
| 4 | disabled as long as mode *manned* is active | | | on |

Note: These measures are only justified on severe environmental conditions.

## 8.3.7 Step 7, control lines on alarm

| Option | Setting | Key | LED zone 1 - x | |
|---|---|---|---|---|
| | | | Red | yellow |
| **Function: Zone with not activated control lines on Alarm** | | | | |
| 1 | both control lines *activated* | zone 1 - x | off | |
| 2 | both control lines *not activated* | | on | on |
| 3 | control line 1 *not activated* | | on | |
| 4 | control line 2 *not activated* | | | on |

## 8.3.8 Step 8, special zone parameters

| Option | Setting | Key | LED zone 1 - x | |
|---|---|---|---|---|
| | | | Red | yellow |
| **Function: Behavior on Alarm immediately after Reset** | | | | |
| 1 | renewed *Alarm* | zone 1 - x | off | |
| 2 | *alarm* <15s after *Reset* initiates *line Fault* | | on | |
| **Function: Driver output per zone** | | | | |
| 3 | active if zone is on *Alarm*<br>– remains until *Reset* | zone 1 - x | off | |
| 4 | active if zone is on *Alarm*, *Fault*, *Disabled* or *Test*<br>– remains until *Reset* or state *inactive* | | | on |

## 8.3.9 Step 9, zone self hold state

| Option | Setting | Key | LED zone 1 - x | |
|---|---|---|---|---|
| | | | Red | yellow |
| **Function: Suspend zone state self-hold on Alarm (technical Alarms)** | | | | |
| 1 | with self-hold | zone 1 - x | off | |
| 2 | without self-hold but with buzzer on *Alarm* | | on | |
| 3 | without self-hold and without buzzer on *Alarm* | | | on |

## 8.3.10 Step 10, detector line short or break

| Option | Setting | Key | LED zone 1 - x | |
|---|---|---|---|---|
| | | | Red | yellow |
| **Function: Zone state self-hold on Alarm** | | | | |
| 1 | state *line short / break = Fault* | zone 1 - x | off | |
| 2 | state *line short = Alarm 2*<br>state *line break = Fault* | | on | |
| 3 | state *line break = Alarm 2*<br>state *line short = Fault* | | | on |
| 4 | state *line short = Alarm 1*<br>state *line break = Fault* | | on | on |

## 8.3.11 Step 11, cross zoning

| Option | Setting | Key | LED zone 1 - x | |
|---|---|---|---|---|
| | | | Red | yellow |
| **Function: Zone pair in cross-zoning on alarm** | | | | |
| 1 | no cross-zoning | zone A+B | off | |
| 2 | cross-zoning **type 1**<br>– zone A or B = no Alarm; *reset* after 6min<br>– zone A + B = *Alarm 1* | | on | |
| 3 | cross-zoning **type 2**<br>– zone A or B = *Alarm 1*<br>– zone A + B = *Alarm 2* | | | on |
| 4 | cross-zoning **type 3**<br>– zone A or B = *Alarm 0* (internal alarm)<br>– zone A + B = *Alarm 1* | – | on | on |
| **Remark:** Only possible with defined zone pairs 1+2, 3+4 up to 11+12. Named in table with A and B.<br>**Procedure:**<br>**1.** Hold zone key A then press zone key B<br>– Type 1 is now selected (red LED on both zones are lit)<br>**2.** Hold zone key A then press zone key B<br>– Type 2 is now selected (yellow LED on both zones are lit)<br>**3.** Hold zone key A then press zone key B<br>– No cross zoning selected (red and yellow LED on both zones are lit)<br>**4.** Hold zone key A then press zone key B<br>– No cross zoning selected (no zone LED lit) | | | | |

## 8.3.12 Step 12, access code

| Option | Setting | Key | LED zone 1 | | LED zone 2 | |
|---|---|---|---|---|---|---|
| | | | Red | Yellow | Red | yellow |
| **Function: Password to provide operating access (level 2)** | | | | | | |
| 1 | basic access code (4, 2, 3, 3) defined | zone 1 | off | | | |
| 2 | individual access code<br>**Procedure:**<br>**1.** enter code by pressing key 1 to 4 in the desired sequence then press key zone 1<br>– red LED flashing<br>**2.** repeat same input sequence and press key zone 1 again (confirm code)<br>– red LED now turns to on<br>– yellow LED flashing = code not accepted (repeat procedure) | | on | | | |
| 3 | no access code required<br>(access via key switch) | zone 1 + 2 | on | on | | |
| **Function: Operating access to key Acknowledge** | | | | | | |
| 4 | *Acknowledge* always accessible | zone 2 | off | | | |
| 5 | *Acknowledge* only accessible via access code (Access level 2) | | | | on | |

Note: Access is permanently provided if jumper PU9 resp. PU16 is set on mainboard (override of access code)

## 8.3.13 Step 13, special PMI parameters

| Option | Setting | Key | LED zone 1 | | LED zone 2 | |
|---|---|---|---|---|---|---|
| | | | Red | Yellow | Red | yellow |
| **Function: Reminder beep (Buzzer) upon Fault and System part Disabled** | | | | | | |
| 1 | no reminder beep | zone 1 | off | | | |
| 2 | reminder beep activated<br>– beep of 1s every 4min | | on | | | |
| **Function: Fault messages to be Reset** | | | | | | |
| 3 | Acknowledged *faults* must not be reset | zone 2 | | | off | |
| 4 | *Faults* must be acknowledged and after being restored reset | | | | on | |
| **Function: Suppress battery fault** | | | | | | |
| 5 | not suppressed | zone 2 + num. 4 | | | off | |
| 6 | suppressed | | | | | on |

## 8.3.14 Step 14, delay mains failure

| Option | Setting | Key | LED zone 1 | | LED zone 2 | |
|---|---|---|---|---|---|---|
| | | | red | yellow | red | yellow |
| **Function: Delay of Fault initiation due to mains failure** | | | | | | |
| 1 | delay = 0s | zone 1 | off | | | |
| 2 | delay = 3min | | on | | | |
| 3 | delay = 10min | | | on | | |
| 4 | delay = 30min | zone 2 | | | on | |
| 5 | delay = 3h | | | | | on |

## 8.3.15 Step 15, special parameters

| Option | Setting | Key | LED zone 1 | | LED zone 2 | |
|---|---|---|---|---|---|---|
| | | | red | yellow | red | yellow |
| **Function: Acknowledge and Reset from external blocked during RT alarm active** | | | | | | |
| 1 | not blocked | zone 1 | off | | | |
| 2 | blocked | | on | | | |
| **Function: Zones set to option 2 in step 10 with special disabling procedure** | | | | | | |
| 3 | not activated | zone 1 | off | | | |
| 4 | alarm on *line short* even if zone is disabled | | | on | | |
| **Function: RT-Fault and RT-Alarm disabled if state operating access is provided** | | | | | | |
| 5 | not disabled | zone 2 | | | off | |
| 6 | disabled | | | | on | |
| **Function: All zones with option 1 in step 3 react like option 4** | | | | | | |
| 7 | not activated | zone 2 | | | off | |
| 8 | activated | | | | | on |

## 8.3.16 Step 16, programmable control input

| Option | Setting | Key | LED zone 1 | | LED zone 2 | |
|---|---|---|---|---|---|---|
| | | | red | yellow | red | yellow |
| **Function: Programmable control input** | | | | | | |
| 1 | initiate *Fault* remote transmission device | zone 1 | off | | | |
| 2 | provide *operating access* | | on | | | |
| 3 | initiate state *Evacuation* **1)** | | | on | | |
| 4 | disable *RT-Alarm* + *RT-Fault* | zone 2 | | | on | |
| 5 | de-activate mode *manned* (pulse) | | | | | on |
| 6 | initiate mode *manned* | | | on | | on |

Options 1 to 4 and 6: active as long as positive potential is applied
*1)Evacuation* will be activated even if jumper *evacuation* is set to off

## 8.3.17 Step 22, indicating mode display

| Option | Setting | Key | LED zone 1 | | LED zone 2 | |
|---|---|---|---|---|---|---|
| | | | red | yellow | red | yellow |
| **Function display mode** | | | | | | |
| 1 | clock, alarm counter and event memory | zone 1 | off | | | |
| 2 | alarm counter only (clock turned off) | | on | | | |
| 3 | clock and event memory | | | on | | |
| 4 | clock and alarm counter | | on | on | | |
| **Function alarm counter** | | | | | | |
| 5 | RT-alarms only | zone 2 | off | | | |
| 6 | zone alarms only | | | | on | |
| 7 | RT-alarms and zone alarms alternating | | | | | on |

## 8.3.18 Step 23, switching mode manned/unmanned

| Option | Setting | Key | LED zone 1 | | LED zone 2 | |
|---|---|---|---|---|---|---|
| | | | red | yellow | red | yellow |
| **Function: Automatic switching mode from manned to unmanned** | | | | | | |
| 1 | manual switching from *manned* to *unmanned* | zone 1 | off | | | |
| 2 | automatic switching from *manned* to *unmanned* | | | on | | |

## 8.3.19 Step 24, display switching time

| Option | Setting | Key | LED zone 1 | | LED zone 2 | |
|---|---|---|---|---|---|---|
| | | | Red | yellow | red | yellow |
| **Function: Display of switching time after manual switch from manned to unmanned** | | | | | | |
| 1 | switching time displayed | zone 1 | off | | | |
| 2 | switching time not displayed | | | on | | |

## 8.3.20 Step 25, switching mode summer/winter time

| Option | Setting | Key | LED zone 1 | | LED zone 2 | |
|---|---|---|---|---|---|---|
| | | | red | yellow | red | yellow |
| **Function: Switching summer/winter time and vice versa automatically** | | | | | | |
| 1 | automatic switching from summer to winter time | zone 1 | off | | | |
| 2 | manual switch from summer to winter time | | | on | | |

## 8.3.21 Step 26, switching time manned/unmanned

| Option | Setting | Key | LED zone 1 | | LED display | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | red | yellow | figure 1 | figure 2 | point | figure 3 | figure 4 |
| **Function switching time 1 for automatic switching from manned to unmanned** | | | | | | | | | |
| 1 | default setting | zone 1 | | | 1 | 8 | . | 0 | 0 |
| 2 | individual setting<br>– press key 2 to adjust the hours<br>– press key 3 to adjust the minutes | | on | | x | x | . | x | x |
| **Function switching time 2 for automatic switching from manned to unmanned** | | | | | | | | | |
| 3 | default setting | zone 1 | | | -- | -- | . | -- | -- |
| 4 | individual setting<br>– press key 2 to adjust the hours<br>– press key 3 to adjust the minutes | | | on | x | x | . | x | x |
| **Procedure**<br>**1.** Press key zone 1 until the red zone LED (switching time 1) or the yellow zone LED (switching time 2) is lit<br>**2.** Press numeric key 2 to set the hours (start with hour 00:xx to 23:xx upwards)<br>**3.** Press numeric key 3 to set the minutes (start with minute xx:00 to xx:59 upwards)<br>– Display “-- -- . -- --“ means on switching time set | | | | | | | | | |

# 8.4 Log sheet for programmed user functions

**Installation:** …… **Selected pre-setting:** ……

### Basic programming steps

**Note:** The selectable *pre-settings* will be implemented with a later software release.

| **Programming steps and functions** | | **Set options (parameter)** | | | | | | | | | **Individual settings of a selected pre-setting** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *Selectable pre-settings* | | | | | | | | | |
| | | **Factory** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | |
| 1 | Timer *V1* | 1 | | | | | | | | | min : …… |
| 2 | Timer *V2* | 1 | | | | | | | | | min : …… |
| 3 | Processing of zone *Alarm* (zone type) | 1 | | | | | | | | | Option 1, zone: ……<br>Option 2, zone: ……<br>Option 3, zone: ……<br>Option 4, zone: …… |
| 4 | LED activation mode<br>● LED *Remote transmission*<br>● LED *Alarm*<br>● LED *System part disabled* on mode *manned* | <br>1<br>3<br>6 | | | | | | | | | <br>……<br>……<br>…… |
| 5 | Activation mode of (horn) control lines 1 – 6 | 1 | | | | | | | | | Line 1, option: ……<br>Line 2, option: ……<br>Line 3, option: ……<br>Line 4, option: ……<br>Line 5, option: ……<br>Line 6, option: …… |
| 6 | Measures against false alarms<br>● alarm verification<br>● zone disabled in mode *manned* | <br>1<br>3 | | | | | | | | | <br>active zone ……<br>active zone …… |
| 7 | Control lines on *Alarm* | 1 | | | | | | | | | Option 1, zone: ……<br>Option 2, zone: ……<br>Option 3, zone: ……<br>Option 4, zone: …… |
| 8 | Special zone parameters<br>● behavior on immediate *Alarm* after *Reset*<br>● function of zone control outputs | <br>1<br>3 | | | | | | | | | <br>Option 1, zone: ……<br>Option 2, zone: ……<br>Option 3, zone: ……<br>Option 4, zone: …… |
| 9 | Suspend zone state self-hold on *Alarm* (technical *Alarms*) | 1 | | | | | | | | | Option 1, zone: ……<br>Option 2, zone: ……<br>Option 3, zone: …… |
| 10 | Detector line evaluation on *line short* or *line break* | 1 | | | | | | | | | Option 1, zone: ……<br>Option 2, zone: ……<br>Option 3, zone: ……<br>Option 4, zone: …… |
| 11 | Cross-zoning | 1 | | | | | | | | | Option 1, zone: ……<br>Option 2, zone: ……<br>Option 3, zone: …… |
| 12 | Access code (password)<br>● operating access<br>● operating access for *acknowledge* | <br>1<br>4 | | | | | | | | | <br>……<br>…… |
| 13 | Special PMI parameters<br>● reminder beep on *fault* and *system part disabled*<br>● *Fault* messages to be *Reset*<br>● suppress battery *fault* | <br>1<br><br>3<br>5 | | | | | | | | | <br>……<br><br>……<br>…… |
| 14 | Delay on mains failure | 3 | | | | | | | | | |
| 15 | Special parameters<br>● external *Acknowledge* and *Reset*<br>● zones with special disabling procedure<br>● *Remote transmission* on operating access<br>● all zones with option 1 in step 3 react like option 4 | <br>1<br>3<br>5<br>7 | | | | | | | | | <br>……<br>……<br>……<br>…… |
| 16 | Programmable control input | 1 | | | | | | | | | …… |

**Display programming steps**

| **Programming steps and functions** | | **Set options (parameter)** *Selectable pre-settings* | | | | | | | | **Individual settings of a selected pre-setting** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Factory** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | |
| 22 | indicating mode display<br>● Function display mode<br>● Function alarm counter | <br>1<br>5 | | | | | | | | | <br>……<br>…… |
| 23 | switching mode manned/unmanned | 1 | | | | | | | | | …… |
| 24 | display switching time | 1 | | | | | | | | | …… |
| 25 | switching time summer/winter time | 1 | | | | | | | | | …… |
| 26 | switching time manned/unmanned<br>● Time 1<br>● Time 2 | <br>18:00<br>- -:- - | | | | | | | | | <br>……<br>…… |

# 8.5 Checksum

Checksum to fill in when programming is completed

**Without display module**

| **Date of last changes** | **LED 2 on** | **LED 3 on** | **LED 4 on** | **LED 5 on** | **LED 6 on** | **LED 7 on** | **Remarks** |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**With display module**

| **Year** | **Date** | **Time** | **Checksum** |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

# 9 Maintenance

## 9.1 General

The fire detection installation requires only little maintenance work. It has a high degree of self monitoring, such as

- detectors monitored on presence, lines on wire break and short circuit
- call points monitored on broken glass, lines on wire break and short circuit
- horn control lines monitored on wire break and short circuit
- battery monitored on presence and capacity
- permanent system checking by watchdog function
- programmed user functions are stored in FLASH-memory

## 9.2 Recommended system performance checks

We recommend the following schedule for the system performance checks. However, possible local national regulations have priority.

**Alarm organization**

| **Performance checks** | **Interval in years** | | |
|---|---|---|---|
| | 1 | 2 | 5 |
| ● Check the functioning of delay times *V1* and *V2* | X | | |
| ● Verify switchover mode *manned* to *unmanned* and vice versa manually | X | | |
| ● Activate automatic detectors while system is set to mode *unmanned* | X | | |
| ● Activate automatic detectors while system is set to mode *manned* | X | | |
| ● Activate manual call points | X | | |
| ● Check activation of remote transmission equipment | X | | |

**Alarm horn**

| **Performance checks** | **Interval in years** | | |
|---|---|---|---|
| | 1 | 2 | 5 |
| ● Activate alarm horn test and check all acoustic alarm devices | X | | |

**Detector network**

| **Performance checks** | **Interval in years** | | |
|---|---|---|---|
| | 1 | 2 | 5 |
| ● Activate one detector within each line and verify zone assignment and parameters | X | | |
| ● Check all detectors and call points visually | X | | |
| ● Activate all detectors and manual call points | | X | |
| ● Check each detection line whether a short circuit or open line activates a *fault* | | | X |
| ● Overhaul all automatic detectors at the factory<br>– at latest after 5 years in clean environment, otherwise earlier | | | X |

Refer also to the corresponding detector manuals

**Fire control installations**

| **Performance checks** | **Interval in years** | | |
|---|---|---|---|
| | 1 | 2 | 5 |
| ● Check activation of each fire control relay | X | | |
| ● Check correctness of each shutdown operation | X | | |

## Operating panel

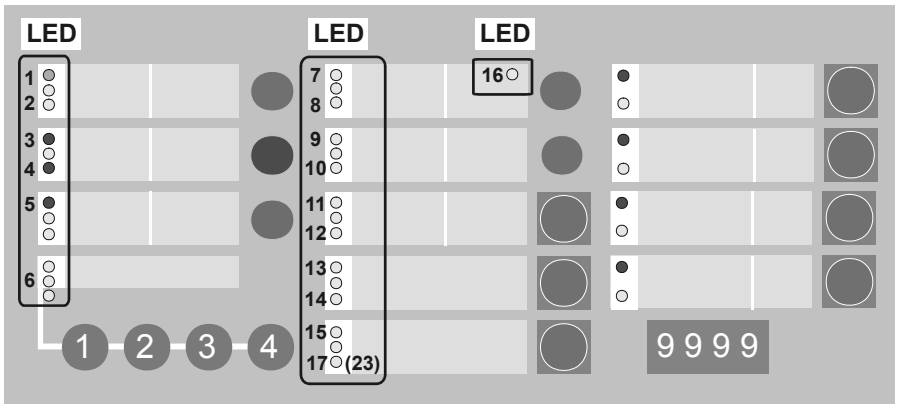
| **Performance checks** | **Interval in years** | | |
|---|---|---|---|
| | 1 | 2 | 5 |
| Clean front panel with mild soap<br>- do not use aggressive or abrasive solvents | X | | |
| Activate lamp test | X | | |
| Check correctness and readability of the inscription stripes | X | | |
| Check key-click of each key | X | | |
| Check access facility | X | | |

## Inside control unit

| **Performance checks** | **Interval in years** | | |
|---|---|---|---|
| | 1 | 2 | 5 |
| Check earth connections | X | | |
| Visual check of battery | X | | |
| Remove dust | X | | |

# 10 Trouble shooting

## 10.1 Interpretation of fault LED flashing




| Indicator | | Cause / Action to be taken |
|---|---|---|
| LED 9 | Fault<br>flashing fast | There is a fault in the system<br>● check if there is another fault LED flashing, if not<br>● check if control input *Fault* is activated |
| LED 10 | Earth fault<br>Flashing fast | Any part of the system has a leakage to earth<br>● Remove one external line (detector line etc.) after the other until the fault disappears, then repair the defective line<br>● if no external line has a leakage to earth replace mainboard |
| LED 11 | Power fault<br>flashing fast<br><br>flashing slow | <br>Battery is disconnected or low<br>● Replace battery<br>Mains supply is missing (after delay has expired)<br>● Check internal fuse or external mains breaker |
| LED 12 | System fault<br>flashing fast | The microcomputer has failed (system not working)<br>● Switch power off and restart, if fault continues replace mainboard |
| LED 13 | Alarm horn fault<br>flashing fast | There is a fault in the monitored control lines (horn)<br>● Check lines for a short circuit or break or missing/defective EOL<br>● If control card FCA1003 is used, check LEDs DL1 - DL4 to define faulty line |
| LED 14 | Fire controls fault<br>flashing fast | There is a fault on a monitored control line (programmed in step 5 to option 12 or 13)<br>● Check line for a short circuit or break or missing/defective EOL |
| LED 15 | RT-Fault<br>flashing fast | Control input Fault RT is active, or if programmable control input with option 1 is active (Fault remote transmission device)<br>● Check remote transmission device<br>There is a fault on a monitored control line (programmed in step 5 to option 14)<br>● Check line for a short circuit or break or missing/defective EOL |
| LED 23 | RT-Alarm<br>flashing fast | There is a fault on a monitored control line (programmed in step 5 to option 11)<br>● Check line for a short circuit or break or missing/defective EOL |
| LED zone x | Yellow zone LED<br>flashing fast | There is a fault in zone number x<br>● Check whether any detector head is removed<br>● Check line for short circuit or break or missing/defective EOL |
| Display | Indicates 88.88 | Clock not set (with new system start up or after power down)<br>● Set date and time |

# 11 Components and spare parts

## 11.1 Components

| Type | Part number | Description | Remarks |
|---|---|---|---|
| FC1008-A | A6E60500007 | control unit 8 zones | |
| FC1008-B | A6E60500008 | control unit 8 zones GB | |
| FC1008-C | A6E60500009 | control unit 8 zones Nordic | |
| FC1012-A | A6E60500014 | control unit 12 zones | |
| FC1012-B | A6E60500015 | control unit 12 zones GB | |
| FC1012-C | A6E60500016 | control unit 12 zones Nordic | |

## 11.2 Accessories

| Type | Part number | Description | Remarks |
|---|---|---|---|
| FCA1003 | A6E60500022 | control card | |
| FCA1002 | A6E60500021 | display unit | |
| FCA1005-D | A6E60500024 | RT-Isolation card | |
| Z3B171 | 484383 | fire control relay 1 contact 250VDC/10A | |
| FCA1007 | A6E60500026 | kit key switch | incl. mounting instruction |
| AX1212 | 484325 | battery 12V/12Ah | can also be purchased locally |
| AX1210 | 475570 | battery 12V/15 - 18Ah | |

## 11.3 Spare parts

**Power supply**

| Type | Part number | Description | Remarks |
|---|---|---|---|
| FCP1003 | A6E60500053 | Transformer 8/12 zones | |
| FCP1001 | A6E60500051 | Power supply card 8/12 zones | |

**Electronic cards**

| Type | Part number | Description | Remarks |
|---|---|---|---|
| FCM1008 | A6E60500049 | Mainboard 8 zone | |
| FCA1001 | A6E60500020 | Line extension card 4 zones | |
| FCA1007-B | A6E60500023 | Line card GB | |

**EOL**

| Type | Part number | Description | Remarks |
|---|---|---|---|
| FCE1001 | A6E60500031 | EOL resistor 3k9 (dedector line) | (set of 10 pieces) |
| FCE1003-B | A6E60500033 | EOL element GB | |
| FCE1002 | A6E60500032 | EOL element control line | |

**Cabinet cover**

| Type | Part number | Description | Remarks |
|---|---|---|---|
| FCH1008 | A6E60500038 | Cover with PMI 8 zone | |
| FCH1012 | A6E60500043 | Cover with PMI 12 zone | |

# 12 Disposal and environmental protection

## 12.1 General

The customer is in charge of the disposal of Siemens fire detection systems. In case of any uncertainty relative to the disposal process, which might cause danger to people or to the environment, please consult the Technical Customer Service of Siemens Building Technologies AG.
The putting out of service and disposal of a system must be communicated to Siemens Building Technologies AG.

## 12.2 Disposal

| | |
|---|---|
| **DANGER** | Prior to the disposal the system must be put out of service by the Technical Customer Service of Siemens Building Technologies AG. The system must be disconnected from the power supply – otherwise serious bodily injury or even danger to life could result! |

**Function units**
The following modules should be particularly taken into consideration:
- Batteries
- Electronic modules (control units, all detectors)
- Switching cabinets

**Disposal regulations**
With regard to the disposal of the Siemens fire detection system, local and regional regulations and guidelines must be taken into account.

Siemens Building Technologies AG
Alte Landstr. 411
CH-8708 Männedorf
Tel. +41 1 - 922 6111
Fax +41 1 - 922 6450

www.sbt.siemens.com



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