ESSER
by Honeywell


# Operation and Installation Instruction

## Extinguishing Control Computer 8010 – 19-Inch Design

## (Series 2 and Series 3)

798955.GB0
09.2007

VdS G 200090
G 205064

GB

**Intended purpose**

This software must only be used for the applications outlined in the catalogue and the technical description and in combination with external components and systems which have been approved and /or recommended.

**Warning**

In order to ensure correct and safe operation of the product, all guidelines concerning its transport, storage, installation, and mounting must be observed. This includes the necessary care in operating the product.

**Safety-relevant user information**

This manual includes all information required for the proper use of the products described.

The term 'qualified personnel' in the context of the safety information included in this manual or on the product itself designates:

- project engineers who are familiar with the safety guidelines concerning fire alarm and extinguishing systems.
- trained service engineers who are familiar with the components of fire alarm and extinguishing systems and the information on their operation as included in this manual.
- trained installation or service personnel with the necessary qualification for carrying out repairs on fire alarm and extinguishing systems or who are authorised to operate, ground and label electrical circuits and/or safety equipment/systems.

**Safety warnings**

The following information is given in the interest of your personal safety and to prevent damage to the product described in this manual and all equipment connected to it.

Safety information and warnings for the prevention of dangers putting at risk the life and health of user and maintenance personnel as well as causing damage to the equipment itself are marked by the following pictograms. Within the context of this manual, these pictograms have the following meanings:

**Warning sign**
Designates risks for man and/or machine. Non-compliance will create risks to man and/or machine. The level of risk is indicated by the word of warning.

Important information on a topic or a procedure and other important information!


This is an important guideline issued by VdS Schadenverhütung GmbH, Cologne.
If the hazard alarm system is programmed in compliance with VdS, this section must be read very carefully and all instructions must be adhered to.

**Dismantling**

In accordance with Directive 2002/96/EG (WEEE), after being dismantled, electrical and electronic equipment is taken back by the manufacturer for proper disposal.

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CE

**0786**

Novar GmbH, Dieselstrasse 2, D-41469 Neuss
06
0786 - CPD - 20223

**Designs**

| | |
|---|---|
| Series 2 | (Part No. 788010 / 788011) |
| Series 3 | (Part No. 788012 / 788013) |
| 19 inch Series 2 | (Part No. 788024 / 788025) |
| 19 inch Series 3 | (Part No. 788014 / 788015) |

Environmental conditions category: A

Response time for activation status: maximum 3 seconds

Response time for activation of outputs: maximum 1 second

**The facility can be equipped in various configuration levels (in terms of number, system type and extinguishing range options).**

| | |
|---|---|
| Number of extinguishing ranges: | 1 |
| System type for the extinguishing range: | High or low gas pressure, for use with the following extinguishing gases: argon, $CO_2$, FM200 (HCF-227EA), Inergen, Novec KD 1230, nitrogen, Trigon |

Available options with requirements:
- Activation signal delay (Sect. 4.17); range 0 s to 60 s
- Signal that represents the flow of the extinguishing agent (Sect.. 4.18)
- Monitoring of the status / position of components (Sect. 4.19)
- Stop button (Sect. 4.20)
- Control of flooding times (Sect. 4.21); range 4 s to 600s
- Initiation of subsequent flooding (Sect. 4.22)
- Activation signals to devices within the fire extinguishing system (Sect. 4.24)
- Trigger signal to spare bottles (Sect. 4.25)
- Activation signals to devices outside the fire extinguishing system (Sect. 4.26)

# 1 General

The Extinguishing Control Computer 8010 – 19-inch a fire alarm control panel with an integrated controller for use in extinguishing systems and provides the connection of automatic fire detectors and Manual call points.

With a total of eight automatic detector zones and 30 connectable automatic fire detectors for each zone, it is possible to monitor a single extinguishing area as defined by the VdS Guideline 2496.

In addition, five permanently assigned inputs are available for connecting technical zones of units, for example the manual detector zone or the Emergency Stop zone. The required control functions can be realized with the total of 13 programmable relay outputs.

A maximum of 100 additional outputs could be realised by using the optional esserbus® transponders.

The Extinguishing Control Computer 8010 can be directly connected to the analog loop of the fire alarm system 8000 / IQ8Control via the esserbus® communication transponder (Part No 808615). Up to eight Extinguishing Control Computers can be operated on one loop with other loop devices, e.g. fire detectors or esserbus® transponders. This enables up to eight individual extinguishing areas to be monitored via one analog loop.

The Extinguishing Control Computer 8010 - 19-Inch is programmed with the programming software LKDE from version V02.00 or higher.

Any operation on the installed fire alarm system must only be carried out by authorised personal in accordance with relevant safety procedures and in coordination with the emergency services.


VdS compliant fire alarm systems must be designed in accordance with VdS guidelines.

**Additional and updated Informations**

The described features, specifications and product related informations in this manual correspond to the date of issue (refer to date on the front page) and may differ due to modifications and/or amended Standards and Regulations of the System design, Installation and Commissioning.

Updated documentations and informations are available for comparison on the www.esser-systems.de homepage.

esserbus® and essernet® are registered trademarks in Germany.

**LED Indicator description**

LED lights up continuously

LED flashes

LED flashes yellow / red

## 1.1 Accessories / Options

| Part. No. | Type |
|---|---|
| **788014.GB** | Extinguishing Control Computer 8010 series 3 – 19-inch design with operating panel (3HE) |
| **788015** | Extinguishing Control Computer 8010 series 3 – 19-inch design without operating panel (3HE) |
| **788024.GB** | Extinguishing Control Computer 8010 series 2 – 19-inch design with operating panel (3HE) |
| **788025** | Extinguishing Control Computer 8010 series 2 – 19-inch design without operating panel (3HE) |
| **788653** | Terminal card for C-mounting rail incl. 50-pole D-SUB cable, length 1m |
| **788654** | Terminal card for C-mounting rail incl. 50-pole D-SUB cable, length 2m |
| **808615** | esserbus® communication transponder |

# 2 Display and control panel

All operations of the Extinguishing Control Computer can be carried out with the clearly arranged function keys. The keys can be locked with the built-in key switch.

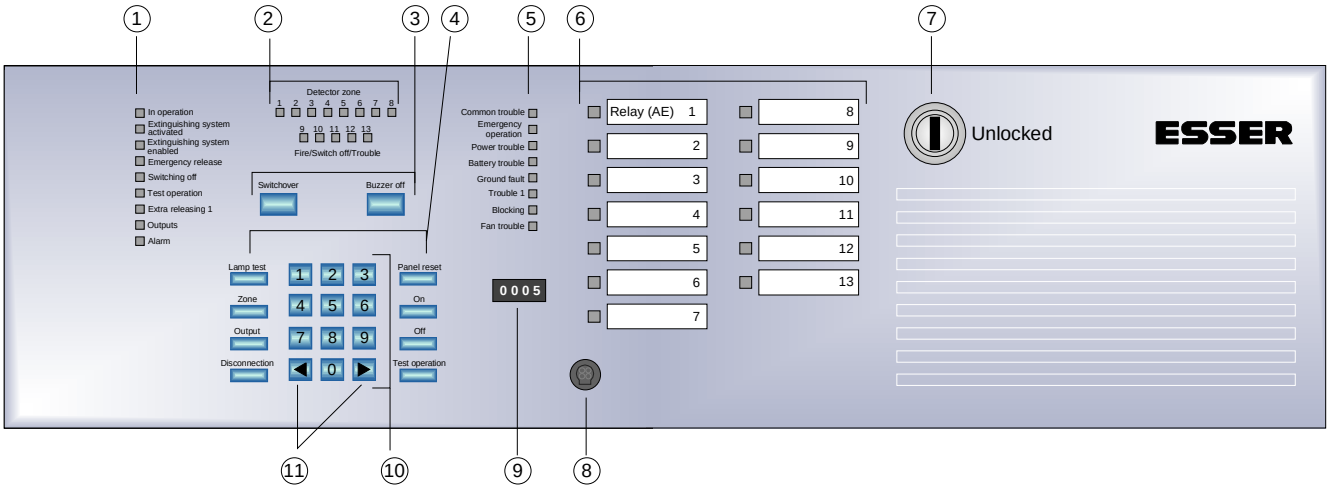



*Fig. 1: General view of the Display and control panel*

| | |
|---|---|
| ① | LED status indicators |
| ② | LED indicator ➔ Detector zone display No.1 to No.8 and Technical zones No. 9 to No. 13<br>or<br>Relay outputs No. 1 to No. 13 |
| ③ | Button to switch between LED indicators ② for zones/relays<br>Button >Buzzer off< to acknowledge the internal Buzzer |
| ④ | Function keys |
| ⑤ | Fault indicators |
| ⑥ | Control indicator |
| ⑦ | Key-switch to lock/unlock the operating keys |
| ⑧ | Opening for Programming via Service PC<br>Connector must be sealed with dummy plug for ESD protection |
| ⑨ | Alarm counter |
| ⑩ | Ten-button keypad |
| ⑪ | Arrow keys to scroll display information |

## 2.1 LED indicator for zones and outputs

The status of the corresponding zone or of the output is shown with the 13 LED. The status of the 13 zones is shown in normal operation.

Switchover

With the key >Switchover<, it is possible to switch between indicating the zones or outputs (Toggle operation).

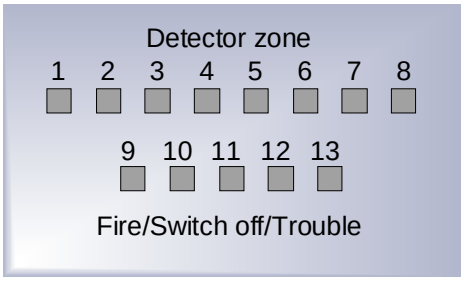



*Fig. 2: Zone displays*

### 2.1.1 Status display of the zones

**Detector zone no. 1 to no. 9 (yellow/red LED)**

| | |
|---|---|
| Off | Normal operation,<br>Detector zone ready to signal |
| Lights up red | Fire alarm of the detector zone no. 1 to 9 |
| Flashes red | First alarm indicator, the first alarm was triggered by this zone |
| Flashes yellow/red | Test mode |
| Flashes yellow | Trouble,<br>only restricted alarm readiness of the detector zone |
| On - yellow | Switch-off,<br>the detector zone is switched off via the control panel |
| Twinkle yellow | Input monitor,<br>the zone number was entered via the control panel keypad |

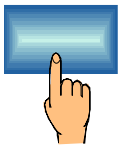
**Technical zone no.10 to no.13 (yellow LED)**

| | |
|---|---|
| Off | Normal operation, technical zone is alarm-ready |
| Lights up yellow | 1) Triggers the technical zone 10 to 13<br>2) Switch-off. The technical zone was switched off. The yellow LED >Switch off< also lights up. |
| Flashes yellow | Trouble |
| Twinkle yellow | Input check- the zone number was entered via the control panel keypad. |

## 2.1.2 Status display of the outputs

The status of the corresponding zone or of the output is alternatively indicated with the 13 LED. The status of the 13 zones is shown in normal operation. The output indication is activated by pressing the >Switchover< key. The green LED >Output< of the status display lits to confirm the activated output indication.

Switchover



With the key >Switchover<, it is possible to switch between indicating the zones or outputs (Toggle operation).

Status display of the outputs is switched on

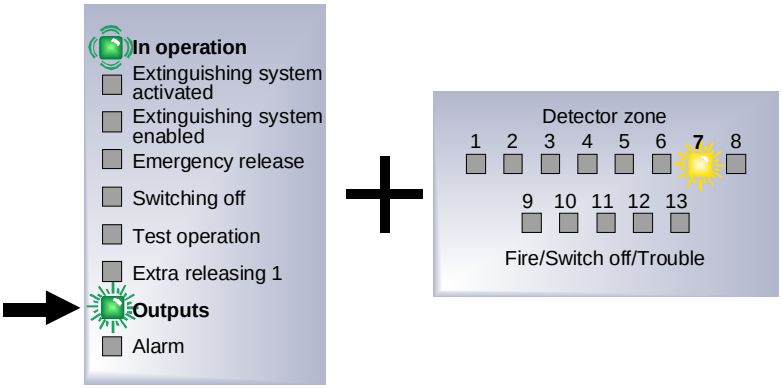



*Fig. 3: Status display of the outputs (Example with Output No. 7)*

**Outputs no.1 to no.13 (yellow LED)**

| | |
|---|---|
| Off | Normal operation, the output is in the resting state |
| Flashes | Output failure |
| On | Output deactivated |
| Twinkle | Input check -the output number was entered via the control panel keypad |

Disconnected or zones in trouble will not signal an alarm in case of an event!

## 2.2 Operating displays

The coloured LED-indicators give a quick overview of the current state of the Extinguishing Control Computer 8010.

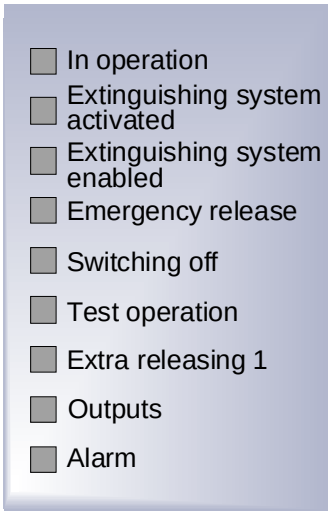



*Fig. 4: Operating display*

**Operation (green LED)**

| | |
|---|---|
| On | System ready for operation, keypad locked. |
| Flashes | System ready for operation, keypad enabled for operation with the key switch. |
| Off | Failure of the mains and emergency power supply. |

**Extinguishing system enabled (red LED)**

| | |
|---|---|
| On | The connected extinguishing system has been enabled.<br>An evacuation time is started. After the evacuation time expires, release is initiated unless it is stopped or prevented manually. The evacuation time is programmable between 1 to 255 seconds. |

**Extinguishing system activated (red LED)**

| | |
|---|---|
| On | The enabled extinguishing system has been activated.<br>The flooding function is carried out and the extinguishing agent is released. Disconnection of the activated extinguishing system is not possible.<br>Depending on the system configuration a new flooding may be carried out by pressing the extra release button. |

**Emergency Stop (yellow LED)**

| | |
|---|---|
| On | An already triggered extinguishing procedure is stopped during the evacuation time by the Emergency Stop zone 10.<br>An emergency stop button of this technical zone has been pressed. |

**Switch-off (yellow LED)**

| | |
|---|---|
| On | Common disablement, at least one disablement was recognized. |

**Test operation (yellow LED)**

| | |
|---|---|
| On | The test operation of an detector zone was activated.<br>The Test Mode function can only be activated one automatic detector zone no.1-8 at the same time. |
| Flashes | The revision mode for outputs has been activated. The function >Revision mode< is activated for all outputs which have been programmed with the revision function. |

Revision mode always has priority over the test mode in the display!

**Extra releasing (green LED)**

| | |
|---|---|
| On | The LED indicates that the post-flooding has been triggered by the manual detector zone (if configured as a common detector zone) or the extra released zone no. 11 has been activated after the flooding time. |

**Outputs (green LED)**

| | |
|---|---|
| On | Indicates that an output has been triggered.<br>Additional information is given by the yellow LED in the status display of the outputs. |

**Alarm (red LED)**

| | |
|---|---|
| On | Common fire ➔ at least one fire message was detected. |

## 2.3 Trouble displays

A precise determination of the failure is possible with the yellow LED of the trouble display. The LED >Trouble< has the function of a common trouble display. This LED is always activated when at least one failure has been identified in the system.

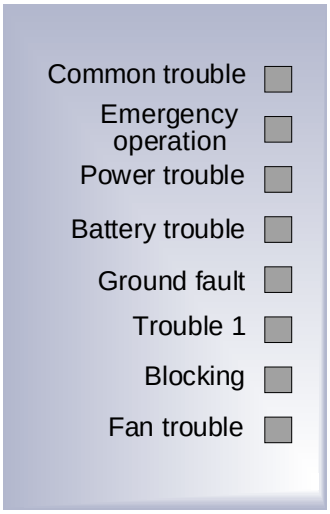



*Fig. 5: Trouble displays*

**Trouble (yellow LED)**

| | |
|---|---|
| On | **Common trouble,**<br>at least one failure in the panel has been identified. |

**Emergency Operation (yellow LED)**

| | |
|---|---|
| On | When the system is in emergency operation e.g. due to a CPU-failure.<br>The Extinguishing Control Computer is functional only to a limited extent. Correct functioning is no longer guaranteed due to the system fault.<br>Call maintenance-service immediately! |

**Mains trouble (yellow LED)**

| | |
|---|---|
| On | When a mains voltage failure has been identified.<br>The LED is activated directly even if a mains failure message is programmed with a 15 minute delay. The LED turns off automatically as soon as the battery fault is not present anymore. |

**Battery trouble (yellow LED)**

| | |
|---|---|
| On | When a battery voltage failure has been identified.<br>The LED is activated directly even if a battery failure message is programmed with a 5 minute delay. The LED turns off automatically as soon as the battery fault is not present anymore. |

**Ground trouble (yellow LED)**

| | |
|---|---|
| On | When an earth fault in the communication wiring or the supply wiring has been recognized, e.g. due to faulty insulation. |

**Trouble (yellow LED)**

| | |
|---|---|
| On | When the input >Trouble, extinguishing system< is activated.<br>An extinguishing system connected to this input indicates a failure. Cause for this message are e.g. triggered weight contacts or other sensors for monitoring the fire extinguishing system. |

**Blocking (yellow LED)**

| | |
|---|---|
| On | When the input >Blocking< is activated.<br>A mechanical switch contact (e.g. cut off cock / faucet) for monitoring deluge / release flow indicates a failure. |

**Fan trouble (yellow LED)**

| | |
|---|---|
| On | When the integrated fan reports a fault or is out of order . The generated heat in the housing could not be exhausted properly and this may cause a system damage by heat accumulation. |

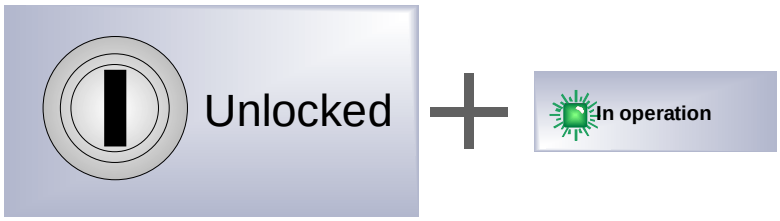
Call maintenance-service immediately in the case of failure messages and in the CPU-failure mode of the Extinguishing Control Computer.

When a fault is present or in the CPU-failure mode, the Extinguishing Control Computer is operational only with restrictions. Comprehensive functioning is no longer provided. Call maintenance-service immediately.

## 2.3 Keypad functions

All operations of the Extinguishing Control Computer are carried out with the clear control panel keypad. Pressing a key once is acknowledged by a short buzzer tone.
When the keypad cover is closed, all keys are covered apart from the two keys >Switchover< and >Buzzer Off<.

The keys can be locked with the built-in key-switch to prevent unauthorized operation.




Keypad locked, green LED >Operation< lights up continuously.

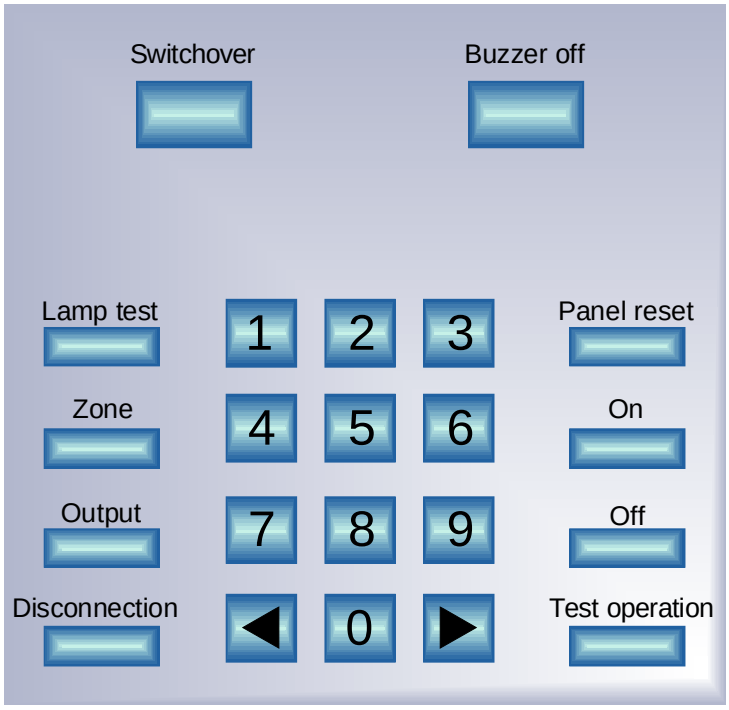
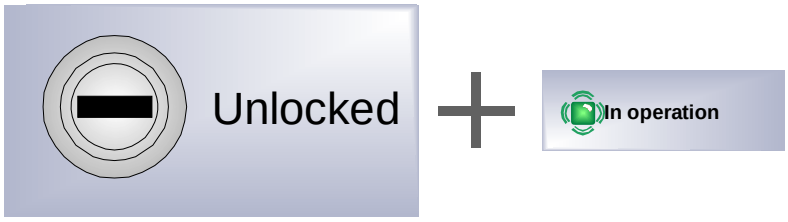



*Fig. 6: Control panel keypad of the Extinguishing Control Computer 8010*




Keypad enabled, green LED >Operation< flashes.

## 2.4 Connect / disconnect zones

The detector zones (1 – 8) and the technical zones (9 – 13) can be switched on or off via the function keys and the ten-button keypad of the control panel.


For operation, it is necessary to enable the keypad via the key-switch.

Example: Switching off detector zone No. 3

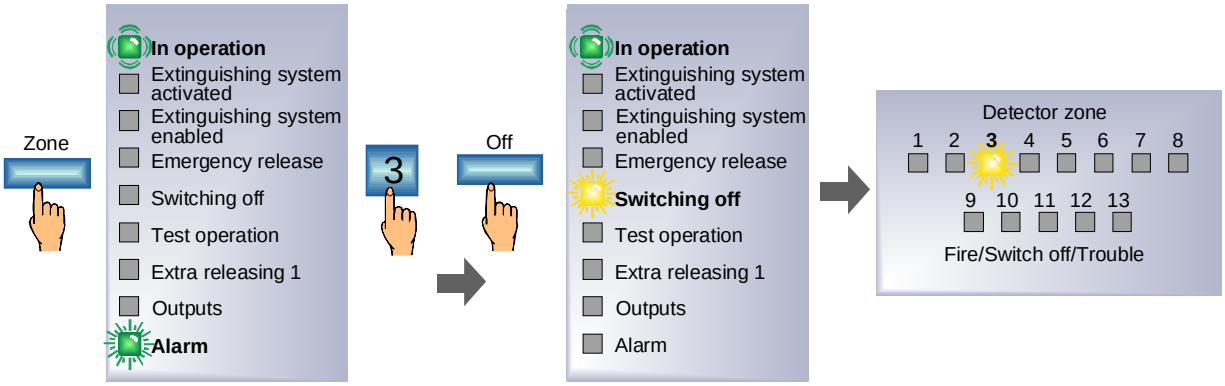



*Fig. 7: Indication and Operation – Switching off detector zone No. 3*

The deactivated zone is shown in the zone display with the continuously illuminated yellow LED.

The zone display can be switched between the display of the 13 zones and the 13 outputs with the function key >Switchover<. When the keypad is locked, the status of the zones is always automatically shown, even if outputs have been deactivated.

The following key combination must be pressed in order to switch on and reset the detector zones:

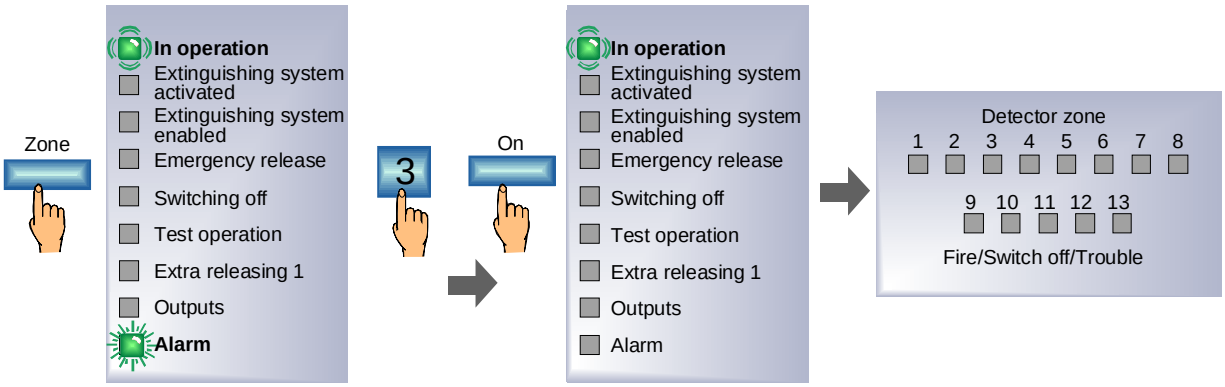



*Fig. 8: Indication and Operation – Switching on the detector zone No. 3*

The continuously illuminated yellow LED in the zone display is deactivated. The detector zone is in the normal operation mode.

Deactivated zones will not notify an alarm message in case of a fire!

## 2.5 Connect / disconnect relay outputs

The relay outputs No. 1–13 can be switched on or off via the function keys and the 10-button keypad of the control panel.


For operation, it is necessary to enable the keypad via the key-switch.

Example: Switching off relay output No. 7

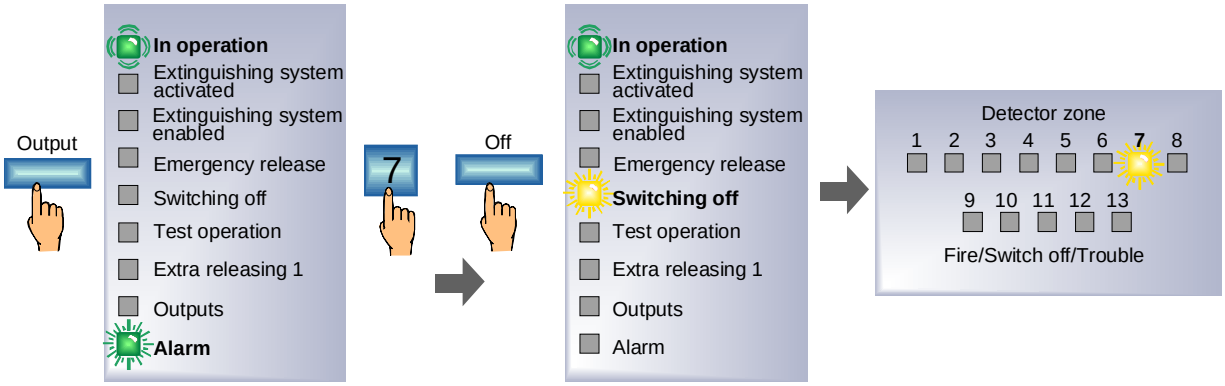



*Fig. 9: Indication and Operation – Switching off relay output No. 7*

The deactivated relay output is shown in the zone display with the continuously yellow LED. The green LED >Outputs< also lights up to indicate that the zone display is showing the status of the outputs.

The zone display can be switched between the display of the 13 zones and of the 13 control outputs with the function key >Switchover<. If the keypad is locked, the status of the zones is always automatically shown, even if outputs have been deactivated.

Example: Switching on the relay output No. 7

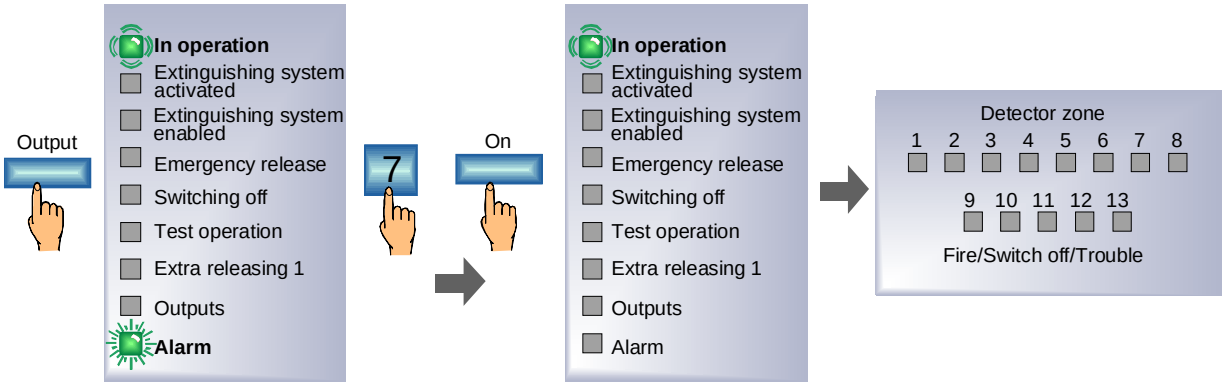



*Fig. 10: Indication and Operation – Switching on the relay output No. 7*

The continuously illuminated LED in the status display of the output turns out. The relay output is switched on and will be activated in the case of an event.

Deactivated outputs will not notify an alarm message in case of a fire!

## 2.6 Test mode

The automatic zones no. 1 - no. 8 can be switched to Test mode via the function keys and the ten-button keypad of the control panel.


For operation, it is necessary to enable the keypad via the key-switch.

Example: Test mode ➔ Switching on for zone No.6

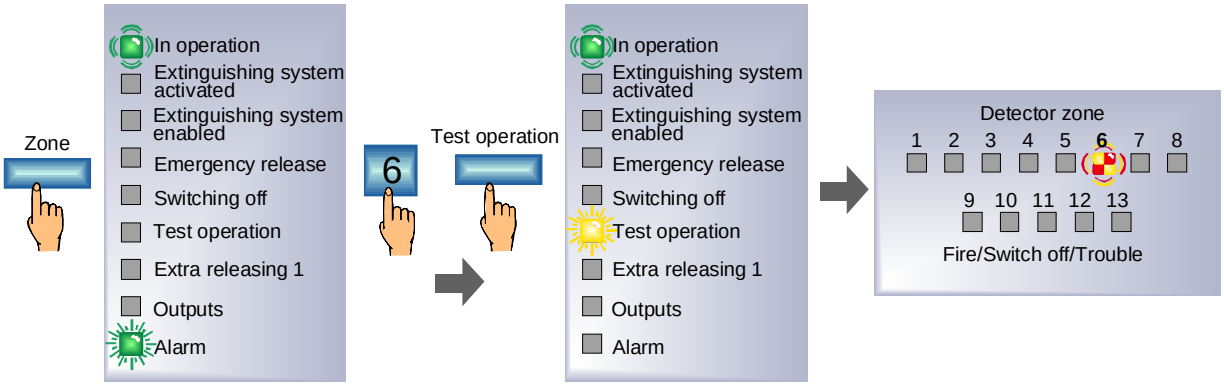



*Fig. 11: Indication and Operation – Switching on Test mode for detector zone No.6*

The zone input in Test mode is indicated in the zone display with a yellow/red flashing LED. The yellow LED >Test Mode< also lights up to indicate that the zone display is showing the status of the detector zone.

Example: Test mode ➔ Switching off for zone No.6

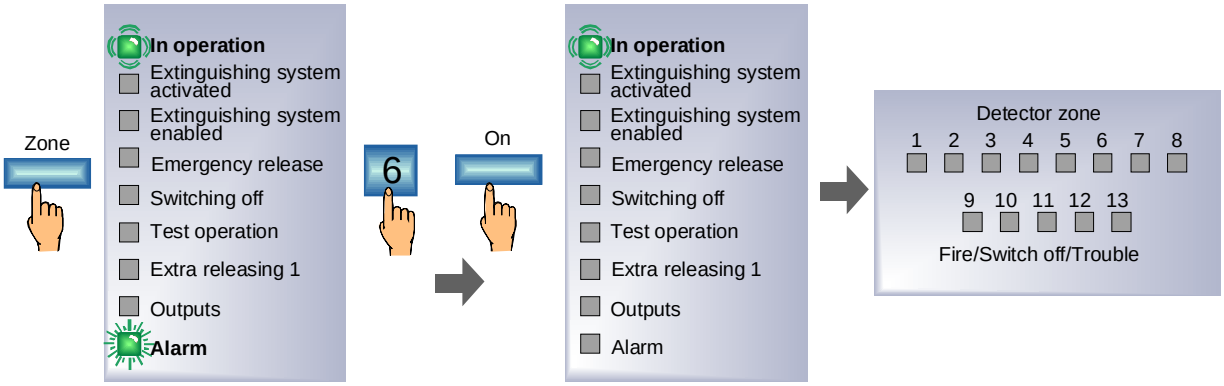



*Fig. 12: Indication and Operation – Switching off Test mode for detector zone No.6*

## 2.7 Revision mode

The Extinguishing Control Computer 8010 can be switched to the revision mode via the function keys on the operating panel.


For operation, it is necessary to enable the keypad via the key-switch.

The revision mode display has priority over the test mode. If an alarm zone is for example in test mode and the revision mode is switched on in addition, the state of the >Test mode< LED changes from ON to flashing.
In the deactivated revision mode the >Test mode< LED lits continuously.

Example: Revision mode ➔ switching on

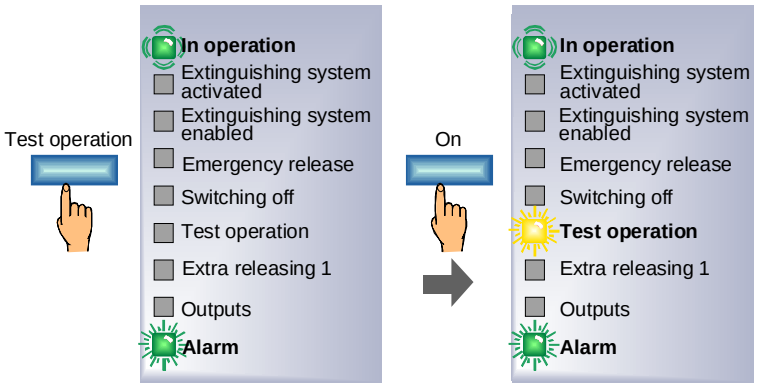



*Fig. 13: Indication and Operation – switching on revision mode*

Selecting the revision mode activates all outputs programmed with the status function >Revision<. All outputs of the Extinguishing Control Computer remain activated until the revision mode is deactivated.

Example: Revision mode ➔ switching off

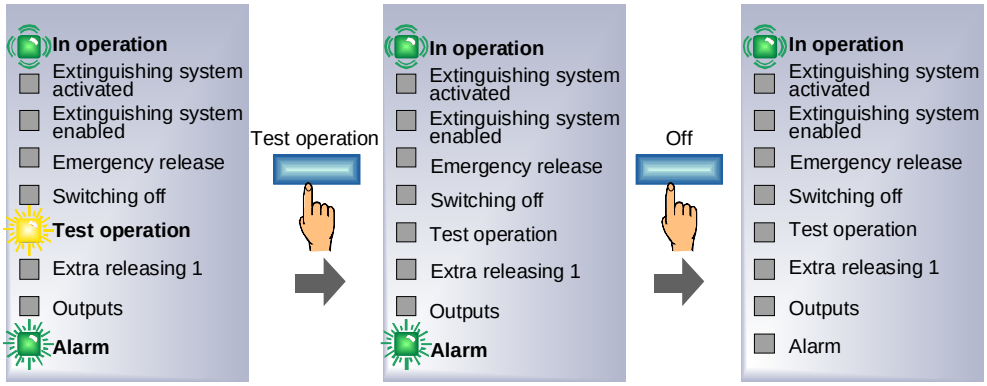



*Fig. 14: Indication and Operation – switching off revision mode*

Zones and outputs which are disconnected or out of order will not send an alarm in the event of a fire!

## 2.8 Resetting the panel

The Panel can be reset via the function key of the control panel. For operation, the keypad must be enabled via the key-switch. To restart the system press the appropriate button. The internal panel status and all visual displays will be resetted.


For operation, it is necessary to enable the keypad via the key-switch.

A restart of the system does not take affect on disconnected detector zones or detector zones in the test mode. This zone will not be switched on or resetted by a restart.

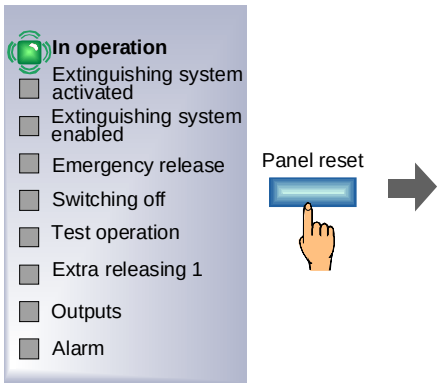



*Fig. 15: Operating example – panel reset*

## 2.9 Lamp test

The lamp test can be carried out via the keypad. All visual displays of the control panel lights up and the control panel buzzer is activated until the key is released.


For operation, it is necessary to enable the keypad via the key-switch.

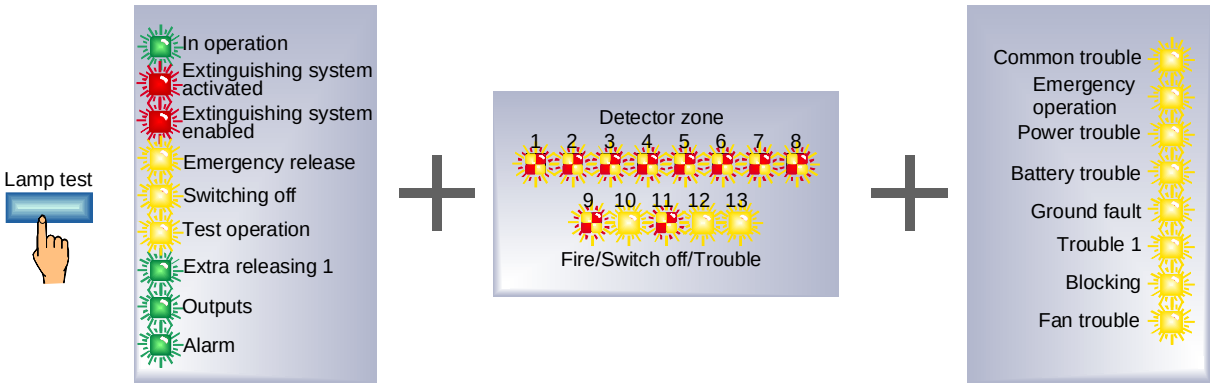



*Fig. 16: Indication and Operation – Lamp test*

# 3 Control indicator and Alarm counter

The Extinguishing Control Computer can be equipped with an optional >Control indicator and Alarm counter< (Part No. 788016).

The LED indicators no. 1 to 13 lit when the corresponding detector zone or output (relating to the customer data programming) is activated. The description of each output can be edited in the lettering area.

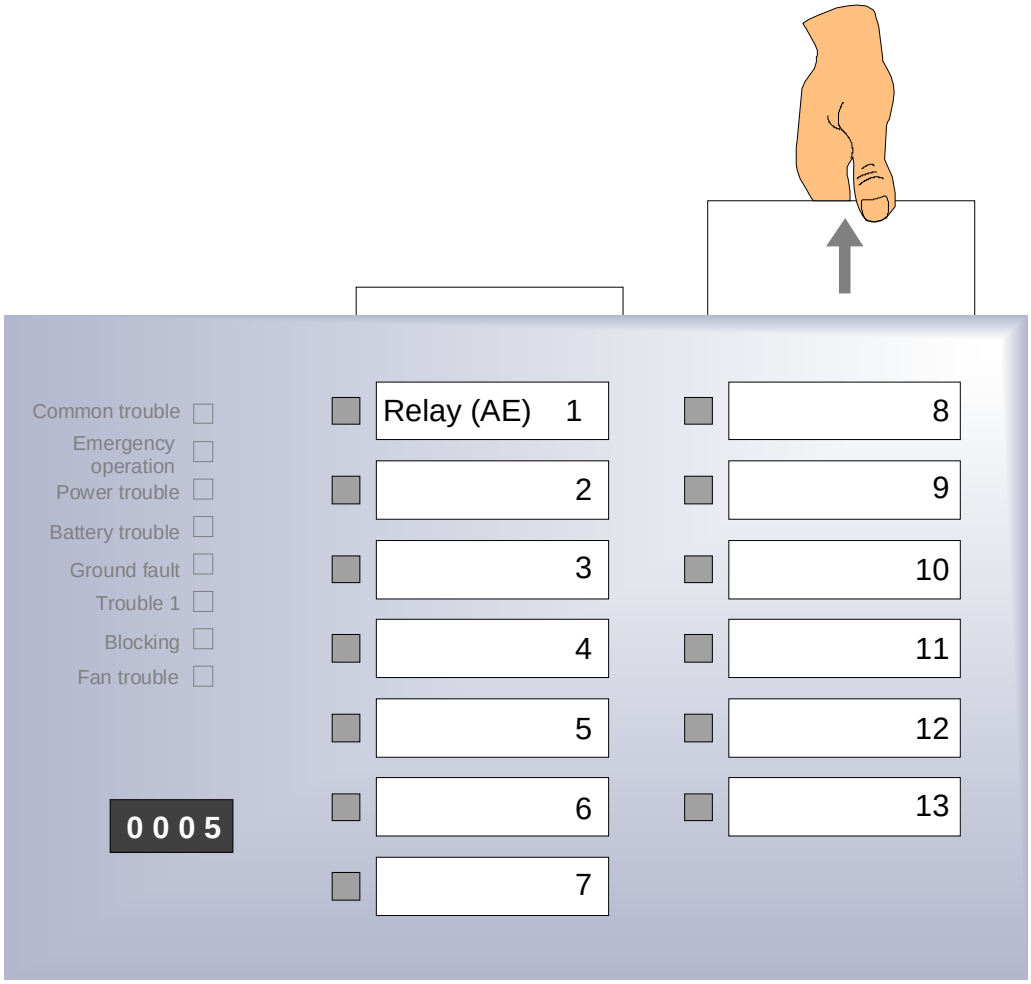



*Fig. 17: Control indicator and Alarm counter*

The mechanical alarm counter displays the total quantity of all recognized fire alarms and is incremented with each new fire alarm.

Resetting the counter to zero - 0000 - is not possible.

ESSER
by Honeywell


# Installation Instruction

## Extinguishing Control Computer 8010 – 19-Inch Design

## (Series 2 and Series 3)

798955.GB0
09.2007

VdS G 200090
G 205064

GB

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# 4 Installation

The terminal assignment and wiring illustrated in these installation instructions refer exclusively to the facilities of the operating system software for the Federal Republic of Germany [D].
The display illustration given in this manual may be differ from the real display indication due to a customized and object related configuration of the system.
Operation of the Extinguishing Control Computer 8010 - 19-Zoll is governed by the national version of the operating system software used and the country version programmed in the customer data.

A complete system check must be carried out after commissioning and for each modification of the customer data programming!

## 4.1 Installers responsibility

In Germany, the design, installation and responsibilities relating to fire extinguishing systems are highly regulated. The following references stated in the contents of DIN VDE 0833-2 and VdS 2496 are particularly to be observed in this context.

**DIN VDE 0833-2 (Excerpt)**

| | |
|---|---|
| Chapter 6.4.9 | "If several companies are carrying out the installation of the extinguishing system, then all participants must agree to the design of the system. Connection may only be made after the interaction of all components, the control concept and the design of the system have been ensured. Proper implementation of the requirement must be checked for each project." |

**VdS Guideline 2496 (Excerpt)**

| | |
|---|---|
| Chapter 4.2 | "Components of the extinguishing systems, such as alarm and control systems as well as all of the necessary control-related components and procedures form a part of the area of accountability of the installer of the extinguishing system. The area of accountability between the FACP and extinguishing system is divided by the standard interface. If the fire alarm and extinguishing systems from various companies are installed, overall accountability, including for the fire extinguishing part of the FACP, falls to the installer of the extinguishing system." |
| Chapter 4.2.2 | Design by an installer, connection without standard interface extinguishing (SST). |
| Chapter 4.2.4 | Design by two installers with collective system recognition, connection without SST. |
| Chapter 4.2.5 | Overall accountability for installation by two installers. |
| Chapter 4.3 | General requirements for control and activation. |
| Chapter 4.4 | Operator protection measures. |

## 4.2 Standards and guidelines

The general technical rules must be observed when installing fire alarm systems. Any deviation from those rules is only admissible if the same degree of safety can be ensured with different means. Installations within the European Community are primarily subject to all EU regulations defining the current standards for security systems.

In Germany, systems are considered to be in compliance with the general technical rules or the standards of the EU for security systems if they meet the technical guidelines of the VDE (Verband Deutscher Elektrotechniker, Association of German Electrical Engineers). They may also be considered to be in compliance with the standards of the EU for security systems if they meet the technical guidelines of another comparable institution within the European Community which have been accepted in accordance with directive 73/23 EEC of the Council dd. 19 February 1973 – directive on low-voltage systems- (ABL. EG No. L 77 page 29). The same must be applied for all applications of additional, product relating guidelines, e.g. EMI-Guideline 2004/108/EC and the Construction Products Directive (CPD) 89/106/CE.

These are examples:

- Standards of the DIN EN 54 “Fire alarm systems“, particulary DIN EN 54-2 „Fire alarm control panels" and DIN EN 54-4 „Power supply units".
- Standards of the DIN VDE 0100 issue, particulary DIN EN 0100-410 „Installation of high-voltage sytems with rated voltage up to 1000 V“, DIN VDE 0105-100 „Operation of electrical system: General commitments“ and DIN VDE 0108 „Installation and Operation of high-voltage systems in buildings for public gathering“.
- Standards of the DIN VDE 0185 issue, particulary DIN VDE 0185-1 „Lightning protection: General standards. DIN VDE 0185-2 „Risk-Management“, DIN VDE 0185-3 „Protection of buildings and persons“ and DIN VDE 0185-3 „Eletrical and electronic systems in buildings“.
- DIN VDE 0701-1 „Maintenance, Modification and Test of electrical devices: General commitments“.
- Standards of the DIN VDE 0800 issue, particulary DIN VDE 0800-1 „General commitments, Requirements and Tests for system security“, DIN VDE 0800-1 „Communication systems, Earthing and potential compensation“, DIN VDE 0800-174-2 „Information systems – design and installation of communication cabling in buildings“.
- DIN VDE 0815 „Cables for communication and information systems“.
- Standards of the DIN VDE 0833 issue Hazard alarm systems for Fire, Intruder and Hold-up, particulary DIN VDE 0833-1 „General commitments“, DIN VDE 0833-2 „Commitments for fire alarm systems (FAS)“, DIN VDE 0833-3 „Commitments for Intruder and Hold-up systems“ and DIN VDE 0833-4 „Commitments for Voice alarm systems within fire protection“.
- Standards of the DIN VDE 0845 issue, particulary DIN VDE 0645-1 „Protection of Communication systems against Lightning, electrostatic charge and overvoltage from high-voltage systems; Actions to avoid over-voltage“.
- DIN 14675 Fire alarm systems – Design and Commissioning.
- Standards of the DIN EN 120094 issue, localized fire fighting systems – components of extinguishing systems with gaseous extinguishing agents“, particulary DIN EN 120094-1 „Requirements and test procedures for automatic electrical Control- and Delay systems“ and DIN EN 12094-3 „ Requirements and test procedures for Manual release systems and Stop units.

These technical guidelines must be observed within the European Community. The VDE guidelines must be observed within Germany. In other countries (e.g. U.S.A.: NFPA and UL requirements), the relevant national standards, guidelines and legislation must be observed.

In addition to the above, the guidelines of the German VdS Schadenverhütung GmbH (VdS) may apply for systems installed in Germany.

These are examples:

- VdS 2046 Safety rules for electrical power systems with voltages up to 1000 V
- VdS 2015 Electrical appliances and systems – rules for damage prevention
- VdS 2095 Design and installation of fire alarm systems
- VdS 2496 Triggering of fire extinguishing systems.

## 4.3 Installation information

The Extinguishing Control Computer 8010 – 19-Inch and 19-inch cabinet with safety glass and safety lock can be purchased without installations for self-assembly (Part No. 769163) or as a complete, pre-mounted and ready-to-connect product (Part No. 769164).

The increased mechanical protection of the 19-inch cabinet also makes it suitable for use in industrial production facilities.

If the 19-inch installation/cabinet is assembled by the installation company, the installation company automatically becomes the manufacturer of the systems with all rights and obligations according to DIN ISO 900x and all the relevant standards and guidelines.
Fire alarm systems and other system components such as ELA technology must not be installed together in one cabinet.

**Ambient conditions**

The ambient conditions for the assembly location and surfaces must comply with Class 3k5 according to DIN EN 60721-3-3.

**Assembly location and assembly surface**

The 19-inch installations and cabinets with fire alarm control panels may be installed only in dry, clean, conditionally accessible and adequately lit rooms. If several fire alarm control panels are to be assembled in one enclosed 19-inch cabinet, the maximum bearing strength (Kg/m²) of the floor may have to be considered (e.g. pile floors).

To prevent the 19-inch cabinet becoming top heavy when the pivot frame is open, fix it to a suitable wall.

The fire alarm system must not be installed in facilities with damaging influences. Parts of the fire alarm system may be fed through these facilities if the requirements of the DIN VDE 0800 series are fulfilled.

**Assembly material**

The panel must be installed with suitable fixing material (screws, threaded bolts) with no mechanical stress on the assembly surface of the 19-inch cabinet. The panel may be operated only when it has been properly installed on the surface with sufficient bearing power.

**Installation height of the operating modules and optical displays**

Operating modules and optical displays should be installed between 800mm and 1,800mm above the place where the operator stands.

**Energy supply**

The fire alarm system is not suitable for connection to an IT voltage supply system.

**Disturbance variables**

Avoid electrical and mechanical disturbance variables. This applies especially to the installation of panels, components and installation cables in the direct vicinity of fluorescent lamps or energy cables and mounting on vibrating, unstable surfaces such as thin partition walls.

**Cabinet ventilation**

The ambient conditions for the assembly/operation of the fire alarm system must comply with Class 3k5 according to IEC 721-3-3:1994. If these climatic conditions cannot be fulfilled, appropriate countermeasures must be taken.

If you believe that the ambient temperature is unsuitable for the installed devices, you must take appropriate measures to air-condition the 19-inch cabinet.

In principle you must prevent heat accumulation between the installed devices and between the devices and the walls of the 19-inch cabinet. Especially ensure that there is an adequate heat buffer between the highest installed panel and the top of the 19-inch cabinet.

**Door contact**

The 19-inch cabinet is fitted with an electrical door contact that monitors when the door is opened. This door contact may be used in fire alarm control panels to switch off the master box (MB) of one or more panels.

**Cable entry and installation**

Use only the proper cable entries. Use separate cable entries and cable glands for the power supply and signal lines. All connected voltage and signal lines must be installed with suitable fixing material, such as plastic cable fasteners so that they cannot move around. It is important that the power supply line cannot touch the signal lines (SELV). Work may be carried out on the fire alarm system only when it is voltage free (network and emergency power supply).
The devices installed in the 19-inch cabinet must be protected against inadmissible moisture. To ensure this, all installation cables must have suitable cable packing before they are fed into the 19-inch cabinet.

**Accessibility**

The 19-inch cabinet must be accessible at all times for operation and maintenance work.

**Ground**

Even when switchgear is installed carefully and properly planned in advance this cannot completely prevent undesired short circuits during operation of the fire alarm system. The corresponding safety measures must be taken to reliably prevent damage to life and property in such cases.

If two or more panels are installed in the 19-inch cabinet, the following instructions must be complied with:

Each panel must be connected to the terminal strip with a separate PE cable (required cable cross-section ⟨ 1.5 mm²). Place the reference to leak current next to the terminal strip.

You will find further information about the required type-relevant grounding in the section on PE connection and power supply.

**Openings and cable entries**

Unused cable entries must be closed with suitable material. Open installation spaces in the pivot frame must also be closed with filler plates.

**Emergency power supply**

The emergency power supply for the extinguishing agent control system is provided by batteries, which are installed at specific points in the housing of the extinguishing agent control systems. The batteries must always be protected against movement. Batteries with a capacity of ≥ 12 Ah must not be connected. When installing the batteries pay attention to the installation position (see battery label).

**EMC protection**

The fire alarm control panels are fitted - by factory settings - with an EMC secondary protection system. Use only approved protection modules for any additional required EMC-protection of power supply units and cabling.

**Danger – Electrical shock !**

Remove all power from the panel before carrying out any installation work!

**ESD / EMC protection**
While handling electronic assemblies, the necessary precautions against electrostatic discharge must be taken.

**Protective and functional earth**
The PE conductor must be connected to the corresponding terminal at the mains supply. Connect the FE terminal of the panel's cabinet with the PE rail of the power distributor panel from which the fire alarm system will be powered.

# 5 Mechanical configuration

The Extinguishing Control Computer 8010 is suited for a direct mounting to a 19-inch rack. The arrangement of the appropriate operating elements and connectors does not require to open the housing.

The housing must be opened only for the required jumper settings and to insert the batteries. All internal cable wiring is done by factory.

## 5.1 Operating- and connecting devices

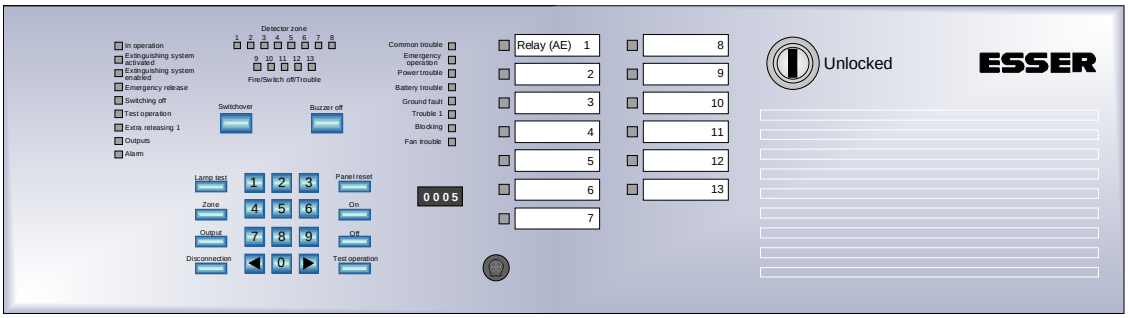



*Fig. 18: Housing (Front view)*

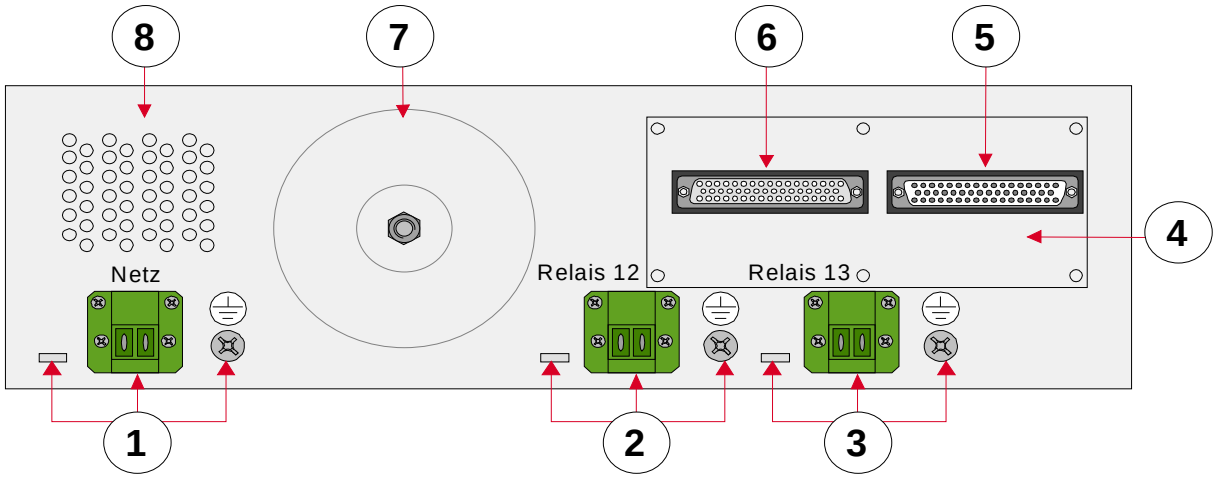



*Fig. 19: Housing (Back view)*

| | | |
|---|---|---|
| ① | Connector for the 230V AC mains voltage (L1/N) and separate mantle terminal for PE connection | Led cable to the appropriate cord grip! |
| ② | Terminal for the 230V AC-voltage relay 12 | |
| ③ | Terminal for the 230 V AC-voltage relay 13 | |
| ④ | Terminal card with 50-pole D-SUB connectors to the external terminal for zones and relays | |
| ⑤ | 50-pole D-SUB jack ➔ relays or control outputs | |
| ⑥ | 50-poliger D-SUB plug ➔ zones | |
| ⑦ | Toroid transformator | |
| ⑧ | Ventilation holes | |

## 5.2 19-inch rack mounting

The following example shows the installation of an Extinguishing Control Computer in conjunction with a Fire Alarm Control panel in a common 19-inch rack.

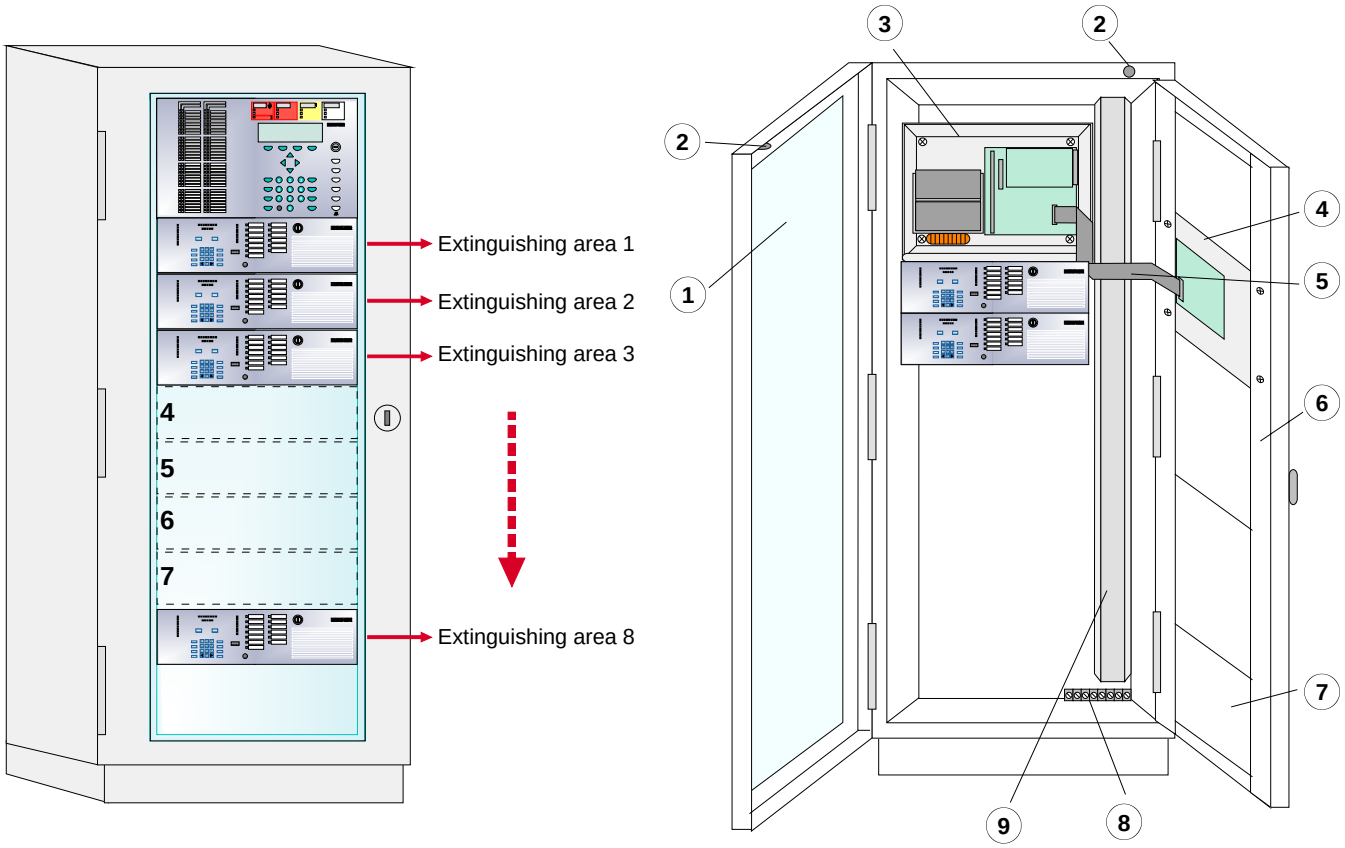



*Fig. 20: Front view of the 19-inch rack mounting (Example with Fire Alarm Control Panel)*

| | |
|---|---|
| ① | Cabinets door with security lock and protective glass |
| ② | Door contact – used to disconnect a connected manned centre link (MCL) |
| ③ | Fire Alarm Control Panel (FACP) without housing/cover or operating panel |
| ④ | Remote indicating and operating panel of the FACP mounted in the cabinets door |
| ⑤ | Ribbon cable wiring between FACP and the indicating and operating panel |
| ⑥ | 19-inch swivel frame to mount the remote indicating and operating panels |
| ⑦ | 19-inch- cover plate (2 HE, 3 HE, 5 HE, 9 HE ) |
| ⑧ | Terminals for the 230 V AC mains voltage |
| ⑨ | Cable duct |

The batteries must be mounted in the appropriate place inside the housing of the Extinguishing Control Computer. Observe the required orientation of the battery placement (refer to battery label).

The connection of external batteries, e. g. placed on the cabinets floor is not permitted.

The housing of the Extinguishing Control Computer must be inserted in an appropriate 19-inch mounting slot of the cabinet and fastened by the 4 screws (see front side) from the front. To connect the zones and relay a separate 50-pole terminal card is required. This terminal cards are mounted on a C-rail in the back of the cabinet and connected via a D-SUB cable to the appropriate connectors on the back side of the Extinguishing and Control Computers housing.

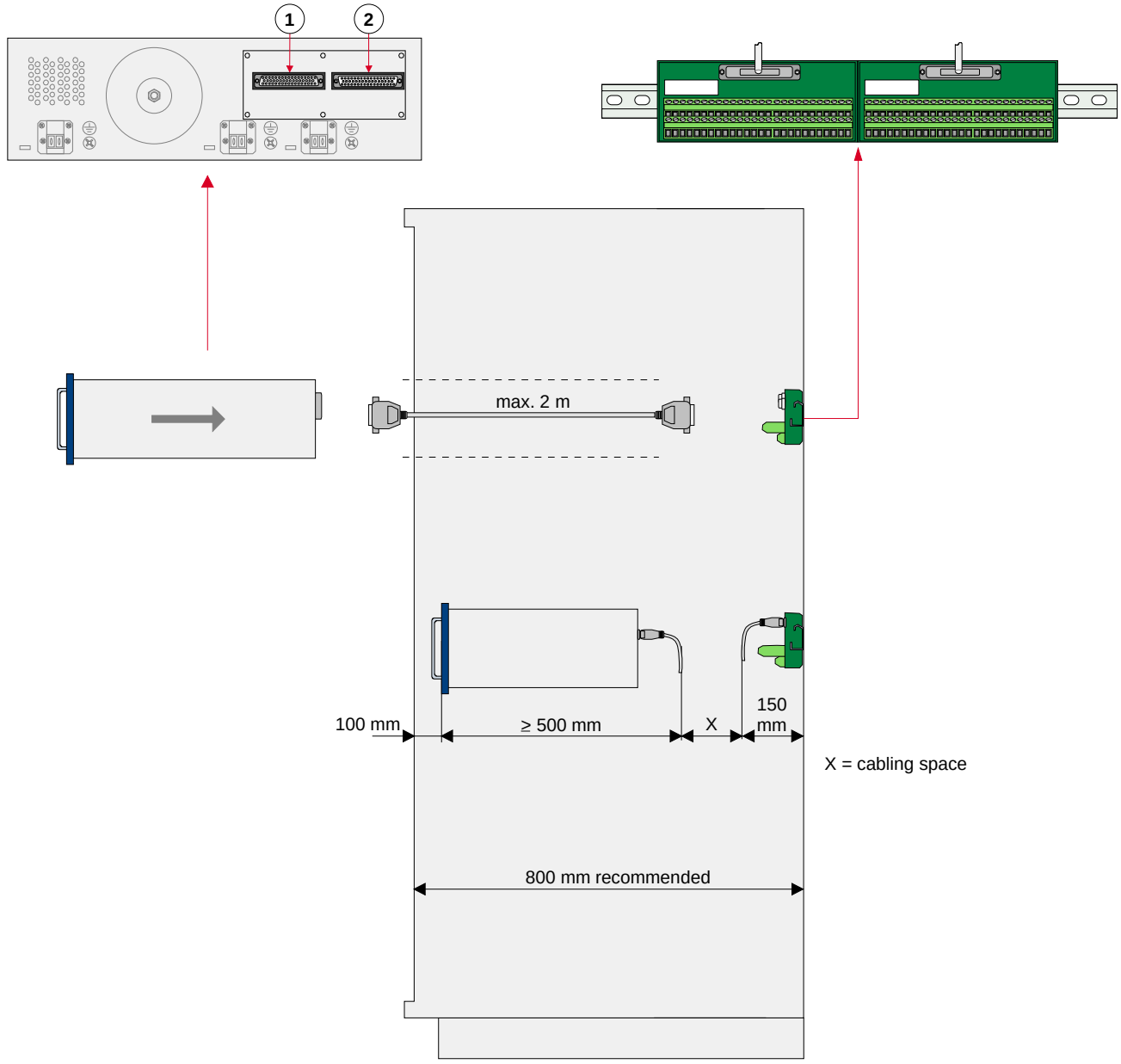



*Fig. 21: Wiring to the external C-rail terminal*

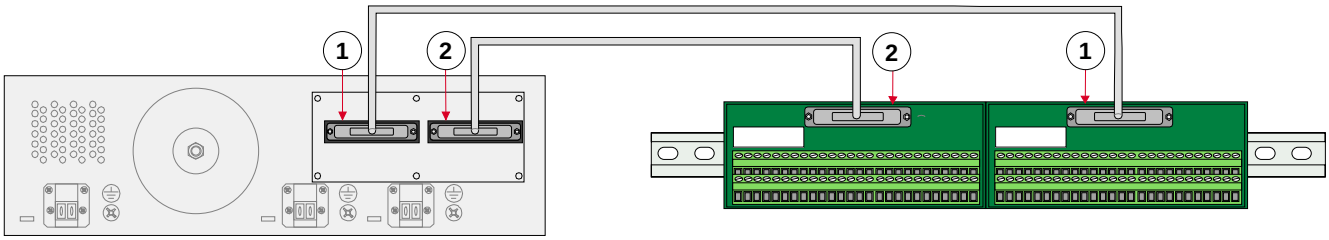
### Cabinet requirements

It is highly recommended to use a cabinet (19-inch rack) with a mounting depth of 800 mm. The to handle bars on the housings front side require a mounting space from min. 100 mm measured to the cabinets door.

Ensure a sufficient space for the C-rail terminal connection behind the housing. Connect cable with a suited bending to avoid a damage of the cable.

All required terminals are located on the external terminal card. The connection of cables to the separate circuit boards inside the housing of the Extinguishing Control Computer 8010 is not necessary.

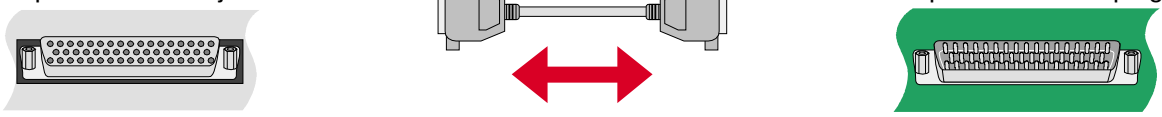
The D-SUB plugs on the housings rear side are connected via a 50-pole cable (length 1m or 2m) with the external terminal card on the C-rail.




Observe the different connectors for zones ① (D-SUB jack) and relays ② (D-SUB plug) at the housings rear side when connecting the external terminal card.

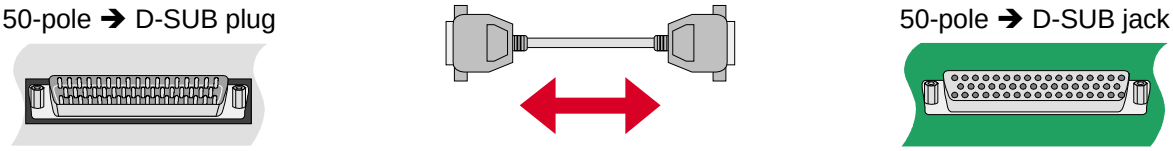
Zone terminal card

| ① **Zones** | **Cable length 2m** | **Zone terminal card** |
|---|---|---|
| 50-pole ➔ D-SUB jack | | 50-pole ➔ D-SUB plug |



Relay terminal card

| ② **Relays** | | **Relay terminal card** |
|---|---|---|
| 50-pole ➔ D-SUB plug | | 50-pole ➔ D-SUB jack |



All required terminals are located on the external terminal card. The connection of cables to the separate circuit boards inside the housing of the Extinguishing Control Computer 8010 is not necessary.

# 6 Mains connection and Protective earth (PE)

To ensure a proper operation of the system, the PE cable of the mains supply must be connected to the intended terminal of the Extinguishing Control Computer in accordance to the specifications given in the manual of the 19-inch rack.

- The FE (functional earth) and PE (protective earth) terminals of the panel's housing must be connected with the PE rail of the power distributor panel from which the fire alarm system will be powered (required cable diameter ≥ 4 mm²).
- Electro conductive housing parts must be interconnected with a PE cable (required cable diameter 1,5 mm², flexible).

**Example: 19-inch cabinet with PE connections**

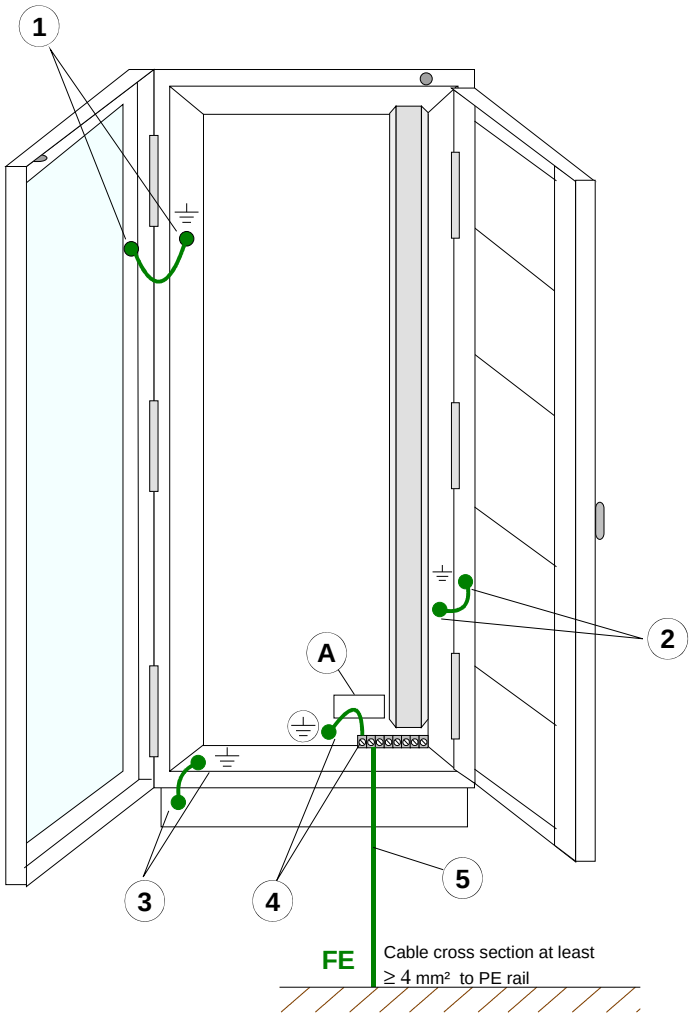



*Fig. 22: Location of the terminals and PE connectors in the 19-inch rack (example)*

| PE-connections | | | Cable diameter |
|---|---|---|---|
| ① Cabinets door | ⇔ | side wall | 1.5 mm² |
| ② Swivel frame | ⇔ | side wall | |
| ③ side wall | ⇔ | mounting plate | |
| ④ terminals | ⇔ | mounting plate | 2.5 mm² |
| ⑤ Terminals | ⇔ | Ground / potential compensation | 4 mm² |

Ⓐ Label – Information to leakage current-

The power supply of the Extinguishing Control Computer 8010 is provided via the integrated power supply unit. If necessary, an increased power requirement for external devices, e.g. caused by longer cable lengths, must be compensated for with an external voltage supply via a separate power supply unit. In case of an AC main power loss, the continuous voltage supply is ensured by the batteries. If the mains voltage is not present after a delay time of 15 minutes (900s) a fault message is indicated. If the failure cause is eliminated within this time no fault message will be generated. At a total loss of the mains and battery voltage, a system start will be automatically carried out by the CPU if the main voltage supply (not the battery voltage) is present again.

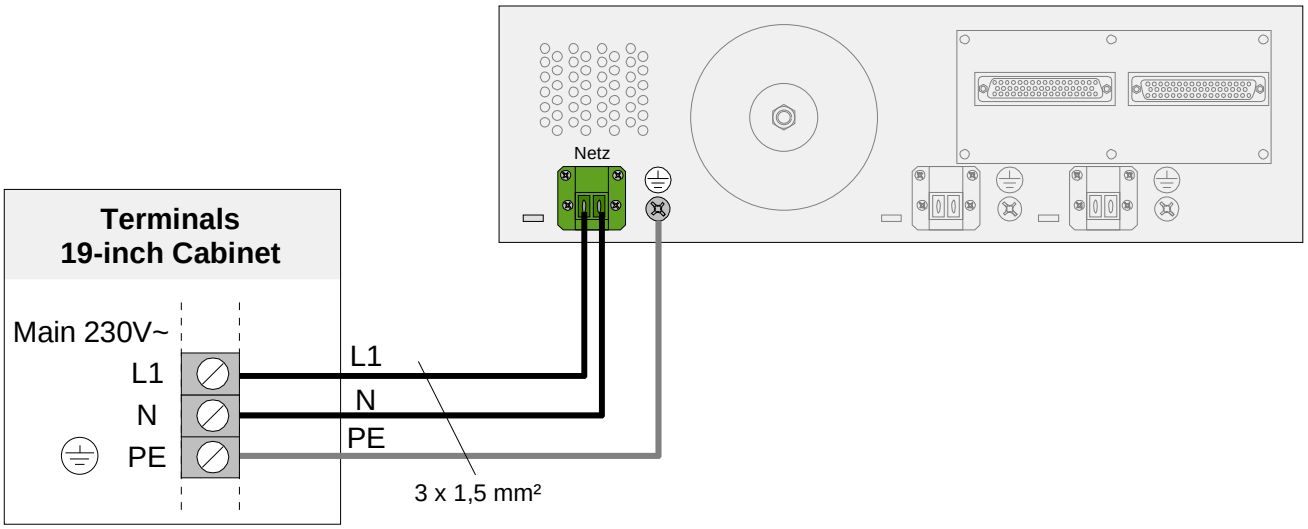



*Fig. 23: Connection of the 230 V AC main voltage and PE (schematic wiring)*

The PE-connector of the mains terminal X2 is connected to the housings rear side with a prefabricated cable. This connection must not be disconnected!

- The 230 V AC mains supply must be installed in accordance with local regulations by a qualified technician.
- The Extinguishing Control Computer must be supplied from the 230 V mains through a separate isolator or an appropriately labelled safety switch. In buildings fitted with earth fault devices (FI protection), a separate device must be installed for the fire alarm system.
- Use an appropriate mains cable, e.g. NYM 3 x 1.5 $mm^2$ or a cable type with similar specifications.
- The installation must comply with local regulations on electrical safety

**To prevent short circuits**

Remove all power (mains and battery) from the Extinguishing Control Computer before any work is carried out.

All connected power and signal lines must be secured using appropriate fasteners, e.g. plastic cable binders. Make sure the mains cable will not move and touch the signal lines. Make sure to lead all cables complete with their outer sheaths intact into the cabinet. Only remove the insulation from those sections which are inside the cabinet.

**Power supply fuse**

The fuses cannot prevent an unexpected fault in electrical modules; rather, these fuses are intended to protect users and their surroundings from damage.
Therefore, never repair or bridge the fuse that is installed or replace it with anything other than the stated type!

## 6.1 Emergency power supply

In case of loss of the mains voltage the control panel will be powered without a interruption by the connected battery. Depending on the capacity of the battery a backup time of up to 72 hours can be realised. After that time the external alarm devices must be still operable in an alarm condition. The activation of these devices must be still possible with a minimum battery voltage of 21,2V DC.

For an emergency back-up time of 72 hours with the max. battery capacity a current of max. 230 mA is available to power external loads.

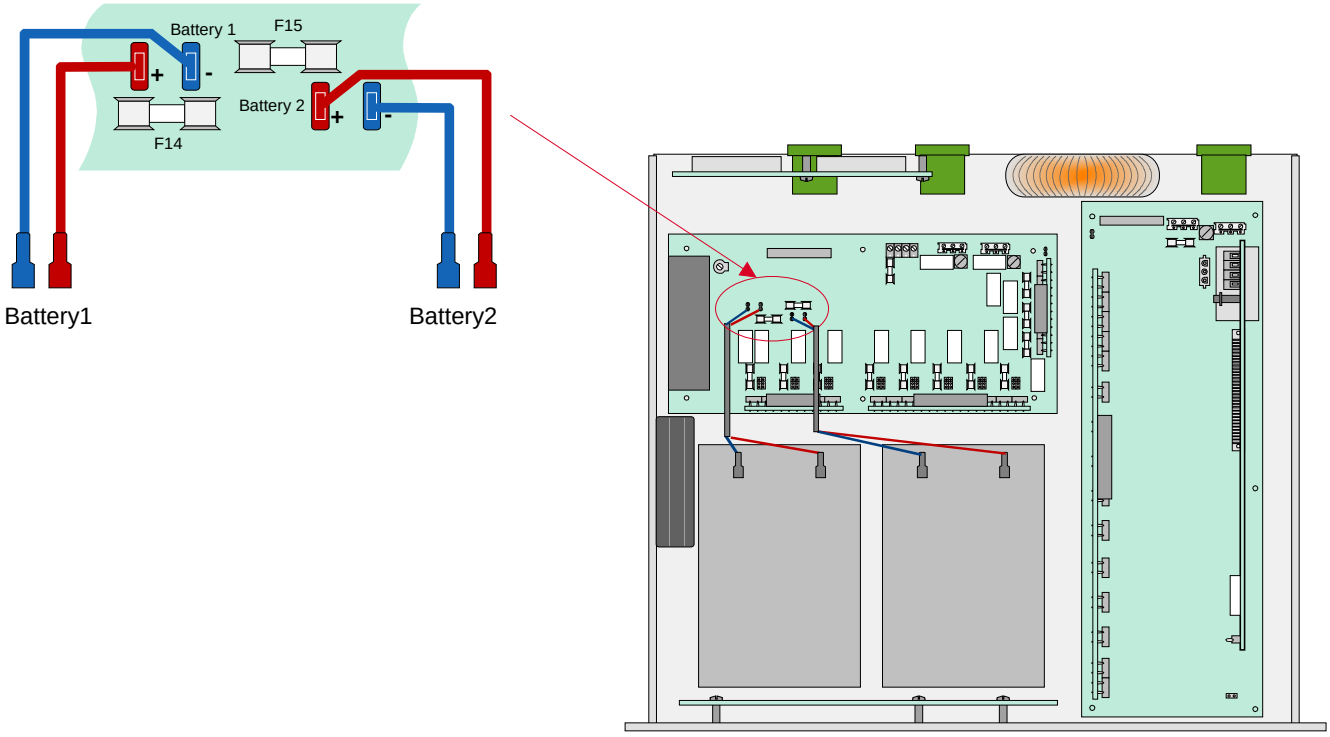



*Fig. 24: Position and polarity of the battery terminals on the Power supply and relay board*

The batteries must be mounted in the appropriate place inside the housing of the Extinguishing Control Computer. Observe the required orientation of the battery placement (refer to battery label).

The connection of external batteries, e.g. placed on the cabinets floor is not permitted.

In case of the final discharging voltage of the batteries a max. voltage of 21,2 V DC is available to supply and activate the valves. The valves must match this application requirements.

**First Commissioning**

New batteries must be charged at least 24 hours before operation. If the date of manufacturing is dated back about more than 9 month a battery charge time of min. 48 hours is required.

**Deep discharging**

The power supply unit periodically monitors the charge of the batteries connected. If this battery test reveals a battery voltage of below 10.0 V DC under load, battery trouble will be signalled. The battery charge is controlled by means of a temperature-dependent resistor (NTC). As soon as the voltage of the batteries goes below 9.5V the battery backup will get disconnected to protect the control panel. The control panel is no longer operational!

Eliminate the trouble condition of the mains power supply and turn/switch on the control panel. The connected batteries will get charged automatically if the voltage of the batteries during the battery test without external load is higher than 10.5V DC. A battery failure will be indicated if the voltage of the batteries does not exceed this level. Discharged batteries have to be recharged with an external power supply or need to be replaced. This Function can be enabled / disabled with the jumper on the power supply board.

Exhausted batteries (off-load voltage $U_{battery}$ < 10,0V DC) will not charge correctly!
Only the battery types approved from Esser by Honeywell may be used for supplying the Fire Alarm Control Panels with backup power. Observe the information and technical specifications of the battery manufacturer and the VdS-guidelines for deep charged batteries.

# 7 Position and operation of the devices

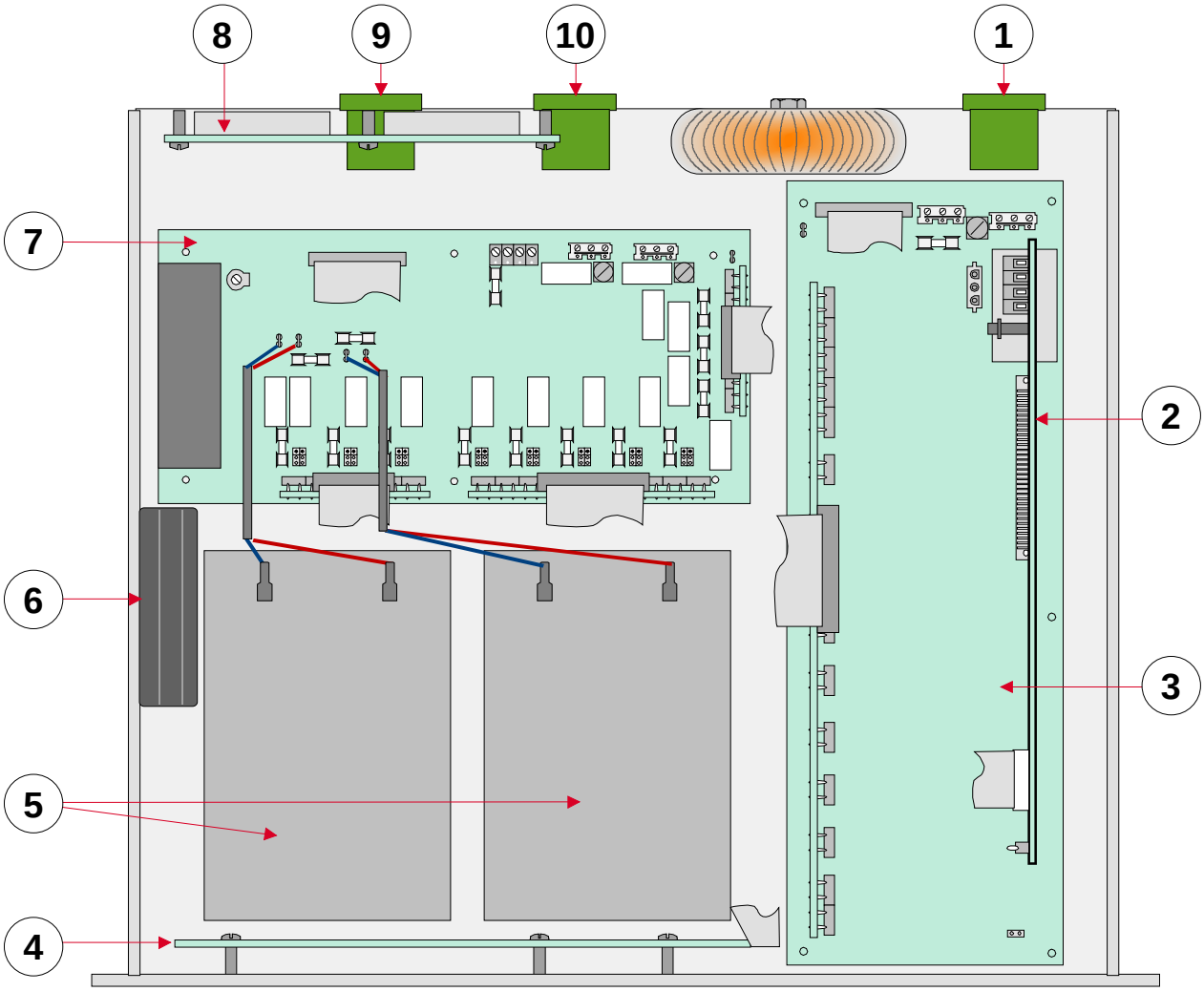



*Fig. 25: Position of the devices (Top view with open housing)*

| | |
|---|---|
| ① | Mains terminals (L1/N/PE) to connect the 230V AC mains voltage |
| ② | Processor board (mounted upright on the zone board) |
| ③ | Zone board (series 2 or series 3) |
| ④ | Operating and indicating panel board |
| ⑤ | Batteries max. 2 x 12 V DC / 12 Ah |
| ⑥ | Fan |
| ⑦ | Power supply and relay board |
| ⑧ | Board with D-SUB connectors to connect the external terminal card (via a 50-pole cable) |
| ⑨ | Terminals for relay 12 |
| ⑩ | Terminals for relay 13 |

## 7.1 Processor board

The processor board is connected directly to the zone board by a 64 plug connector. On the processor board we find, among other things, the microprocessor for controlling the panel functions as well as the operating system and the customer data EEPROM. The required internal wiring is done by factory. The connectors fort he external terminal card are placed at the housings rear side.

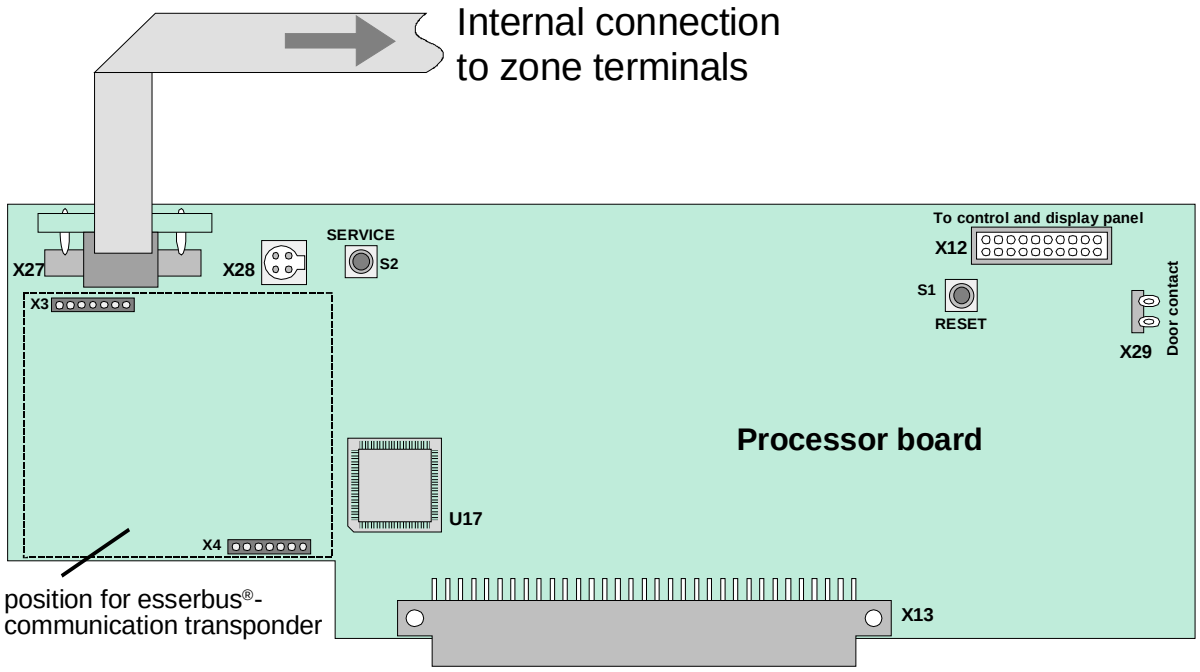



*Fig. 26: Processor board / position of the subassemblies*

| | |
|---|---|
| **X12** | Connector for the ribbon cable to the display and control panel |
| **X13** | 64-pol. pole terminal strip for connecting to the zone board (19-Inch) |
| **X28** | 4- pole programming interface for Service PC.<br>This connector is also available on the operating panel. |
| **X29** | Terminals for the door contact of the cabinet (option) |
| **U17** | Operating system and customer data EEPROM |
| **S1** | Reset button (cold start)<br>By pressing the button a restart of the system will be initialized. |
| **S2** | Service key |

### 7.1.1 Stop extinguishing procedure for test purposes by the operator

To interrupt a running extinguishing procedure for test purposes hold down the S2 button (service) and briefly push the S1 (RESET) button as well.

## 7.2 Zone board - series 2

The zone board - series 2 is designed for connection of eight standard detector zones for automatic detectors series 9000 and/or 9100. Refer to section 7.4.5 for additional options to connect technical alarm zones.

The alarm zone operating mode (standard or EDD) is set via the associated jumpers (J1 to J8). Mixed operation on one alarm zone of series 9000 and 9100 automatic fire detectors is not permissible.

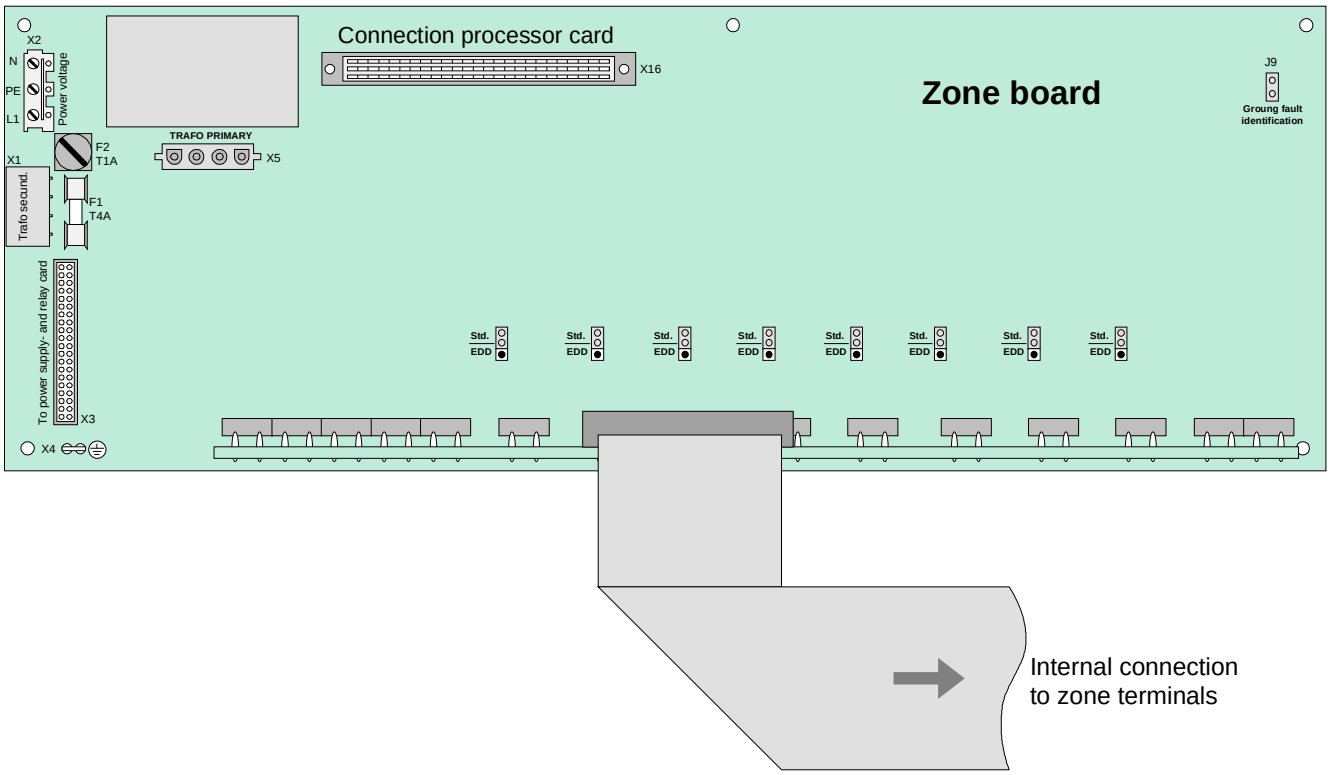



*Fig. 27: Zone board - series 2 (Part No. 771793) / position of the subassemblies*

### Terminals

The zone board is fully internal connected with the terminals of the mains supply voltage and the D-SUB board of the external terminal card connection.

Unused detector zone inputs must be programmed as >unused< in the customer data or alternatively terminated with an End-of-line resistor.

Do not connect Fire detectors series 9200 / IQ8Quad.

Mixed operation of automatic fire detectors, and/or technical alarm modules or esserbus® transponders in a common detector zone is not permitted.

When connecting the mains voltage and the protective earth, refer to the instructions in the chapter “Mains connection and earthing“!

| | | |
|---|---|---|
| **F1** | fuse 4 A, voltage supply of the zone board + 12 V DC / GND | |
| **F2** | primary fuse 1A, mains voltage 230 V AC (L1, N, PE) | |
| **J1 to J8**<br>**Plug-in jumpers of the alarm zone inputs** | jumper for setting the operating mode for the alarm zone inputs 1-8<br>Std: Connection of conventional detectors, Series 9000<br>EDD: Connection of addressable EDD detectors, Series 9100 | |
| **J9** | Activating/deactivating the ground trouble identification (insulation)<br>jumper open: ➔ Earth fault identification disabled<br>jumper closed: ➔ Earth fault identification on (factory setting) | |
| **X1** | Secondary transformer, 24 V DC, voltage supply of the zone board | |
| **X2** | Mains connection terminals L1, N, PE; 230 V AC 50 Hz<br>Max. cable cross section of the mains supply cable1.5 $mm^2$<br>The protective conductor connection of this terminal is connected in the factory to the plug-in contact of the housing rear wall via a prefabricated cable. This connection must not be detached. The protective conductor of the mains supply cable must be connected separately to a mantle terminal on the housing rear wall.<br>(refer to Chapter "Mains voltage connection and earthing") | |
| **X3** | Connection for the ribbon cable to the power supply unit and relay board | |
| **X4** | Plug-in contact for protective connection to the metal housing rear wall | |
| **X5** | Primary transformer 230 V AC, transformer voltage supply | |
| **X16** | 64-pole terminal strip for connecting to the processor board | |
| **Alarm zone No. 1 to 8** | Terminal to connect the automatic fire detector zone with detectors series 9000 / 9100 (standard/EDD) | End-of-line resistor 10kΩ normal / 1kΩ Alarm |
| **Manual alarm** | Terminal for manual call points (Manual alarm zone) | End-of-line resistor 10kΩ normal/ 1kΩ activation |
| **Emergency Stop** | Terminal for push-button controls (Emergency Stop zone) | |
| **Extra release** | Terminal for push-button control (Post-flooding zone) | |
| **Failure, extinguishing system** | Terminal for trouble contact (Extinguishing system) | |
| **Blocking** | Terminal for trouble contact (Blocking zone) | |
| **MG 14, MG 15** | Monitored control inputs (System software V2.01R001e or higher required)<br>MG14 ➔ control input >Buzzer off<<br>MG15 ➔ control input >Reset< | |

### 7.2.1 Detector zones 1 to 8 (zone card series 2)

A maximum of automatic fire detectors 30 Series 9000 (Standard) with or without switch-on control (SOC) or Series 9100 (EDD) can be connected.

Programming of the alarm zone operating mode (standard or EDD) is via the associated jumper.

Every alarm zone must be terminated with a 10 kΩ End-of-line resistor in the last detector base. Unused alarm zones must also be connected with a 10 kΩ End-of-line resistor.

For installation, use fire detection cable I-Y (St) Y n x 2 x 0.8 mm ∅ (or communication cable with special designation). The maximum cable length per alarm zone must not exceed 1000 meters.

**Terminals**

The zone board is fully internal connected with the terminals of the mains supply voltage and the D-SUB board of the external terminal card connection.

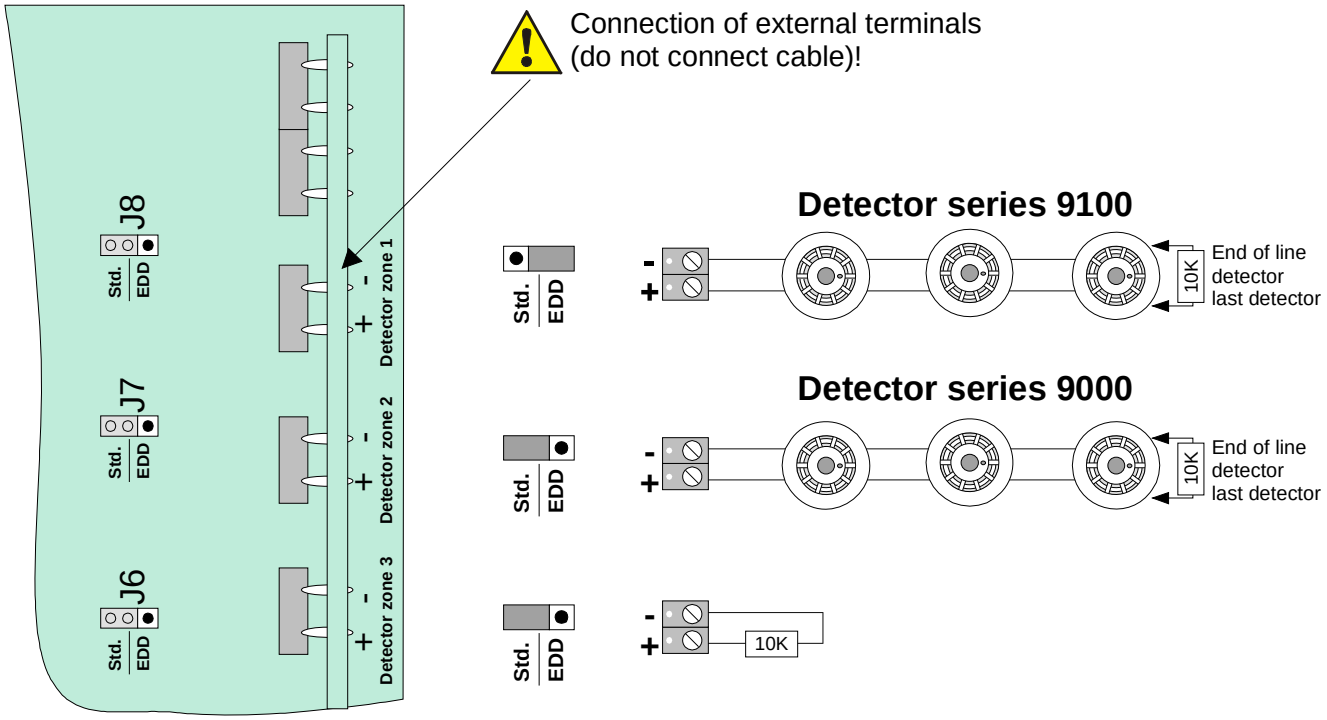



*Fig. 28: Connection of fire detectors (zone card - series 2)*

| | |
|---|---|
| **Detector zone 1 to 8** | Connection system for automatic fire alarm detectors (standard/EDD)<br>For detector zone 8 the operation mode >flow sensor< may be configured. This zone input is suited to connect flow control contacts for a pipe system monitoring (10kΩ normal/ 1kΩ activation) |
| **J1 to J8** | Jumper for programming the alarm zone operating mode<br>Std. : ➔ For standard detectors / zone (series 9000)<br>EDD: ➔ For EDD detectors / zone (series 9100) |

## 7.3 Zone board - series 3

The zone board - series 3 is designed for connection of 13 detector zones. Terminals 1 to 8 are suitable to connect automatic detectors and/or series 9200 / IQ8Quad (without alarm devices), technical alarm modules, as well as esserbus® transponders in order to control further external peripherals. Five technical zones 9 to 13 are available for non-automatic detectors (manual call points, push-button controls) and inputs for connecting external dry contacts. The detector zones are configured for connection of automatic fire detectors, and/or technical alarm modules, or esserbus® transponders via the programming software LKDE from Version V02.00.

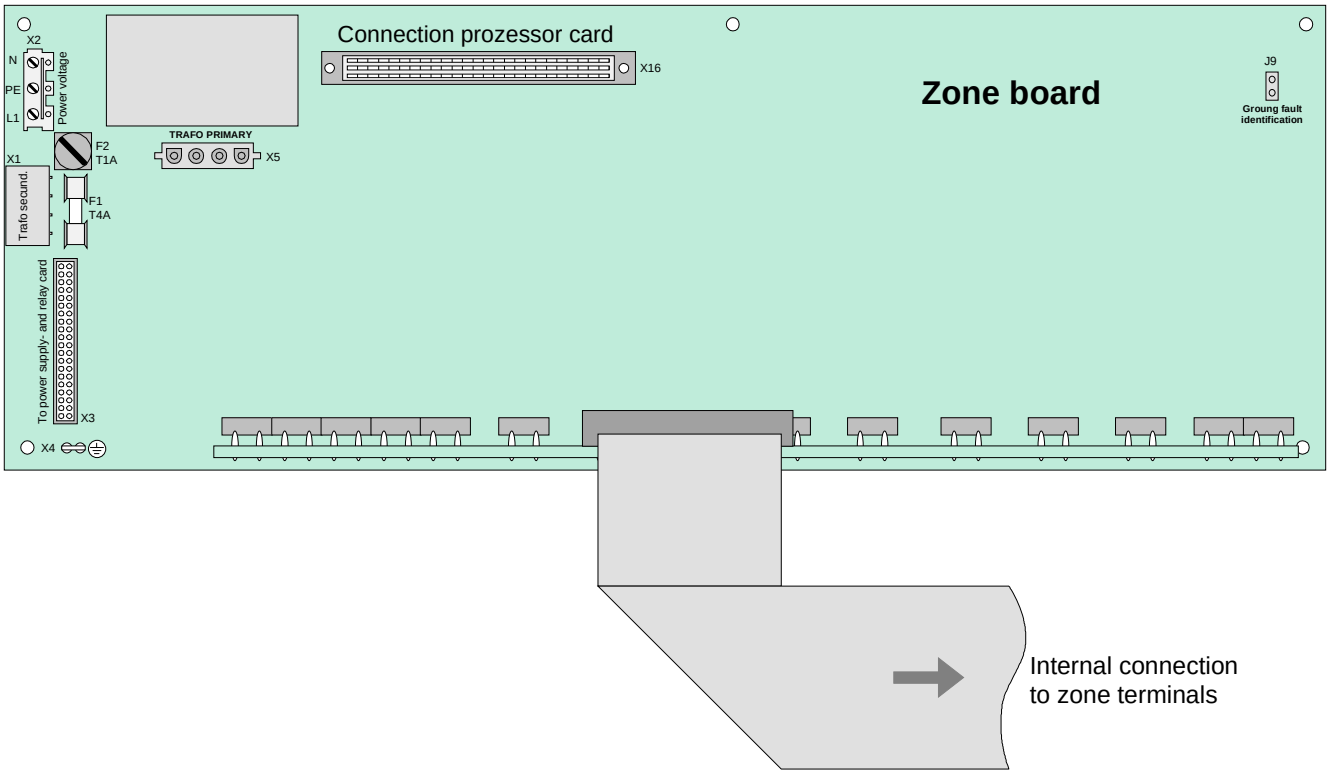



*Fig. 29: Zone board series 3 (Part No. 771789) / position of the subassemblies*

**Terminals**

The zone board is fully internal connected with the terminals of the mains supply voltage and the D-SUB board of the external terminal card connection.

Unused alarm zones should be programmed as >unused< in the customer data or fitted with a terminating resistor 4,7 K Ohm.

Do not connect fire detectors or technical alarm modules series 9000 / 9100.

Mixed operation of automatic fire detectors, and/or technical alarm modules or esserbus® transponders in a common detector zone is not permitted.

| | | |
|---|---|---|
| **F1** | Fuse 4 A, voltage supply of the zone board + 12 V DC / GND | |
| **F2** | Primary fuse T 1A /H 250 V | |
| **J9** | jumper open: Earth fault identification off<br>jumper closed: Earth fault identification on (factory setting) | |
| **X1** | Secondary transformer, 24 V DC, voltage supply of the zone board | |
| **X2** | Mains connection terminals 230 V AC (L1, N, PE), 50 Hz<br>Max. cable cross section of the mains supply cable1.5 $mm^2$ | |
| **X3** | Plug for the ribbon cable to the power supply unit and relay board | |
| **X4** | Plug-in contact for protective connection to the metal housing rear wall | |
| **X5** | Primary transformer 230 V AC, transformer voltage supply | |
| **X16** | 64-pole terminal strip for connecting to the processor board | |
| **Detector zone-No. 1 to 8** | Programming: esserbus® zone<br>Monitored detector zone to connect automatic fire detectors and series 9200 technical alarm modules as well as esserbus® transponders. (No End-of-line-resistor required) | Device with integrated isolator required |
| | Programming: Standard detector zone:<br>Conventional zone to connect external dry contacts | End-of-line resistor 4.7kΩ normal/ 1kΩ alarm |
| **Manual alarm** | Terminal for manual call points (manual detector zone) | End-of-line resistor 10kΩ normal / 1kΩ alarm |
| **Emergency Stop** | Terminal for push-button controls Emergency Stop zone | |
| **Extra release** | Terminal for push-button control (post-flooding zone) | |
| **Failure extinguishing system** | Terminal, e.g. for a release system or manual contact to monitor the extinguishing system | |
| **Blocking** | Terminal for a manual contact (e.g. shut-off cock in the pipe network) | |
| **MG 14, MG 15** | Monitored control inputs<br>MG14 ➔ Control input >Buzzer off<<br>MG15 ➔ Control input >Reset< | |

For mains voltage and protective earth connection, refer to the instructions in the chapter “Mains connection and earthing“.

**Automatic Fire alarm detectors series 9200 / IQ8Quad (only LMST 8010 - series 3)**

Connection of max. 30. automatic Fire alarm detectors series 9200 (with integrated isolator in the detector base) or 30 Fire alarm detectors IQ8Quad without alarm device (isolator integrated by factory default) per detector zone.

## Detector zone X

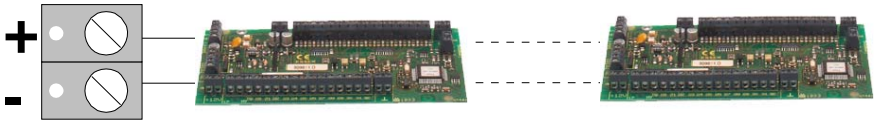

Only fire alarm detectors series 9000 could be connected to the detector zone inputs 1 to 8 of the **Extinguishing Control Computer 8010 - series 2**.

**esserbus® transponder (only LMST 8010 - series 3)**

Required operation mode programming ➔ esserbus®-zone

Connection of max. 30 esserbus® transponders (with isolator board) per detector zone input. The total number of outputs must not exceed 1000 outputs per Extinguishing Control Computer. Connected esserbus® transponders must be programmed as an esserbus® zone in the customer data.

## Detector zone X




**Connectable esserbus® transponders:**

| | |
|---|---|
| **Part No. 808610 / 808610.10** | esserbus® transponder 12 relays |
| **Part No. 808611 / 808611.10** | esserbus® transponder 32 Optocoupler |

**Technical Alarm Modules series 9200 / IQ8TAM (only LMST 8010 - series 3)**

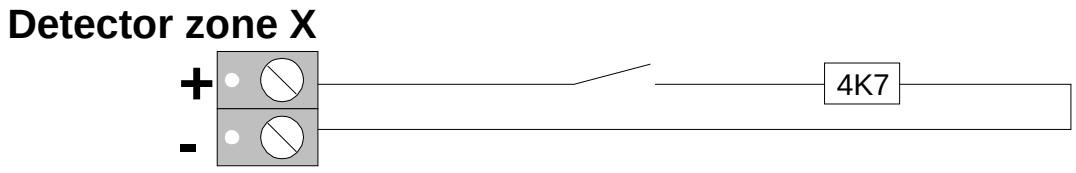
Required operation mode programming ➔ esserbus® zone

Connection of max. 30 technical alarm modules (with isolator) or IQ8TAM-modules per detector zone.


**External dry contacts (only LMST 8010 - series 3)**

Required operation mode programming ➔ Conventional zone

The connection of external dry contacts to a detector zone input is possible. At this it must be observed that the detector zone is terminated with a 4,7kΩ End-of-line resistor in the last device of the zone.



## 7.4 Terminal assignment of the zones

The external terminal card for he zone inputs of the Extinguishing Control Computer must be mounted on the C-rail of the 19-inch rack.

The external terminal cards of the manufactures type „Phoenix / Weco“ or „Weidmüller“ should be used fort his purpose. The following section describe the different terminal assignment for both types of the terminal card.

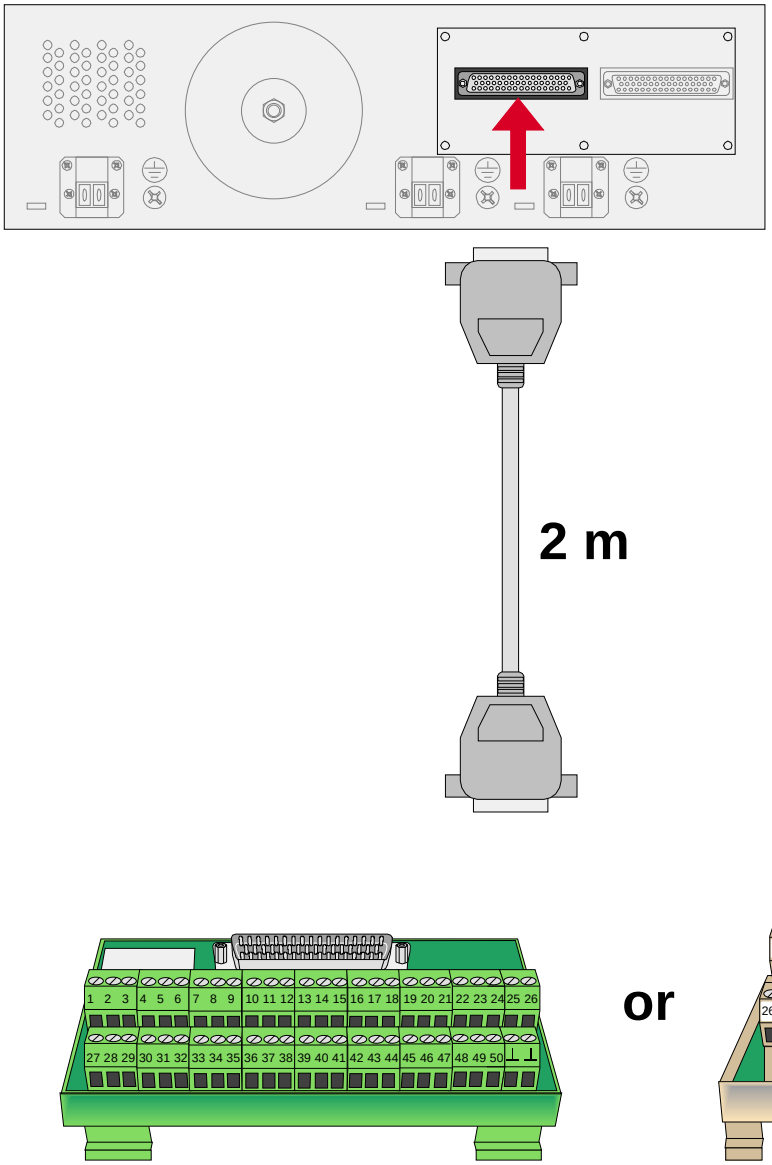



*Fig. 30: External C-rail terminal for zone inputs (manufacturer Phoenix, type FLKM-D50 SUB/S/MKKDS)*

or

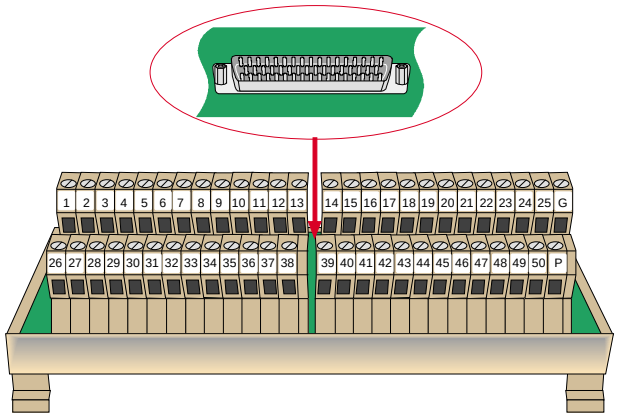



*Fig. 31: External C-rail terminal for zone inputs (manufacturer Weidmüller, type RSSD 50 S UNC LPK2)*

Ensure that only PIN compatible terminal cards are connected! Other types as the recommended terminal cards in this manual must be applied only with a confirmation of the technical sales department or customer service.

### 7.4.1 Zone-terminal card (type Phoenix / Weco)

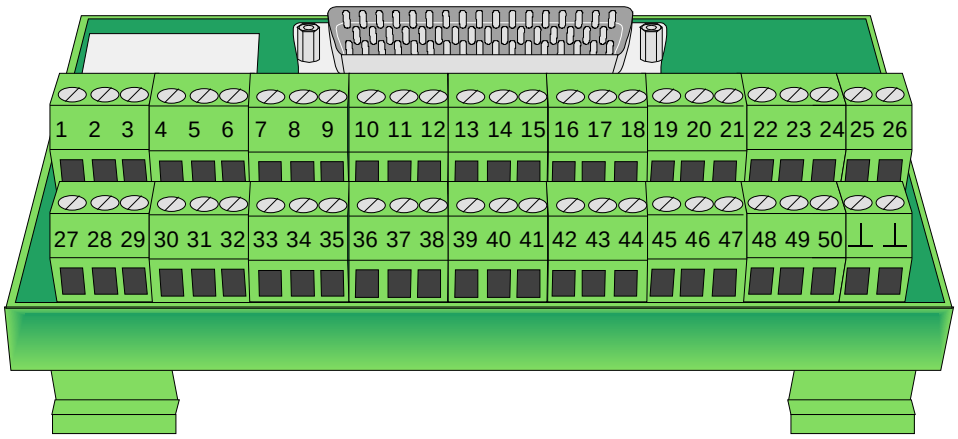



*Fig. 32: External C-rail terminal card for zone inputs (manufacturer Phoenix / Weco)*

| No. | Terminal | No. | Terminal |
|---|---|---|---|
| **1** | Detector zone DZ1- | **27** | Shielding |
| **2** | Detector zone DZ1+ | **28** | Shielding |
| **3** | Detector zone DZ2- | **29** | DZ9- (manual alarm) |
| **4** | Detector zone DZ2+ | **30** | DZ9+ (manual alarm) |
| **5** | Detector zone DZ3- | **31** | DZ10- (emergency stop) |
| **6** | Detector zone DZ3+ | **32** | DZ10+ (emergency stop) |
| **7** | Detector zone DZ4- | **33** | Shielding |
| **8** | Detector zone DZ4+ | **34** | Shielding |
| **9** | Detector zone DZ5- | **35** | DZ11- (extra release) |
| **10** | Detector zone DZ5+ | **36** | DZ11+ (extra release) |
| **11** | Detector zone DZ6- | **37** | DZ12- (blocking) |
| **12** | Detector zone DZ6+ | **38** | DZ12+ (blocking) |
| **13** | Shielding | **39** | DZ13- (failure extinguishing system) |
| **14** | Shielding | **40** | DZ13+ (failure extinguishing system) |
| **15** | Detector zone DZ7- | **41** | DZ14- (buzzer off) |
| **16** | Detector zone DZ7+ | **42** | DZ14+ (buzzer off) |
| **17** | Detector zone DZ8- | **43** | DZ15- (reset) |
| **18** | Detector zone DZ8+ | **44** | DZ15+ (reset) |
| **19** | Shielding | **45** | Shielding |
| **20** | Shielding | **46** | Shielding |
| **21** | esserbus UL- in | **47** | Battery 1- (of an external battery) |
| **22** | esserbus UL+ in | **48** | Battery 2- (of an external battery) |
| **23** | esserbus UL- out | **49** | Battery 1+ (of an external battery) |
| **24** | esserbus UL+ out | **50** | Battery 2+ (of an external battery) |
| **25** | Shielding | ⊥ | Shielding |
| **26** | Shielding | ⊥ | Shielding |

## 7.4.2 Zone-terminal card (type Weidmüller)

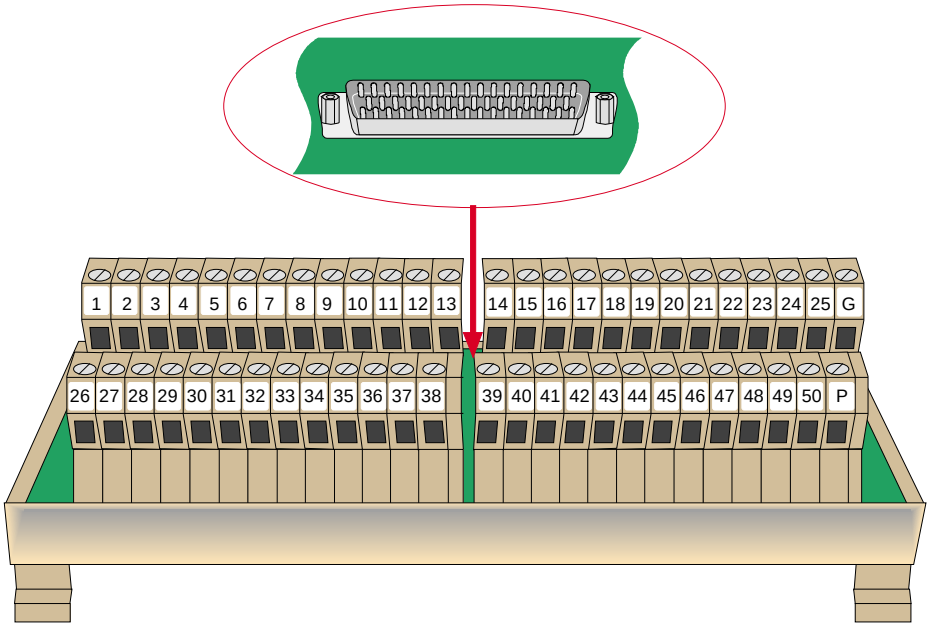



*Fig. 33: External C-rail terminal card for zone inputs (manufacturer Weidmüller)*

| No. | Terminal | No. | Terminal |
|---|---|---|---|
| **1** | Detector zone DZ1- | **26** | Shielding |
| **2** | Detector zone DZ1+ | **27** | Shielding |
| **3** | Detector zone DZ2- | **28** | Shielding |
| **4** | Detector zone DZ2+ | **29** | DZ9- (manual alarm) |
| **5** | Detector zone DZ3- | **30** | DZ9+ (manual alarm) |
| **6** | Detector zone DZ3+ | **31** | DZ10- (emergency stop) |
| **7** | Detector zone DZ4- | **32** | DZ10+ (emergency stop) |
| **8** | Detector zone DZ4+ | **33** | Shielding |
| **9** | Detector zone DZ5- | **34** | Shielding |
| **10** | Detector zone DZ5+ | **35** | DZ11- (extra release) |
| **11** | Detector zone DZ6- | **36** | DZ11+ (extra release) |
| **12** | Detector zone DZ6+ | **37** | DZ12- (blocking) |
| **13** | Shielding | **38** | DZ12+ (blocking) |
| | | | |
| **14** | Shielding | **39** | DZ13- (failure extinguishing system) |
| **15** | Detector zone DZ7- | **40** | DZ13+ (failure extinguishing system) |
| **16** | Detector zone DZ7+ | **41** | DZ14- (buzzer off) |
| **17** | Detector zone DZ8- | **42** | DZ14+ (buzzer off) |
| **18** | Detector zone DZ8+ | **43** | DZ15- (reset) |
| **19** | Shielding | **44** | DZ15+ (reset) |
| **20** | Shielding | **45** | Shielding |
| **21** | esserbus UL- in | **46** | Shielding |
| **22** | esserbus UL+ in | **47** | Battery 1- (of an external battery) |
| **23** | esserbus UL- out | **48** | Battery 2- (of an external battery) |
| **24** | esserbus UL+ out | **49** | Battery 1+ (of an external battery) |
| **25** | Shielding | **50** | Battery 2+ (of an external battery) |
| **G** | Shielding | **P** | do not connect |

### 7.4.3 Detector zones 1 to 8

Only fire alarm detector series 9000/9100 may be connected to the detector zone inputs 1 to 8 of the Extinguishing Control Computer 8010- 19-inch series 3 (refer to the appropriate section “zone board series 2 or series 3”).

| | |
|---|---|
| Recommended cable: | I-Y (St) Y n x 2 x 0,8 mm |
| Cable length per detector zone: | max. 1000 m |

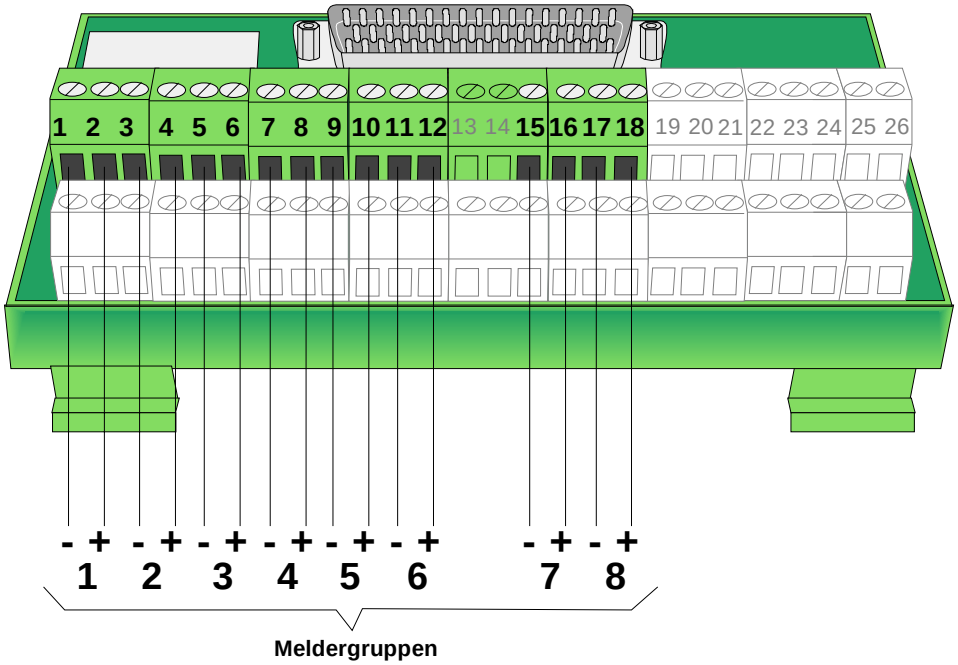



*Fig. 34: Position of the detector zone inputs 1 to 8 on the zone terminal card (type Phoenix / Weco)*

**Special application fort he detector zones 7 and 8 (operation mode = conventional zone)**

**Detector zone 7**
Operation mode ➔ Reserve-zone
In the normal operation mode of the >Reserve zone< the >Pilot valve< is used to control the extinguishing agent tank. In case of an activated >Reserve zone< the >Spare valve> is used instead.

**Detector zone 8**
Operation mode ➔ Detector type >Flow control sensor<
This zone input is suited to connect >Flow control sensor< to monitor the pipe system. For this application the zone input must be programmed with the functionality >Flow control sensor<.
End-of-line resistor : 4,7kΩ normal / 1kΩ activation

**Requirements for automatic detector zones**
The activation of a Fire Extinguishing System via automatic fire detector zones requires a >Two-zone-coincidence< (2ZD) or >Two-detector-coincidence< (2DD).

**Programming**
The detector zones 1 to 8 are configured with the programming software LKDE from version V02.00.

### 7.4.4 Operating modes of the detector zones

With the operating modes of the detector zones, a distinction is made between >direct< alarming, >alarm verification> (AVer), the >Two-zone- coincidence< (2ZD) and the >Two-detector-coincidence< (2DD).

**Direct alarming**
When an alarm in this zone is triggered, the output is triggered directly without a delay. In the case of manual call points, direct alarming is absolutely essential.

**Alarm verification (AVer)**
With the aid of this operating mode, it is determined whether an alarm of this automatic detector zone should be temporarily delayed before it is forwarded. The alarm verification delay can be selected for a period of 10 to 60 seconds.

Triggering of an detector zone with an alarm verification time does not directly result in an alarm on the panel. The triggered zone is automatically reset. If this is not successful because, for example, the cause of the triggering of an alarm in this zone has not been dealt with, the triggering of the zone results in an alarm after the verification delay expires. However, if the triggered zone can be reset inside the delay time, no alarm occurs. The alarm verification delay is used to prevent incorrect alarms.

In accordance to the VDE 0833-2 guideline an alarm verification delay must not exceed 10 seconds!

**Two-detector- coincidence (2DD)**
With this operating mode, an alarm is only triggered if at least two detectors in the same zone report the status *Fire*. The 2DD-mode is used for monitoring critical areas.
Triggering of an automatic fire alarm in an detector zone with the 2DD-mode does not directly result in the alarm. Only triggering of a second automatic alarm in this zone results in an external alarm. If no second alarm is triggered within approximately 30 seconds after the first alarm is triggered, "an internal alarm" occurs. In this case, all alarm devices are activated, apart from the Fire department notifying system.

With automatic detector zones, activation of an extinguishing system may always only occur with a 2DD- coincidence or a 2ZD- coincidence.

**Two-zone-coincidence (2ZD)**

The triggering of an automatic detector zone with a 2ZD function does not directly result in the alarm. An external alarm only occurs when an associated second automatic detector zone is triggered.

If no associated zone is triggered inside approximately 30 seconds after the first detector zone is triggered, the result is “an internal alarm“. This involves all alarm devices being activated, apart from the Fire department notifying system. The 2ZD-function is used for monitoring critical areas.

The two-zone- coincidence (2ZD) can be programmed with 4 2ZD areas (A, B, C, D) and 4 different levels:

| 2ZD level | 1st triggered zone | 2nd triggered zone |
|---|---|---|
| 2ZD 1 | Fire | Fire |
| 2ZD 2 | Fire or fault | Fire |
| | Fire | Fault |
| 2ZD 3 | Fire or fault | Fire |
| 2ZD 4 | Fire | Fire or fault |

In the case of automatic detector zones, activation of an extinguishing system may only take place with a 2ZD coincidence or a two-detector- coincidence (2DD).

### 7.4.5 Technical zones

Five technical zones are available for non-automatic detectors (manual call points, push-button controls) and inputs for connecting external dry contacts.

Each technical zone must be terminated in the last device with a 10 kΩ End-of-line resistor. Unused zone inputs must also be connected with a 10 kΩ End-of-line resistor.

Recommended cable: I-Y (St) Y n x 2 x 0,8 mm
Cable length per input: max. 1000 m

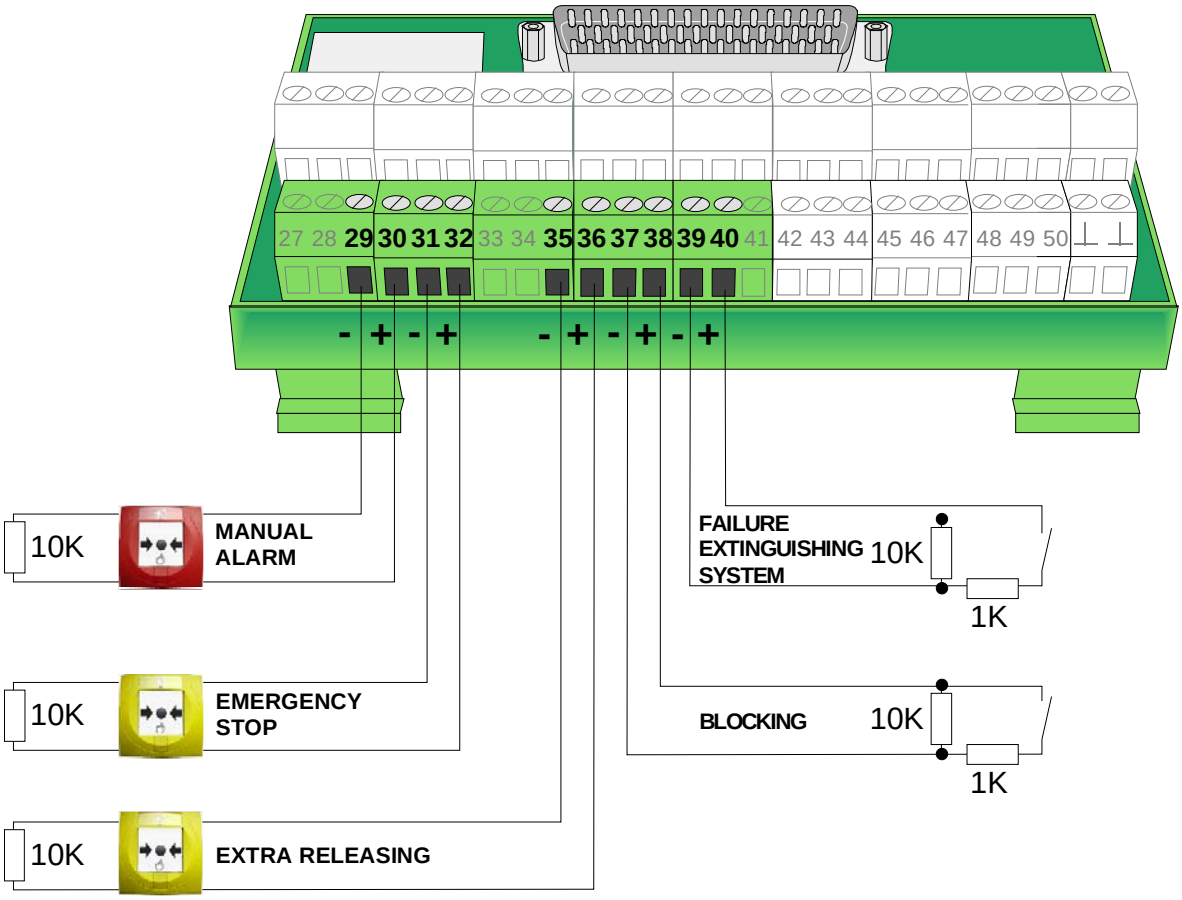



*Fig. 35: Connecting the technical zones at the external zone terminal card (type Phoenix / Weco)*

| | | |
|---|---|---|
| **Manual alarm** | Connection of manual call points (Manual detector zone) | End-of-line resistor 10kΩ normal / 1kΩ activation |
| **Emergency Stop** | Connection of push-button controls (Emergency Stop zone) | |
| **Extra release** | Connection of push-button controls (Extra release zone) | |
| **Blocking** | Connection of mechanical switch contacts (e.g. cut-off cocks / faucets) for monitoring deluge / release flow (blocking zone). | |
| **Failure extinguishing system** | Connection of push-button control or trouble contact of the connected fire extinguishing system | |

It is not possible to connect addressable automatic detectors (EDD) and conventional automatic detectors with switch-on-control operation (SOC) to this system.

**Manual detector zone**

Input for connecting manual call points (MCP).

A fire alarm is signalled if the zone is triggered before the evacuation alarm.
If the zone is triggered after the start of the evacuation alarm period, this triggering is regarded as a post-flooding command provided that the post-flooding function is enabled. Otherwise, the triggering is evaluated as a fire alarm.

Possible operating modes: >Direct< or >Alarm verification<
Monitoring: 10kΩ normal / 1kΩ activated

**Emergency Stop zone**

Input for connecting Emergency Stop controls (push-button controls).

When an extinguishing alarm is triggered, activation of the valves can be prevented during the evacuation alarm period by continuously pressing the Stop button. The activated evacuation alarm period is not influenced.
When the Stop button is released, flooding is triggered after the evacuation alarm period. Activation of this zone is indicated constantly on the control panel by the illuminated LED “Emergency Stop“.

In the event of a failure or if the zone is deactivated, the extinguishing outputs are not triggered.
The fault or deactivation is shown on the control panel. The trouble of the zone is latching.

Possible operating mode: >Direct<
Monitoring: 10kΩ normal / 1kΩ activated

**Extra release zone**

Input for connecting post-flooding buttons.

Post-flooding can be initiated via this input. The valves are then activated for the duration of the programmed post-flooding time. A condition for triggering of the extra-release-zone is that the fire alarm is still present, the initial flooding has already been completed and the visual/audible alarming has not yet been reset.

Possible operating mode: >Direct<
Monitoring: 10kΩ normal / 1kΩ activated

**Trouble zone**

Inputs for connecting trouble alarm contacts of the extinguishing system, e.g. weighing contacts.

Triggering of the zone results in a system failure message. Zone-related relays can also be activated

Possible operating mode: >Direct<
Monitoring: 10kΩ normal / 1kΩ activated

**Blocking zone**

Input for connecting mechanical switch contacts (e.g. cutoff cocks / valves) for monitoring deluge / release flow.

Triggering of the zone results in a system fault message. Zone-related relays can also be activated

Possible operating mode: >Direct<
Monitoring: 10kΩ normal / 1kΩ activated

### 7.4.6 Control input MG14 and MG15

Control inputs to connect external dry contact for the required switch mode.

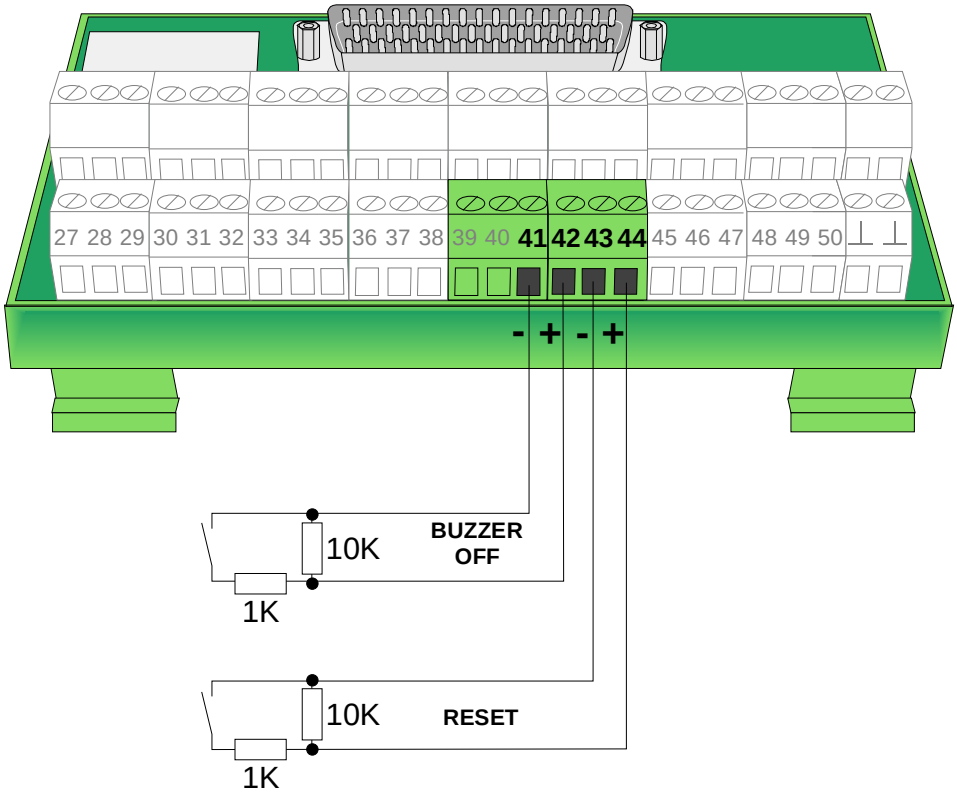



*Fig. 36: Control input MG14 and MG15 at the external zone terminal card (type Phoenix / Weco)*

**Buzzer off (MG14)**

Input to quit the internal buzzer with an external switch. Disabling the buzzer is possible at any time, identical to the button >buzzer off< on the operation panel. This input can not be disabled at the control panel.

A common fault message is displayed at the control panel if a failure occurs for this input. The fault message is latching until the panel is resetted.
It is not permitted to connect addressable automatic detectors to this input.

Possible operating mode: >Direct<

**Reset (MG15)**

Input to reset the panel with an external switch. The activation of this input performs a panel reset if the panel is in an appropriate operation status. This input is identical to the button >panel reset< on the operation panel. To reset the system during the activated extinguishing time is not possible.

A common fault message is displayed at the control panel if a failure occurs for this input. The fault message will be displayed until it has been acknowledged.

It is not permitted to connect addressable automatic detectors to this input.

Possible operating mode: >Direct<

## 7.5 Power supply unit board and relay board

The combined power supply unit and relay board provides the entire voltage supply as well as the 13 Relay outputs for control and status functions of the Extinguishing Control Computer 8010. The 230V AC mains voltage must be connected to the appropriate terminals on the housings rear side and must **NOT** be connected to the power supply and relay board in the panel. An increased current requirement e.g. as a result of longer cable lengths, must be compensated for if necessary by an external voltage supply via a separate power supply unit.

The power supply of the Extinguishing Control Computer 8010 is monitored continuously of:

- Mains failure
- Battery charge
- Battery charge, current limited
- Earth fault identification (insulation)

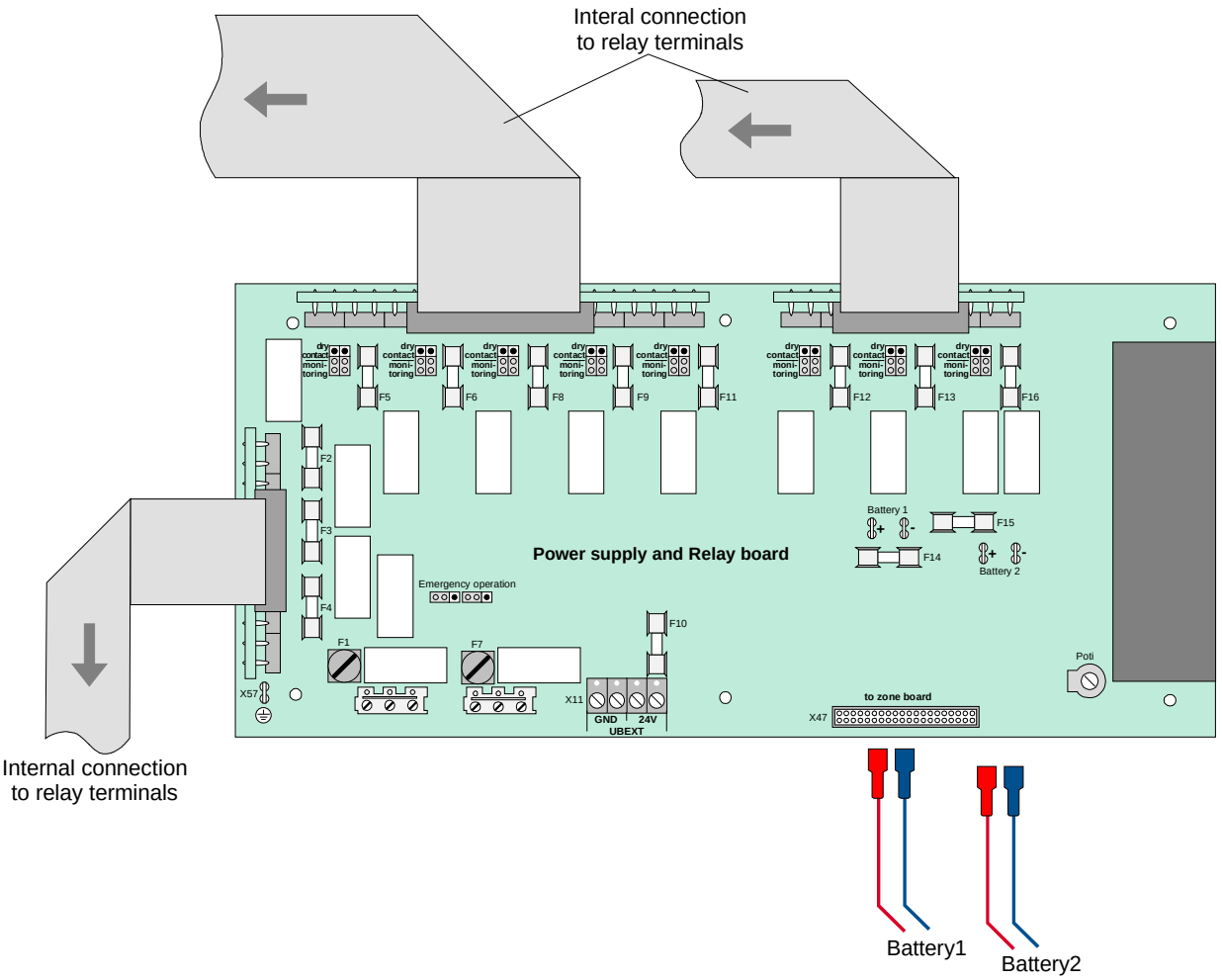



*Fig. 37: Power supply unit and relay board*

### Terminals

The power supply and relay board is internally wired with the 50-pole D-SUB plug to connect the external terminal card with the relay terminals 1 to 11 and both terminals of the mains voltage relays 12 and 13 at the housings rear side.

### Relay outputs

The power supply unit and relay board of the Extinguishing Control Computer provides 13 relay outputs for switching and control functions. Status functions such as faults, deactivations, common fire or others of the possible switching conditions can be assigned to the relays, whereby an OR logic operation of the individual functions can also be programmed. All relay outputs are protected with separate melting fuses. The activation time and the duration of each relay is programmable with the programming software.

| | | | | |
|---|---|---|---|---|
| **Low-voltage Relay** | | | | |
| **Relay 1** | ➔ FuseF16 | T2 A /250 V | Monitoring (factory setting) or dry contact | Contact rating 30 V DC / 2 A |
| **Relay 2** | ➔ FuseF13 | | | |
| **Relay 3** | ➔ FuseF12 | | | |
| **Relay 4** | ➔ FuseF11 | | | |
| **Relay 5** | ➔ FuseF9 | | | |
| **Relay 6** | ➔ FuseF8 | | | |
| **Relay 7** | ➔ FuseF6 | | | |
| **Relay 8** | ➔ FuseF5 | | | |
| **Relay 9** | ➔ FuseF2 | T2 A /250 V | dry contact | |
| **Relay 10** | ➔ FuseF3 | | | |
| **Relay 11** | ➔ FuseF4 | | | |
| **Mains voltage Relay** | | | | |
| **Relay 12** | ➔ FuseF1 | T3,15 A /250 V | dry contact | Contact rating 230 V AC / 2 A |
| **Relay 13** | ➔ FuseF7 | | | |

| | |
|---|---|
| **F10** | Fuses of the supply voltage for external units, UBext, T 3,15 A / 250 V |
| **F14, F15** | Fuses of the emergency power supply (battery 1 + 2)<br>Battery 1: F14, T 3,15 A / 250 V<br>Battery 2: F15, T 3,15 A / 250 V |
| **J1 to J4, J6, J8 to J13, J18** | Jumpers to program the operating mode for relay 1 to 8, selectable to monitoring or dry contact.<br>**Factory setting = monitored relay** |
| **J5 (Relay 11)** | Jumper to set the CPU-failure-mode function for relay 11 >Emergency operation fault<<br>Inactive = CPU-failure-mode function deactivated (factory setting)<br>Active = CPU-failure-mode function activated |
| **J7 (Relay 10)** | Jumper to set the CPU-failure-mode function for relay 10 >Emergency operation fire<<br>Inactive = CPU-failure-mode function deactivated (factory setting)<br>Active = CPU-failure-mode function activated |
| **Poti** | Potentiometer for adjusting the battery charging voltage 27.5 V DC (@ 25°C) |
| **X47** | Terminal for the ribbon cable to the zone board |
| **X57** | Plug for PE connection to the housings rear side |
| **X11 / $UB_{EXT}$** | Terminals for the Supply voltage for external units +24 V DC / GND |

### 7.5.1 Terminal assignment of the relays

The external terminal card for he relays of the Extinguishing Control Computer must be mounted on the C-rail of the 19-inch rack.

The external terminal cards of the manufactures type „Phoenix / Weco“ or „Weidmüller“ should be used fort his purpose. The following section describe the different terminal assignment for both types of the terminal card.

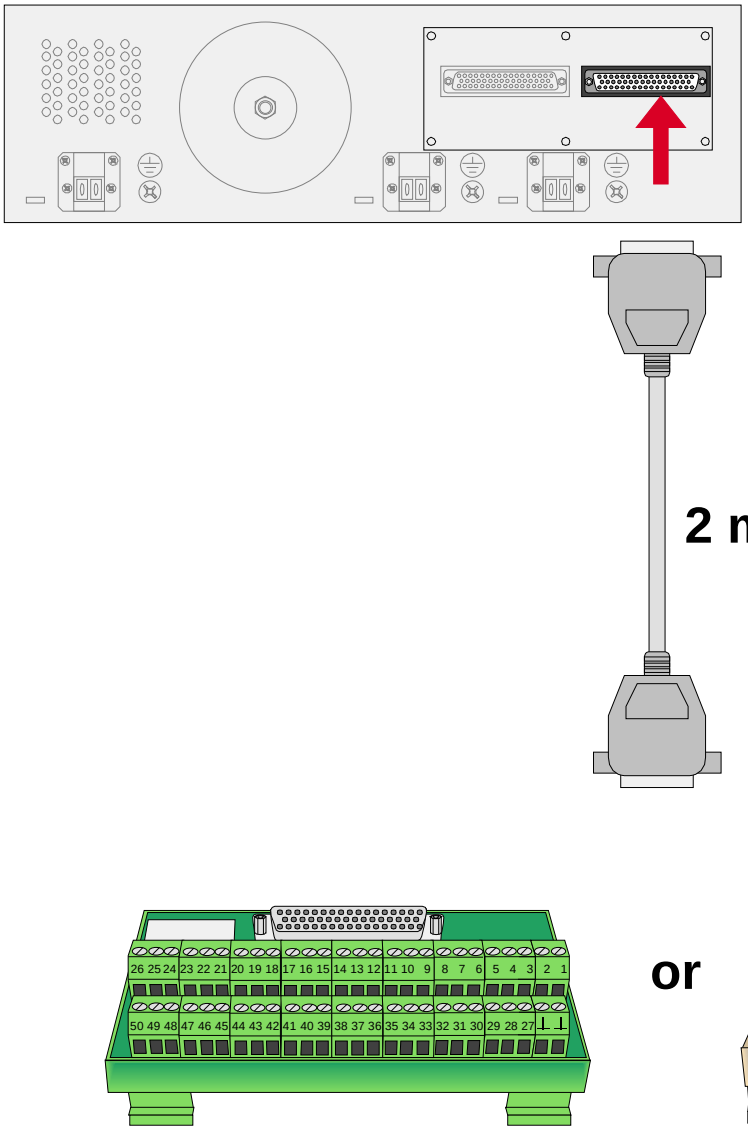



*Fig. 38: External C-rail terminal for relays (manufacturer Phoenix, type FLKM-D50 SUB/B/MKKDS)*

or

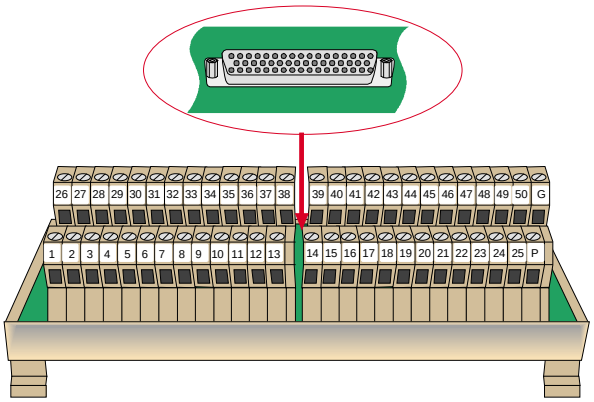
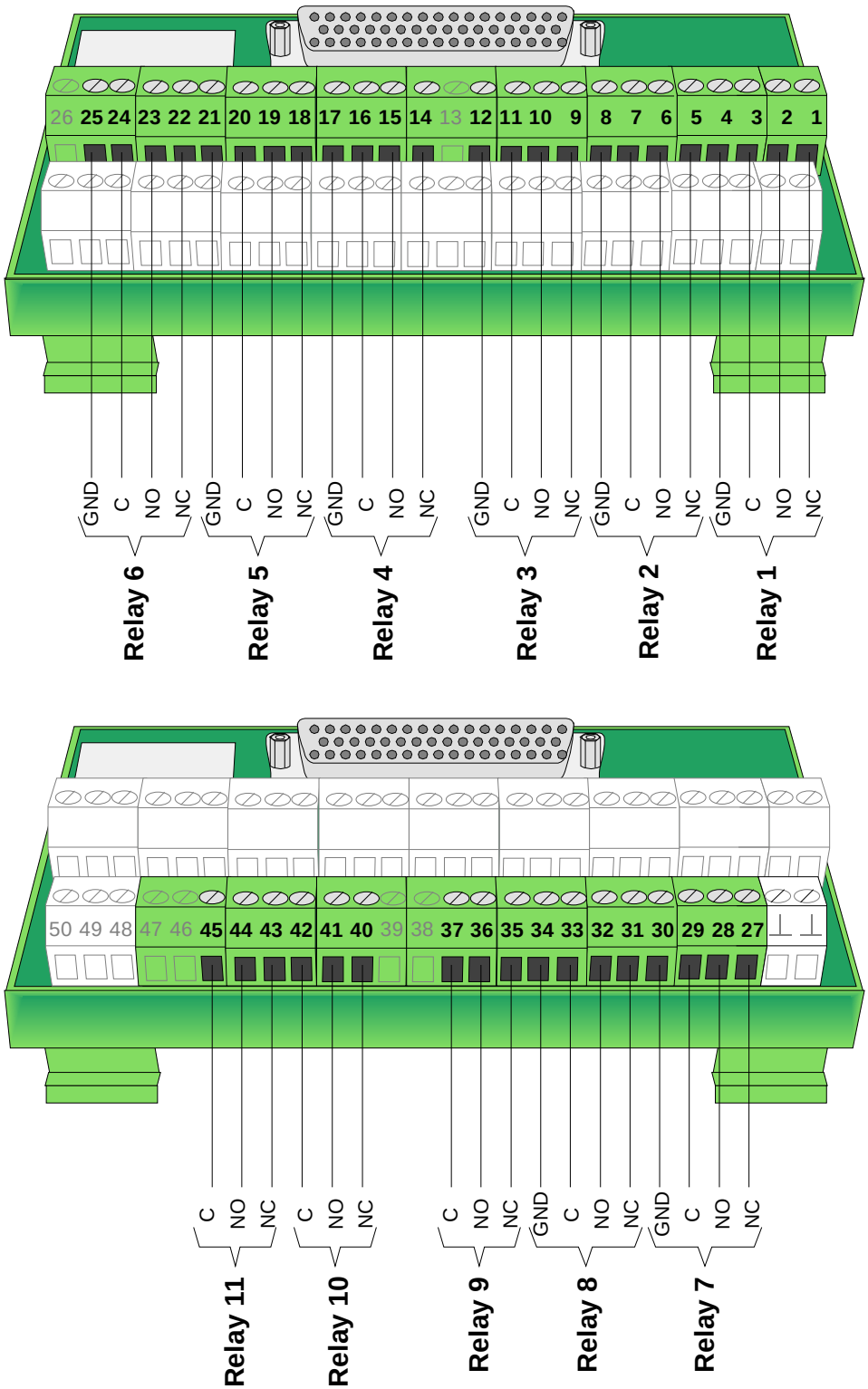



*Fig. 39: External C-rail terminal for relays (manufacturer Weidmüller, type RSSD 50 B UNC LPK2)*

The relays 1 to 11 must not be connected to high voltages even in the dry contact mode. Switching an alternating voltage with the relays 1 to 11 is not permissible!

Ensure that only PIN compatible terminal cards are connected. Other types as the recommended terminal cards in this manual must be applied only with a confirmation of the technical sales department or customer service.

### 7.5.1.1 Relay –terminal card (type Phoenix / Weco)

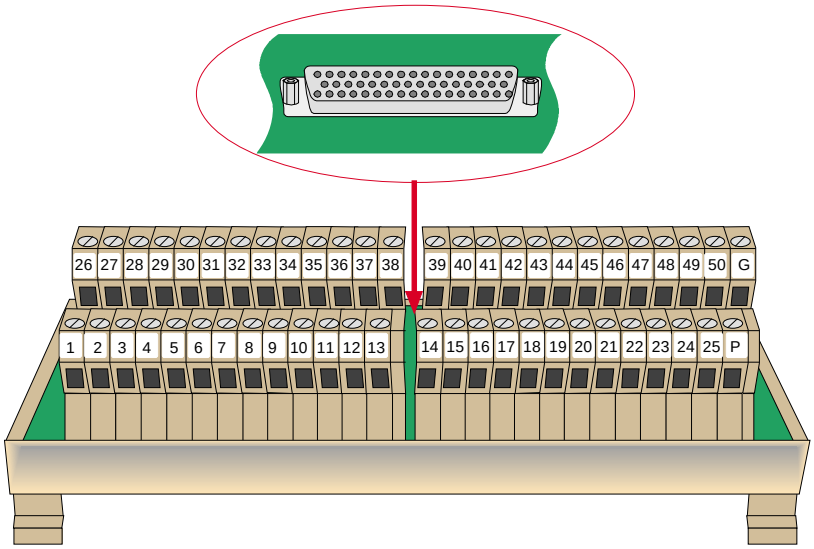



The terminals of the both mains voltage relay 12 and 13 are mounted at the rear side of the housing

**Relay –terminal card (type Phönix / Weco)**

| No. | Terminal | No. | Terminal |
|---|---|---|---|
| **1** | Relay 1 NC | **27** | Relay 7 NC |
| **2** | Relay 1 NO | **28** | Relay 7 NO |
| **3** | Relay 1 C/24V | **29** | Relay 7 C/24V |
| **4** | Relay 1 GND | **30** | Relay 7 GND |
| **5** | Relay 2 NC | **31** | Relay 8 NC |
| **6** | Relay 2 NO | **32** | Relay 8 NO |
| **7** | Relay 2 C/24V | **33** | Relay 8 C/24V |
| **8** | Relay 2 GND | **34** | Relay 8 GND |
| **9** | Relay 3 NC | **35** | Relay 9 NC |
| **10** | Relay 3 NO | **36** | Relay 9 NO |
| **11** | Relay 3 C/24V | **37** | Relay 9C |
| **12** | Relay 3 GND | **38** | Shielding |
| **13** | Shielding | **39** | Shielding |
| **14** | Relay 4 NC | **40** | Relay 10 NC |
| **15** | Relay 4 NO | **41** | Relay 10 NO |
| **16** | Relay 4 C/24V | **42** | Relay 10 C |
| **17** | Relay 4 GND | **43** | Relay 11 NC |
| **18** | Relay 5 NC | **44** | Relay 11 NO |
| **19** | Relay 5 NO | **45** | Relay 11 C |
| **20** | Relay 5 C/24V | **46** | GND |
| **21** | Relay 5 GND | **47** | GND |
| **22** | Relay 6 NC | **48** | UBext |
| **23** | Relay 6 NO | **49** | UBext |
| **24** | Relay 6 C/24V | **50** | 12V |
| **25** | Relay 6 GND | ⊥ | Shielding |
| **26** | Shielding | ⊥ | Shielding |

### 7.5.1.2 Relay – terminal card (type Weidmüller)




**Relay – terminal card (type Weidmüller)**

| No. | Terminal | No. | Terminal |
|---|---|---|---|
| **1** | Relay 1 NC | **26** | Shielding |
| **2** | Relay 1 NO | **27** | Relay 7 NC |
| **3** | Relay 1 C/24V | **28** | Relay 7 NO |
| **4** | Relay 1 GND | **29** | Relay 7 C/24V |
| **5** | Relay 2 NC | **30** | Relay 7 GND |
| **6** | Relay 2 NO | **31** | Relay 8 NC |
| **7** | Relay 2 C/24V | **32** | Relay 8 NO |
| **8** | Relay 2 GND | **33** | Relay 8 C/24V |
| **9** | Relay 3 NC | **34** | Relay 8 GND |
| **10** | Relay 3 NO | **35** | Relay 9 NC |
| **11** | Relay 3 C/24V | **36** | Relay 9 NO |
| **12** | Relay 3 GND | **37** | Relay 9C |
| **13** | Shielding | **38** | Shielding |
| | | | |
| **14** | Relay 4 NC | **39** | Shielding |
| **15** | Relay 4 NO | **40** | Relay 10 NC |
| **16** | Relay 4 C/24V | **41** | Relay 10 NO |
| **17** | Relay 4 GND | **42** | Relay 10 C |
| **18** | Relay 5 NC | **43** | Relay 11 NC |
| **19** | Relay 5 NO | **44** | Relay 11 NO |
| **20** | Relay 5 C/24V | **45** | Relay 11 C |
| **21** | Relay 5 GND | **46** | GND |
| **22** | Relay 6 NC | **47** | GND |
| **23** | Relay 6 NO | **48** | UBext |
| **24** | Relay 6 C/24V | **49** | UBext |
| **25** | Relay 6 GND | **50** | 12V |
| **P** | do not connect | **G** | Shielding |

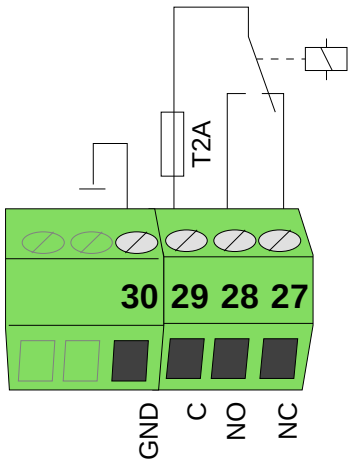
The terminals of the both mains voltage relay 12 and 13 are mounted at the rear side of the housing

## 7.5.2 Relay outputs 1 to 8

Free programmable relays for low voltages (max. 30 V DC / 2A).
The relay mode can be configured via a jumper to >positive switching/monitoring< or >dry contact<.

**Example with Relay 7 ➔ dry contact (Relay terminal card type Phoenix)**

Terminal card




Power supply and relay board

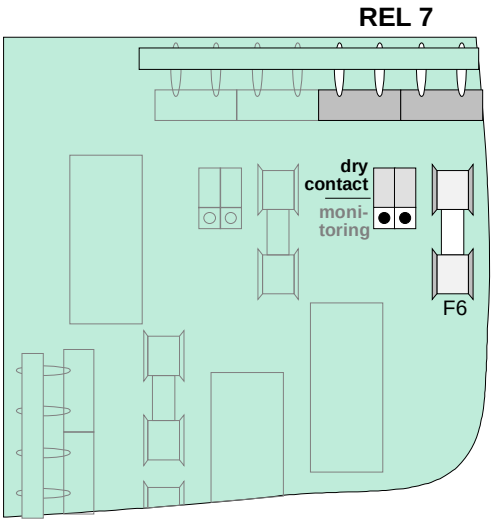
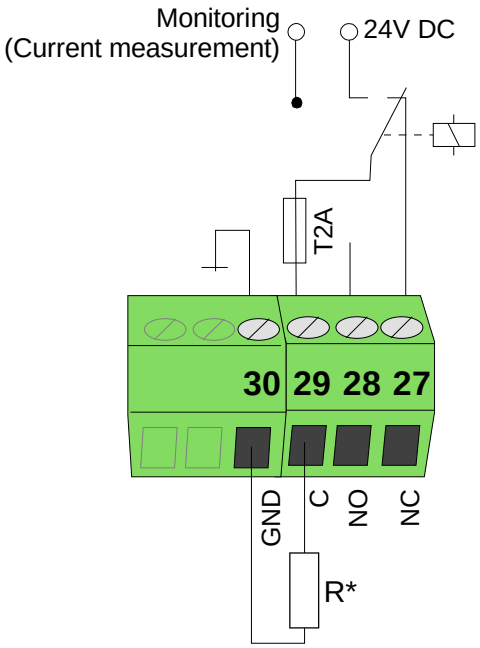



*Fig. 40: Schematic wiring of the dry contact mode – position of jumpers*

**Example with Relay 7 ➔ positive switching/monitoring (Relay terminal card Type Phoenix)**

The cable to the external connected device is monitored in this operation mode.

Terminal card




Power supply and relay board

Jumper for relay 7 in Pos. „monitoring“

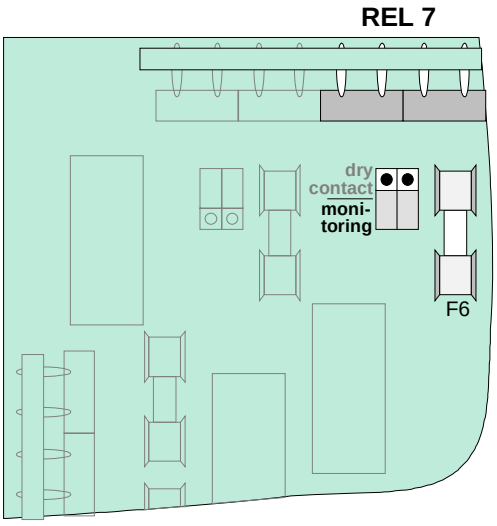
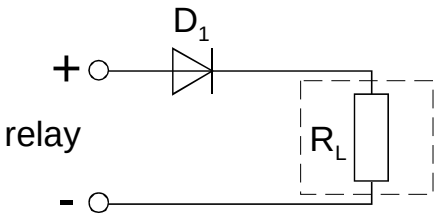


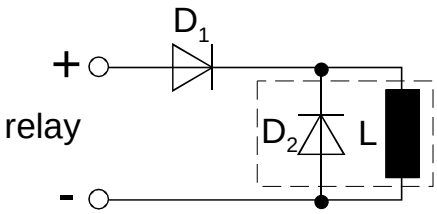

*Fig. 41: Schematic wiring of the t "positive switching/monitoring“ mode – position of jumpers*

In case of an associated event, the relay is activated and the voltage (24 V DC) is switched to the external unit. In the resting state, a voltage of approximately 1 V DC to 2 V DC must be present at the relay terminals during the monitored mode.

This requires an external connection, depending on the application:




$R_L$ = low-resistance load R < 300 Ohm
$D_1$ = series diode BY251 (notice relays current max. 2 A)




L = inductive load
$D_1$ = series diode BY251 (notice relays current max. 2 A)
$D_2$ = recovery diode e.g. 1N4007 o.ä.


$R_L$ = high-resistance load > 2 kOhm
R = parallel resistor 2 kOhm

*Fig. 42: Positive-switching / monitoring mode (Schematic wiring)*

Only silicon diodes type BY251 must be used for this application!

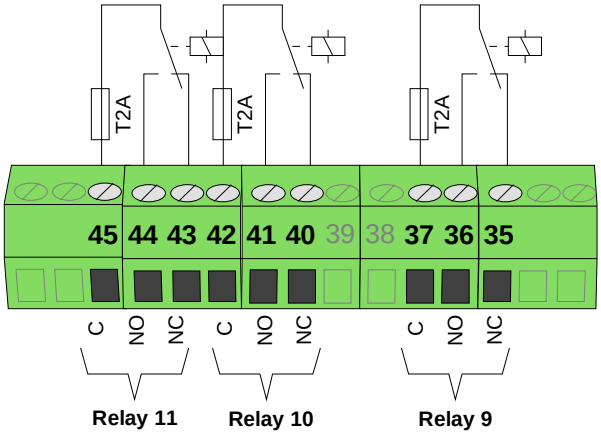
### 7.5.3 Relay outputs, 10 and 11

Free programmable, dry contact relays for low voltages.

The two relays 10 and 11 can be configured for the emergency operation via the appropriate jumpers. During emergency operation, the corresponding relay mode is permanently assigned to the two relays. In a CPU-failure-mode of the system these relays are activated.

**Wiring of relay 9, 10 and 11 (Relay-terminal card type Phoenix)**

Terminal card




Power supply and relay board

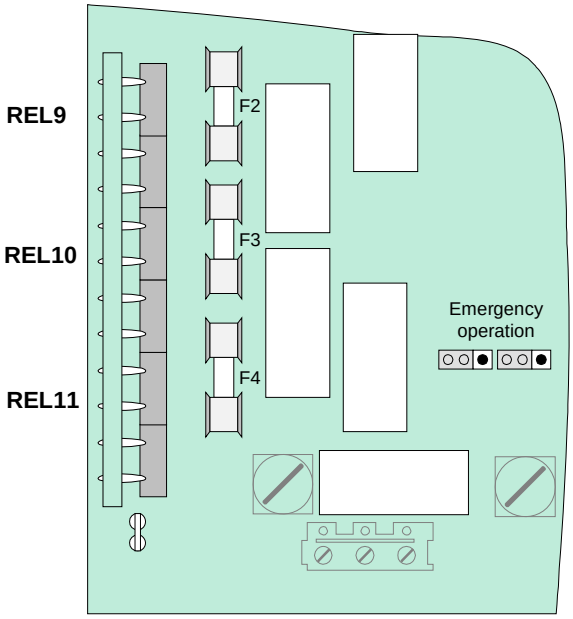



*Fig. 43: Schematic wiring of the three dry contact relays 9, 10 and 11*

| | | |
|---|---|---|
| **Relay 9** | Without CPU-failure-mode capability | Changeover contacts, contact rating max. 30 V DC / 2 A |
| **Relay 10** | Relays for low voltages without emergency operation mode or selectable via jumper setting for >Emergency operation fire< (refer to section “Emergency operation“) | |
| **Relay 11** | Relays for low voltages without emergency operation mode or selectable via jumper setting for >Emergency operation trouble< (refer to section “Emergency operation“) | |

### 7.5.4 Relay outputs 12 and 13 (Power supply relay)

An alternating voltage up to 230 V AC can be switched with the two programmable relays 12 and 13 (NO contacts) via an external supply cable.

The relay terminals are placed at the housings rear side. For each relay terminal a separate PE-connector ① and a cord grip ② is available.

Relay type: Dry contact (NO)

Contact rating: max. 230 V AC / 2 A

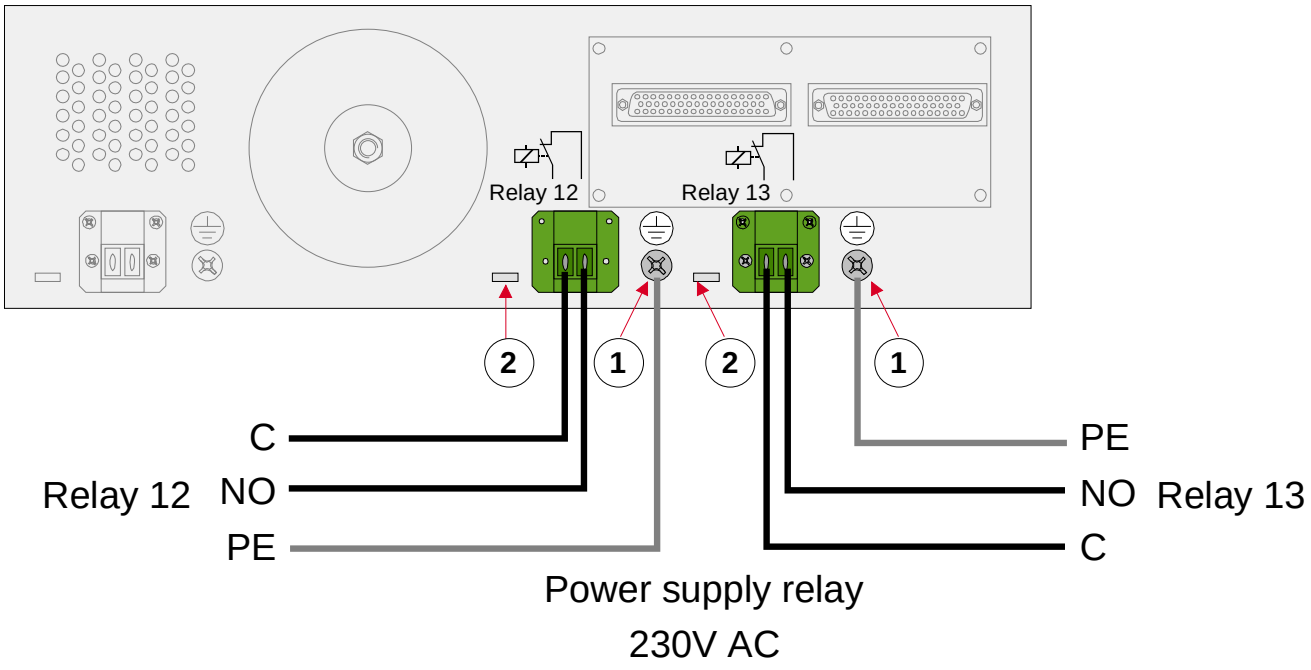



*Fig. 44: Schematic wiring of the relays no. 12 and 13*

| | |
|---|---|
| ① | For each connected power cable to the relay 12 and 13 a separate PE-cable must be connected to the relating PE-terminal on the housings rear side. |
| ② | Cord grip |

The mains supply voltage may be present at the relay terminals 12 and 13 even if the main power supply is interrupted !
To switch external connected alternating voltages with relay 12 or 13 only suitable cable with separate protective earth conductor (PE) must be used.

## 7.6 Standardized Interface - Extinguishing

With this application it is possible to realize standardized interface >extinguishing< in accordance to the VdS 2540 requirements for Extinguishing control systems.

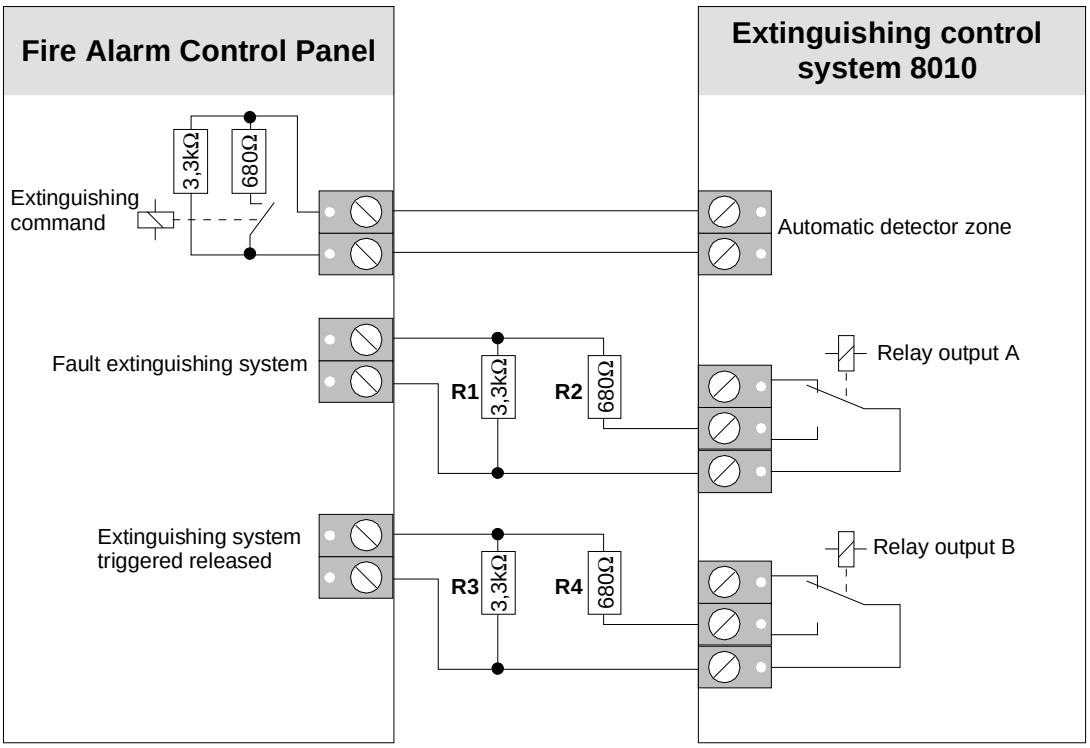



*Fig. 45: Wiring of the interface - Extinguishing*

The Inputs and Outputs are used as follows:

**Input >Extinguishing<**

A free selectable automatic detector zone MG1 toMG8 of the LMST 8010 must be programmed as >Standard-zone-Extinguishing<. The chosen detector zone is only operable with this assigned function.

**Output >Failure extinguishing system<**

A free selectable relay 1 to 8 of the LMST 8010 must be programmed with the corresponding jumpers as >not monitored< and configured in the customer data with the status function >Fault<. Connect required resistors R1 and R2 (refer to fig. 45).

**Output >Extinguishing system triggered<**

A free selectable relay 1-8 of the LMST 8010 must be programmed with the corresponding jumpers as >not monitored< and configured in the customer data with the status function >Extinguishing system triggered<. Connect required resistors R3 and R4 (refer to fig. 45).

According to VdS Guideline 2540, the terminal strips in the FACP and in LMST 8010 must be labelled according to their respective function.

# 8 Activation condition for the relays (AE)

In case of an event the relay is activated relating to the selected control function in the programming software.

The relays (AE) will be activated triggered to assigned switch function or respectively relay 1 to 8 relating to the programmed operation mode >dry contact< or >monitored<.

**Pre-alarm (VA)**
The assigned relay (AE) is activated for the duration of the pre-alarm time.

**Evacuation alarm (RA)**
The assigned relay (AE) is activated for the duration of the evacuation alarm time.

**Area valve (BV)**
The assigned relay (AE) is activated at the start of the evacuation alarm until all alarms are reset. In case of pre-controlled dry systems the alarm valve of the associated alarm valve control is activated.

**Tank valve (TV)**
The assigned relay (AE) of the tank valve is activated for the duration of the release and extra releasing time.

**Emergency Stop valve (NSV)**
The assigned relay (AE) for activating the emergency stop valve (NSV) can be activated at the start of release for the duration of the actual release time.

**Pre-control valve (VV)**
The assigned relay (AE) for activating the pre-control valve (VV) is activated at the start of the release or extra releasing time and remains active until the end of the respective extra releasing time.

**Control valve (SV)**
The assigned relay (AE) for activating the control valve (SV) is activated at the start of the evacuation time.

**Pilot valve (PV)**
This output is used in extinguishing systems with separate activation for the main and spare tanks. The assigned relay (AE) for activating the pilot valve (PV) is activated if the spare detector zone (MG7) is not active at the start of extinguishing. Its time behaviour is the same as the tank valve (TV). If the spare detector zone is active, this output remains inactive.

**Spare valve (RV)**
This output is used in extinguishing systems with separate activation for the main and spare tanks. The assigned relay (AE) for activating the spare valve (RV) is activated if the spare detector zone (MG7) is not active at the start of extinguishing. Its time behaviour is the same as the tank valve (TV). Under normal conditions, with an active spare zone, this output remains inactive.

**Spraying nozzle (only for AquaSafe)**
The relay activation (AE) relates to the programmed data of the AquaSafe functionality. Switch-on/off times (spray intervals) to activate spray release systems can be implemented with this relay output.

**Switchover valve**
The assigned relay (AE) is used to activate the switchover valve (UV) of an alarm valve station in pre-controlled dry extinguishing systems. The relay is activated **inversely** to the area valve (BV).*

In addition to time-controlled behaviour, the relay is also activated with the following events, which could possibly prevent extinguishing:

- A fire alarm zone in this area is defective and/or switched off.
- The area valve is defective and/or switched off
- Fault in the energy supply (grid/battery)

## 8.1 Status functions

In case of an alarm event, the relay (AE) is activated relating to the status function pre selected in the customer data. The relay can be triggered via several programmed OR logic operation status functions.

**Common trouble**
The programmed relay (AE) is activated if a common trouble is recognized.

**Common disconnection**
The programmed relay (AE) is activated if a common deactivation is recognized.

**Common fire alarm**
The programmed relay (AE) is activated if a common fire alarm is recognized.

**Technical alarm**
The programmed relay (AE) is activated if a technical alarm is recognized.

**Extinguishing system triggered**
The programmed output is activated if the extinguishing system is triggered.

**Power fault without a delay**
The programmed output is activated if a mains power failure is recognized.

**Battery fault without a delay**
The programmed output is directly activated if a battery failure is recognized.

**Revision**
The programmed output is activated if the revision mode is recognized.

**PC Service (currently not supported)**
The programmed output is directly activated if the PC Service is activated.

Preparation for service of the connected participants or the detector zones of the Extinguishing Control Computer 8010 - series 3 with the programming software tools 8000.

**Pressure relief flap #1, #2, #3**
The programmed output is triggered to activate the pressure relief flap. Separate activation of up to three pressure relief flaps is supported from system software version V3.02 in combination with the programming software LKDE version V1.03R004 or higher.

**Emergency Stop triggered**
The programmed relay (AE) is triggered when an Emergency Stop button is pressed.

**Power fault without a delay**
The programmed output is activated if a mains power failure is recognized.

**Battery fault, delayed**
The programmed output is activated after a programmed delay if a battery failure is recognized.

**Earth failure**
The programmed relay (AE) is triggered when an failure, e.g. faulty insulation is recognized.

**Transponder trouble**
The programmed relay (AE) is triggered when a transponder trouble is recognized between the esserbus® communications transponder (Part No. 781335) and the fire alarm system 8000 / IQ8Control.

**Customer data trouble**
The programmed relay (AE) is triggered when a customer data failure is recognized.

**Hardware trouble**
The program relay (AE) is triggered when a hardware trouble is recognized.

**Blocking the extinguishing system**
The programmed output is activated if the zone input >blocking< is triggered by a mechanical switch contact (e.g. isolating valve).

**Failure, extinguishing system**
The programmed relay (AE) is triggered when a trouble message is recognized by the input >Failure, extinguishing system<.

**Fire 2ZD zone A to D (individually programmable)**
The programmed output is activated if a fire alarm is recognized in detector zone A to D.

**Fire, Zone 1 to 8 (individually programmable)**
The relay (AE) is triggered when a fire alarm of detector zones 1 to 8 is recognized. A separate relay number 1 to 8 can be programmed for the each of the 8 detector zones.

The relays activation (AE) relates to the assigned operating mode or, respectively for relays 1 to 8 relating to the selected mode >monitoring< or >dry contact<.

**Zone / detectors**
Select the detector zone here, as well as the associated detector, which will activate the programmed output in the case of an event. An activation can also be triggered by up to 4 detectors combined through an OR-function.

## 8.2 CPU-failure mode

Even in the CPU-failure mode, e.g. failure of the main processor or a trouble in the program memory, the alarm and triggering functions of the Extinguishing Control Computer can be guaranteed through the >Emergency operation trouble< and >Emergency operation fire< mode.

For this purpose, the function >Emergency operation fire< (relay 10) and >Emergency operation trouble< (relay 11) must be configured with the corresponding jumpers.

In CPU-failure mode, all relays are de-energized and change the switching state except the relay >Emergency Operation Trouble< (relay 11). The red display and control panel LED >Emergency operation< is permanently activated.

Installed and operational detector zones continue to be monitored for the status >Fire<. If a fire is detected, the relay >Emergency Operation Fire< (relay 10) changes the switching state.

**Connection example (Relay terminal card type “Phoenix”)**

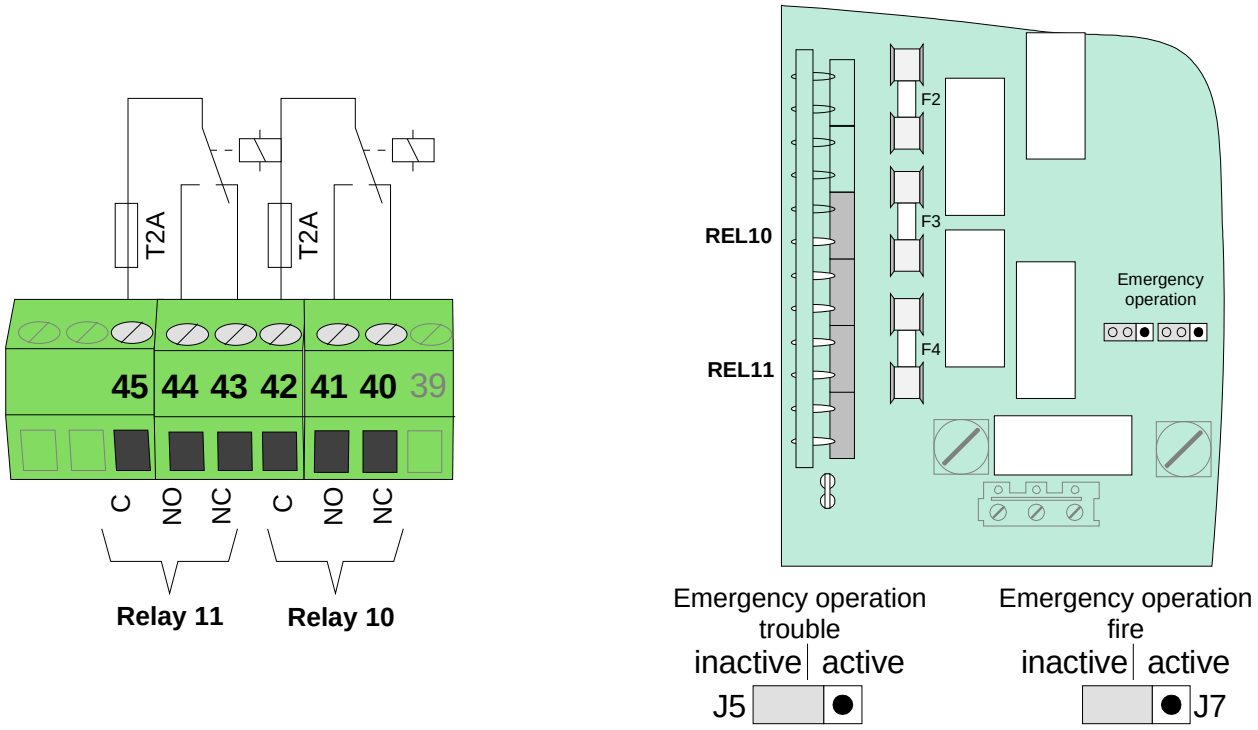



*Fig. 46: Jumper for emergency mode settings (relay 10 and 11)*

| | | |
|---|---|---|
| Relay 10 | >Emergency operation fire< or Standard function, configured with jumper J7 | Changeover contact, contact rating max. 30 V DC / 2A |
| Relay 11 | >Emergency operation trouble< or Standard function, configured with jumper J5 | |

# 9 Analog loop connection

The Extinguishing Control Computer 8010 could be directly connected to the analog loop (esserbus® / esserbus®-Plus) of the Fire Alarm System 8000 / IQ8Control.

The analog loop terminals are located on the external terminal card of the zones.

Up to eight Extinguish Control Computer 8010 (= 8 Extinguishing areas) could be connected to a single analog loop of the Fire alarm system.

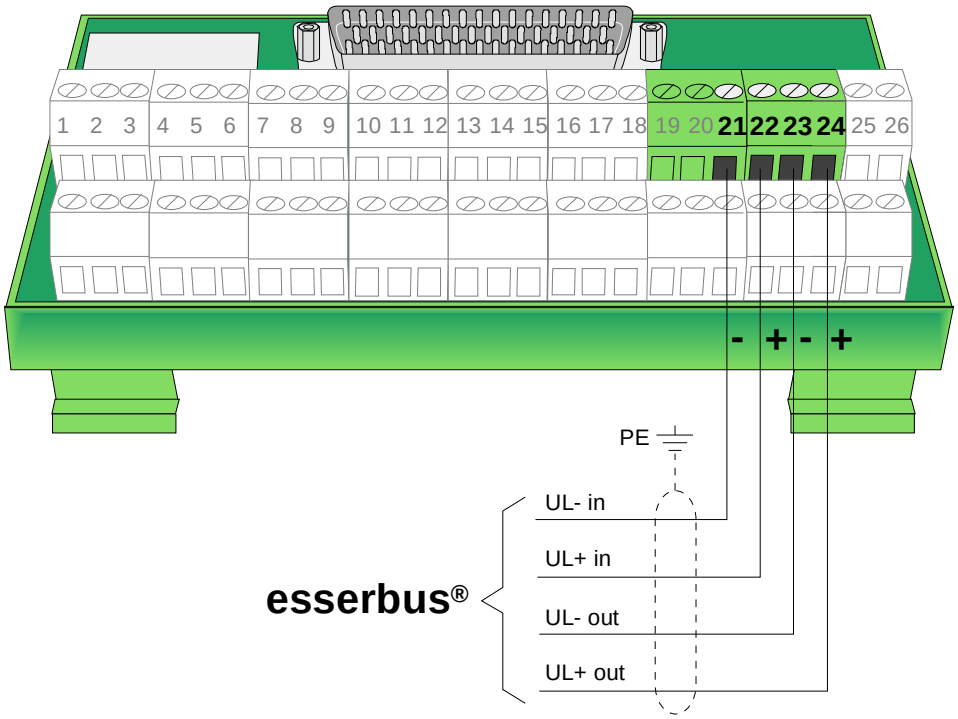



*Fig. 47: Terminals to connect the analog loop wiring (type Phoenix)*

To ensure a proper operation the cable shielding of the analog loop must be connected. For this purpose one of the shielding-terminals of the detector zone terminal card may be used.

# 10 Sequence diagram

## 10.1 Time sequence on alarm (for Extinguishing System)

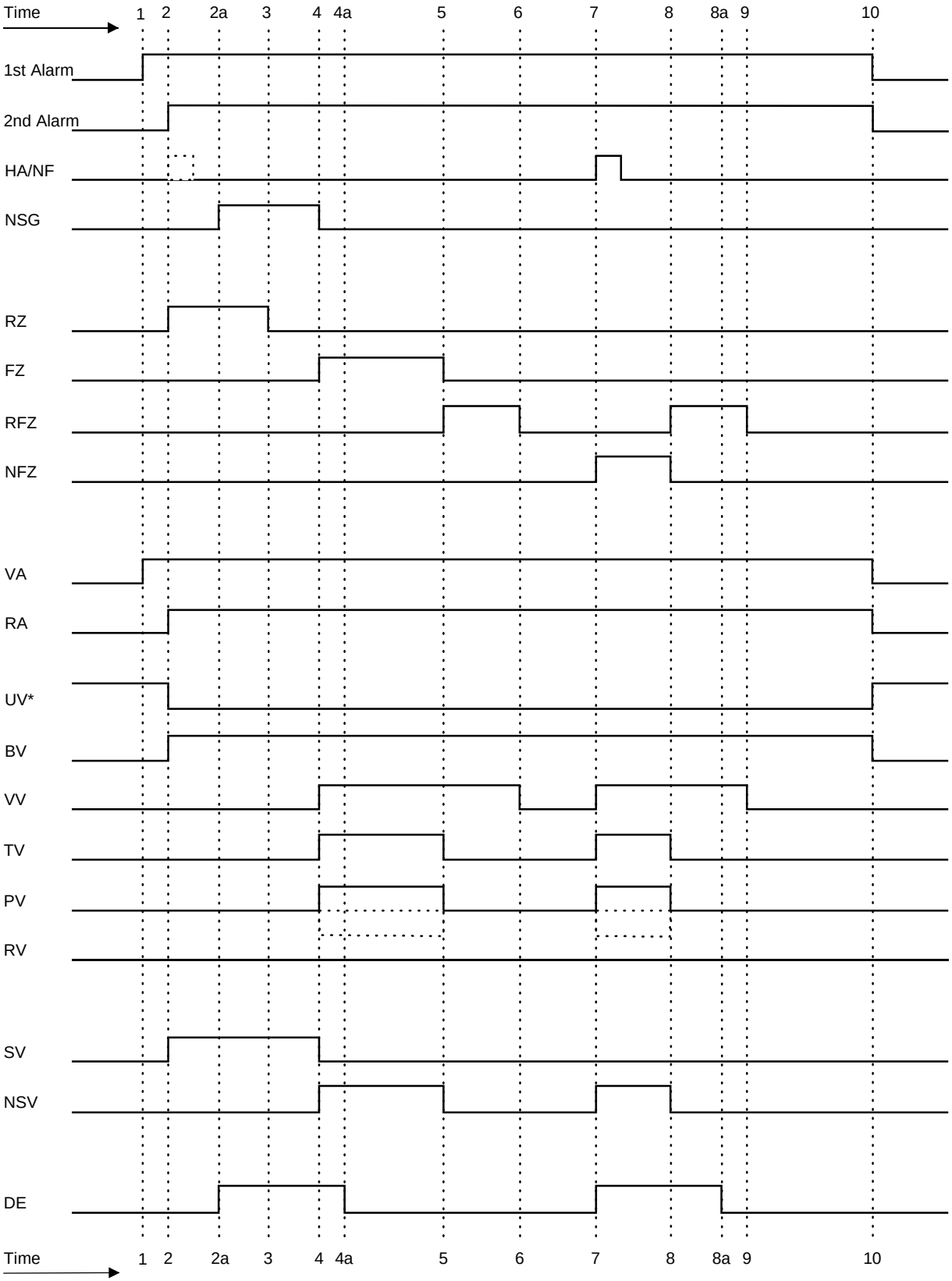



*Fig. 48: Sequence diagram (Extinguishing System)*

**Diagram names and abbreviations**

| | | | | | |
|---|---|---|---|---|---|
| 1st Alarm | : | The course of the alarm criterion ($1^{st}$ detector/zone ⇨ fire), a pre-alarm exists in the extinguishing system | HA/NF | : | Activation(s) of manual alarm or extra releasing zone |
| 2nd Alarm | : | The course of the 2nd alarm criterion ($2^{nd}$ detector/zone) or direct fire alarm | NSG | : | Emergency stop zone |
| RZ | : | Evacuation time | RFZ | : | Residual releasing time |
| FZ | : | Release time | NFZ | : | Extra releasing time |
| VA | : | Pre-alarm | | | |
| RA | : | Evacuation alarm | | | |
| UV* | : | Switchover valve | RV | : | Spare valve |
| BV | : | Area valve | SV | : | Control valve |
| VV | : | Pre-control valve | NSV | : | Emergency stop valve |
| TV | : | Tank valve | DE | : | Pressure relief flap |
| PV | : | Pilot valve | | | |

**Diagram times and functions**

**Time 1** **1st Alarm criterion ⇨ pre-alarm (1st alarm)**

The 1st detector of a 2-detector coincidence or the 1st zone of a 2-zone coincidence detects a fire alarm. The Extinguishing Control Computer signals the pre-alarm and activates the alarm systems that are programmed for pre-alarms.

**Time 2** **2nd Alarm criterion ⇨ fire ($2^{nd}$ alarm)**

- The $2^{nd}$ detector of a 2-detector coincidence or the $2^{nd}$ zone of a 2-zone coincidence detects a fire alarm.
- Extinguishing is also activated directly via an activated manual alarm zone or a detector zone with the alarm criterion >Fire<.

The evacuation time begins when a fire alarm occurs. The alarm systems for the evacuation alarm are activated, the area valve (BV) is activated and activation of the switchover valve is reversed (inverse activation).

The control valve (SV) is activated in systems with pneumatic extinguishing delay.
The delay times for activating the pressure relief flaps are started.

**Time 2a** **End of the delay time of a pressure relief flap.**

The delay time of a pressure relief flap has expired, the corresponding output is activated and the associated switch-off delay time is started.

**Time 3** **End of the evacuation time (RZ)**

If the emergency stop zone (NSG) is not activated at the end of the evacuation time, the release time is started immediately. Optionally, in the customer data of the Extinguishing Control Computer it can be defined whether the evacuation time should be restarted after the end of the emergency stop activation or if the release time should be started immediately.

**Diagram times and functions**

**Time 4** **Start of release time (FZ)**

If the emergency stop zone has not been activated before the end of the evacuation time, this time is identical with 3; otherwise the release time starts at the end of the emergency stop activation. The relay and the tank valves are activated at the start of the release time. As the release time is started only when the emergency stop zone is not active, the emergency stop valve is also activated.

In systems with a main and spare battery the detector zone input 7 (which must be programmed for special functionality) decides whether the pilot valve (spare zone inactive) or the spare valve (spare zone activated) is to be activated.

**Time 4a** **End of the switch-off delay time for a pressure relief flap (DE)**

When the switch-off delay time has expired, the corresponding output for the pressure relief flap (DE) is inactive again.

**Time 5** **End of the release time (FZ), start of the residual releasing time (RFZ)**

When the release time ends, the residual releasing time is started. All outputs/valves for the release (tank valve, pilot or spare valve, emergency stop valve) are closed again.

**Time 6** **End of residual releasing time (RFZ)**

The pre-control valves (VV) are closed.

**Time 7** **Activation of the extra releasing zone/extra releasing time (NFZ) is started**

The relay and the tank valves are opened at the start of the extra releasing time. The emergency stop valve (NSV) is also activated.

In systems with a main and spare battery the detector zone input 7 (which must be programmed for special functionality) decides whether the pilot valve (spare zone inactive) or the spare valve (spare zone activated) is to be activated.

**End of the delay time of a pressure relief flap.**

The delay time of a pressure relief flap has expired, the corresponding output is activated and the associated switch-off delay time is started.

**Time 8** **End of the extra releasing time (NFZ), start of the residual releasing time (RFZ)**

When the extra releasing time ends, the residual releasing time is started. All valve activations required for the release, e.g. for the tank, pilot, spare and emergency stop valves, are reversed.

**Time 8a** **End of the switch-off delay time of a pressure relief flap.**

The activation of the pressure relief valve (DE) is reversed when the switch-off delay time expires. The pressure relief valve is closed.

**Time 9** **End of residual release time (RFZ)**

Activation of the pre-control valves is reversed at the end of the residual releasing time. The pre-control valves are closed.

**Time 10** **Reset the fire alarms (1st/2nd alarm)**

All detector zones with the alarm criterion >Fire< will be resetted.
The pre-alarm and evacuation alarm are stopped, the associated outputs are no longer activated.
The area valve and the switchover valves (inverse activation) are no longer activated.

## 10.2 Time sequence on alarm (for AquaSafe)

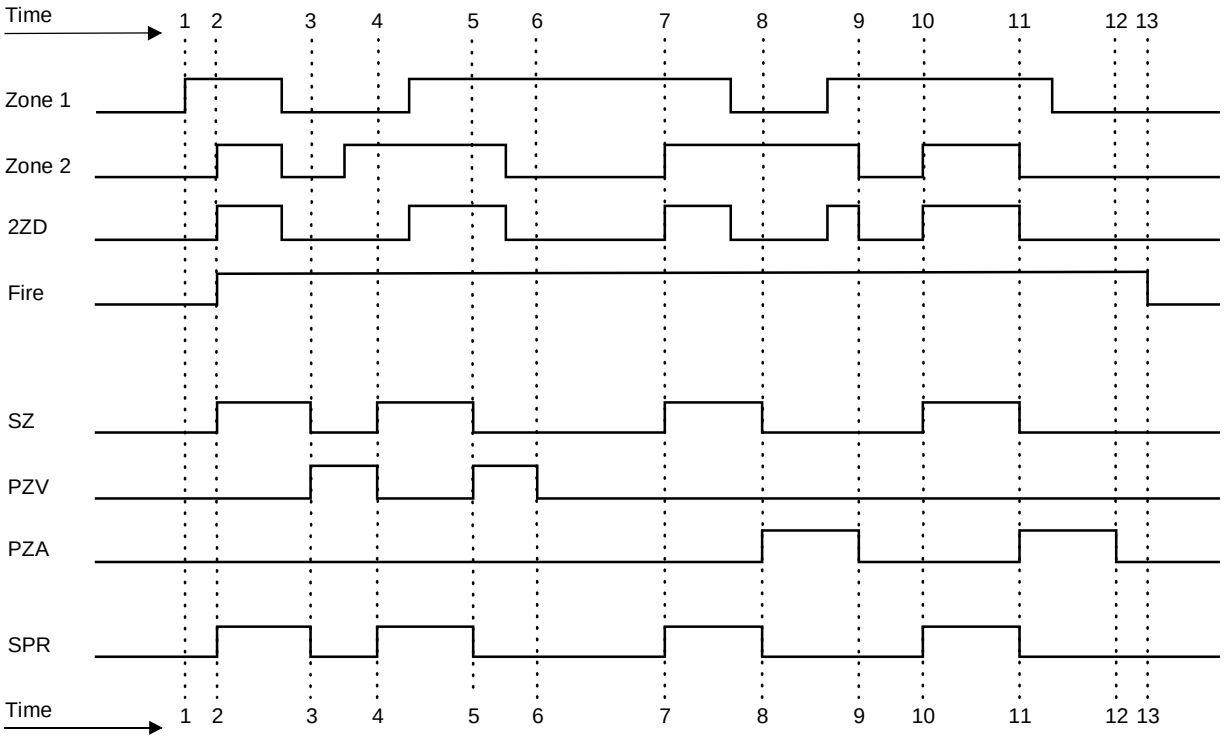



*Fig. 49: Sequence diagram (AquaSafe)*

**Diagram names and abbreviations**

| | | | | |
|---|---|---|---|---|
| Zone 1 | : | The first zone of an alarm coincidence | 2ZD | : The fulfilled 2-zone coincidence |
| Zone 2 | : | The second zone of an alarm coincidence | Fire | : The recognised and displayed fire alarm |
| SZ | : | Spray time | SPR | : The output with the sprayer function |
| PZV | : | Break in a locked cycle | | Is activated precisely when the spray time is active. |
| PZA | : | Break in a requested cycle | | |

**Diagram times and functions**

| | |
|---|---|
| **Time 1** | **1st Alarm condition ⇨ fire (Zone 1)**<br>The first zone/detector detects an alarm |
| **Time 2** | **2nd Alarm condition ⇨ Fire (Zone 2) / 2-zone coincidence (2ZD) is fulfilled**<br>• The conditions for a fire alarm (2ZD = Zone 1 + Zone 2) are fulfilled.<br>• The first spray cycle starts when the spray time (SZ) begins. |
| **Time 3** | **End of the spray time and start of the break for the first locked cycle** |
| **Time 4** | **End of the break for a locked cycle**<br>If the number of locked cycles is greater than zero (in this example 2), the next cycle begins at the start of the next spray time. |
| **Time 5** | **End of the spray time and start of the break for a subsequent locked cycle** |
| **Time 6** | **End of the break for a locked cycle**<br>End of the active spray time<br>The last locked cycle (in this example 2 locked cycles) has expired.<br>Requested cycles can now be executed. |
| **Time 7** | **A requested cycle is started because 2-zone coincidence (2ZD) is fulfilled again at this point in time.**<br>Start of a new spray time |
| **Time 8** | **End of the spray time and start of the break for a requested cycle** |
| **Time 9** | **End of the break for a requested cycle**<br>At this point in time no further 2-zone coincidence (2ZD) is active.<br>No further cycle is requested at this time. |
| **Time 10** | **2-zone coincidence (2ZD) is fulfilled once more and thus requests a new spray cycle.**<br>Start of spray time. |
| **Time 11** | **End of the spray time and start of the break for a requested cycle** |
| **Time 12** | **End of the break for a requested cycle.**<br>As no 2-zone coincidence (2ZD) is fulfilled, no further cycle is executed. |
| **Time 13** | **Reset the extinguishing system**<br>The existing fire alarm is reset. The extinguishing system is switched back to inactive/original status. |

# 11 Specification

| | | |
|---|---|---|
| Main voltage | : | 230 V AC |
| Rated frequency | : | 50 Hz |
| Rated current | : | 0,7 A |
| Supply voltage for external devices | : | 24 V DC |
| Battery capacity | : | 2 x 12 V / 12 Ah |
| Battery charging voltage | : | 13.65 V DC @ 25 °C |
| Ambient conditions | : | class 3k5 in accordance to DIN EN 60721-3-3 |
| Ambient temperature | : | -5 °C to +45 °C |
| Storage temperature | : | -10 °C to +50 °C |
| Protection type | : | I in accordance to DIN EN 60950-1 |
| Protection rating | : | IP 30 |
| Housing | : | Sheet steel |
| Colour | : | Light grey, similar RAL 7035 / blue, similar RAL 5003 |
| Weight | : | approx. 10,1 kg (without rechargeable battery) |
| Dimensions (W x H x D): | : | 483 x 132 x 403 (mm), without handle bars |
| VdS approval | : | G 200090 (series 2), G 205064 (series 3) |
| CE certificate | : | 0786 – CPD - 20223 |

| | | |
|---|---|---|
| Alarm zone inputs 1 to 8 | : | esserbus® zone:<br>Monitored detector zone for connecting automatic fire detectors and series 9200 technical alarm modules, as well as esserbus® transponders.<br>Do not connect an End-of-line resistor<br><br>Standard zone:<br>To connect external dry contacts<br>End-of-line resistor (4,7kΩ normal / 1kΩ alarm) |
| Technical zones | : | Monitored detector zone to connect series 9000 manual call points and/or dry contacts<br>End-of-line resistor (10kΩ normal / 1kΩ alarm) |

Relay contacts

| | | |
|---|---|---|
| Relays 1 to 8 | : | Changeover contacts, max. 30 V DC / 2 A<br>Operating mode dry contact or positive-switching / monitoring can be selected via jumpers (factory setting = monitored) |
| Relays 9 to 11 | : | Changeover contacts, max. 30 V DC / 2 A<br>Programmable, relays 10 and 11 with selectable function >Emergency Operation Trouble< and >Emergency Operation Fire< |
| Relays 12 and 13 | : | Dry contact (NO), max. 230 V AC / 2 A<br>suitable to switch AC Mains voltage |

# 12 Connections

## 12.1 Operation of the Extinguishing Control Computer in the Fire Alarm System 8000 / IQ8Control


*Fig. 50: Operation of the Extinguishing Control Computer in the Fire Alarm System 8000 / IQ8Control*

## 12.2 Extinguishing Control Computer 8010 connected to the analog loop

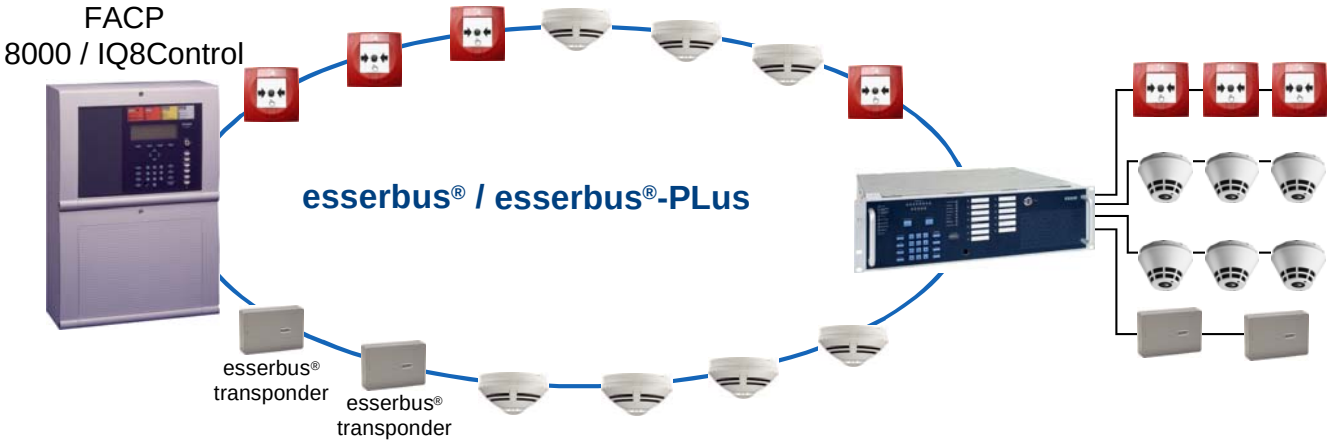


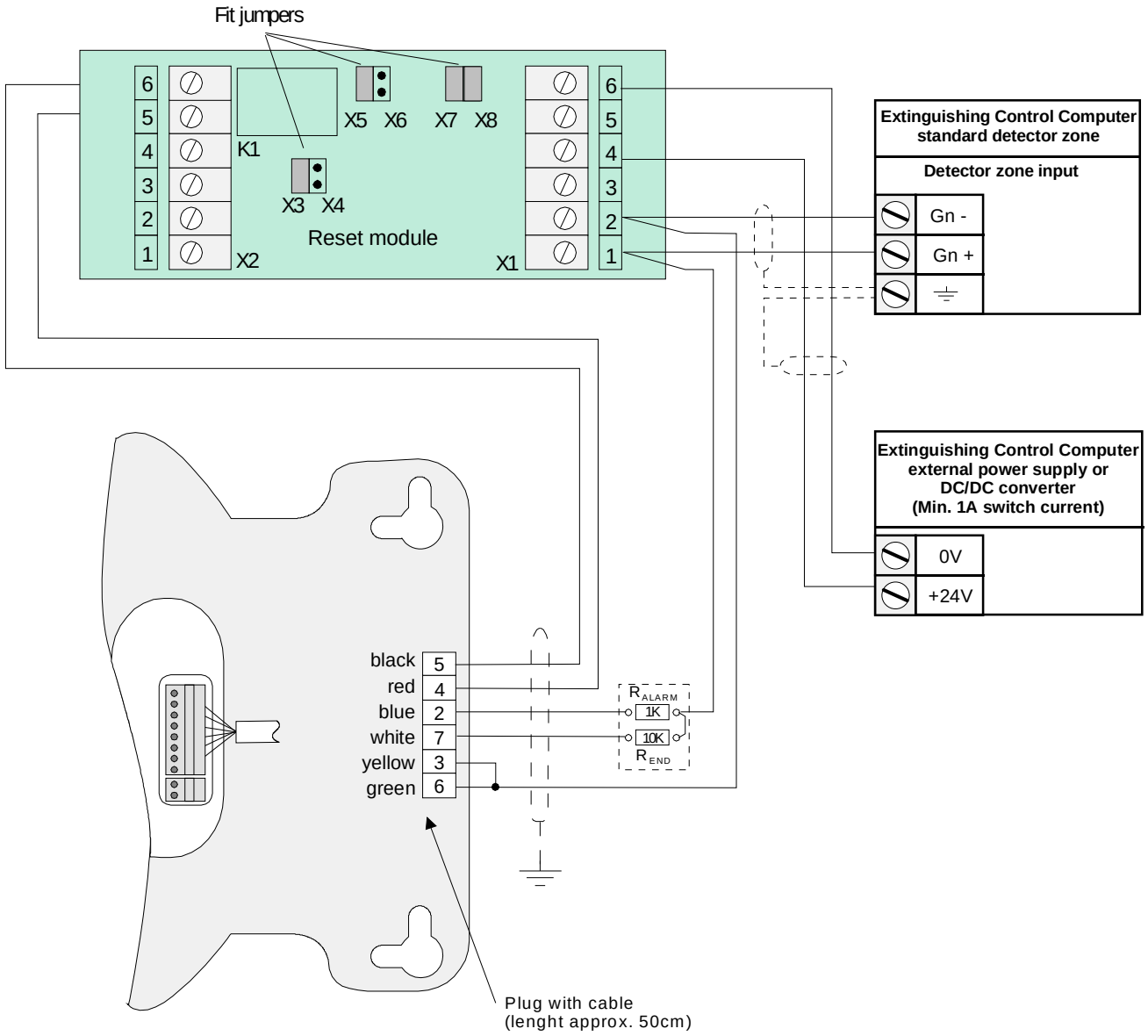

*Fig. 51: Extinguishing Control Computer 8010 connected to the analog loop*

The Extinguishing Control Computer 8010 is only triggered through fire detectors that are directly connected. It is not possible to trigger the LMST8010 through fire detectors connected elsewhere within the system.

For additional information to the esserbus® communication transponder please refer to manual (Part No. 798157).

## 12.3 Third-party detectors via Reset module to LMST 8010 - 19-Inch series 2

Third-party detectors, e.g. the line-type smoke detector Fireray 50RV (Part No. 761315) or 100RV (Part No. 761316) are connected to the Extinguishing Control Computer 8010 - 19-Inch series 2 via the Reset module (Part No. 781332 / 781333).




Jumper X3, X5, X7, X8 fitted!
Jumper X4, X6 removed!
Connect cable shielding!
Observe wiring sequence!

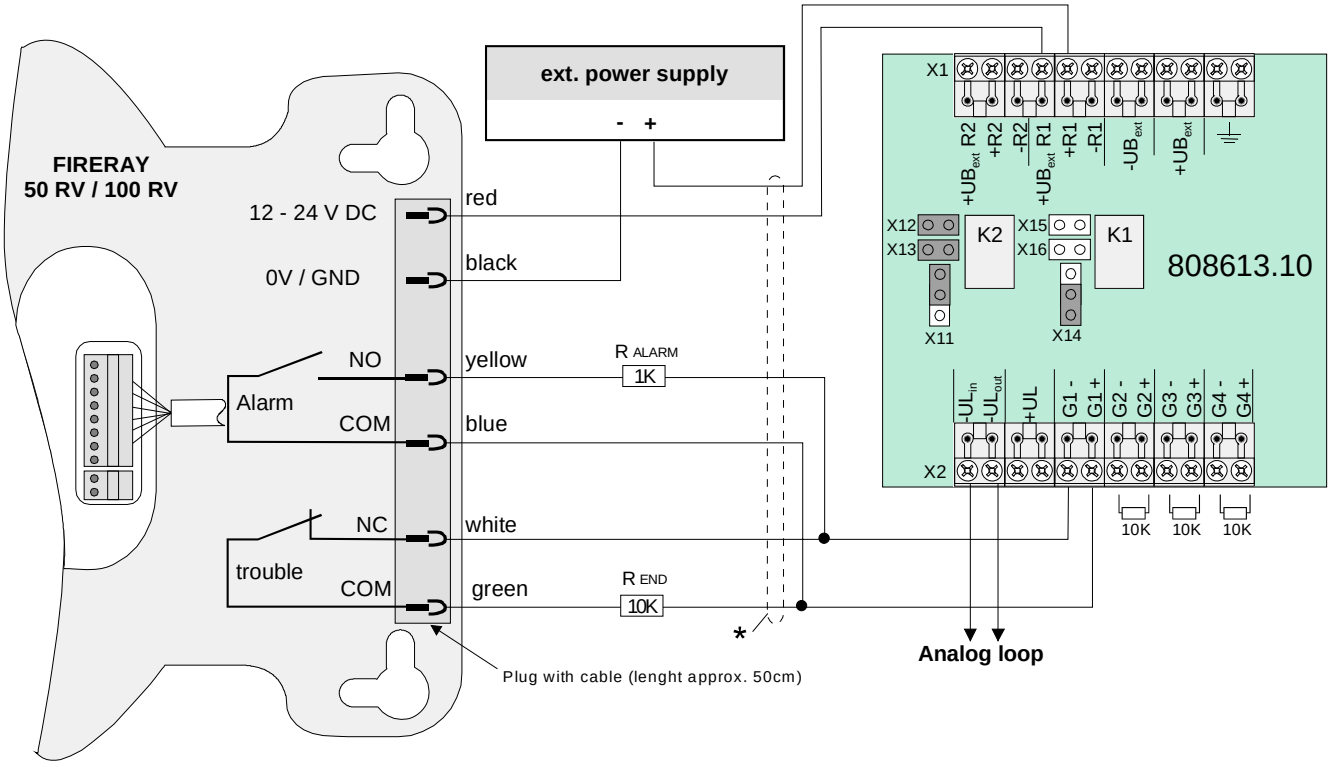
For detailed informations and wirings refer to the technical manual of the Reset module.

## 12.4 Third-party detectors via esserbus® transponder to LMST 8010 - 19-Inch series 3

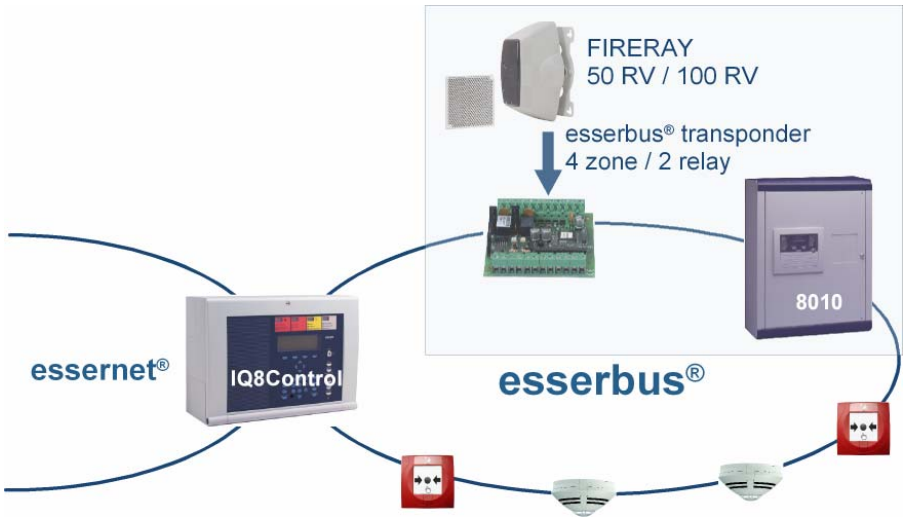
Third-party detectors, e.g. the line-type smoke detector Fireray 50 RV (Part No. 761315) or 100 RV (Part No. 761316) are connected to the Extinguishing Control Computer 8010 - series 3 via the esserbus® transponder (Part No. 808613.10).

System limits

- Max. one third-party detector per esserbus® transponder to a single zone of the LMST 8010.
- Up to 4 third-party detectors per esserbus® transponder in a single monitoring area.
- 2-detector coincidence within a monitoring area is possible.




* Cable screen must be connected to appropriate terminals !




In accordance to Standards and requirements only a single detection area may fail.
Refer to the transponders manual or the Third-party detector Reference Guide for details.

## 12.5 Multisector-Control

To create a Multisector-Control up to four Extinguishing Control Computer 8010 (LMST) may be interconnected by using the multisector interface (Part No. 788023). To realize a multisector control with up to 8 Extinguishing Control Computer 8010 a pair of two multisector interfaces is cascadable for that purpose.

Installation information

- The cable between the multisector interface and control valve is monitored for wire breakage. The multisector interface must be installed in a close range (max. 2m distance) to the corresponding valve.
- The cable of the control valve must not be damaged by environmental effects and must be protected with the supplied armoured metal tube.
- In case of the final discharging voltage of the batteries a max. voltage of 21,2 V DC is available to supply and activate the valves (refer to section “Emergency power supply”). The control valve must match this application requirements.
- Furthermore a voltage drop at the decoupling diodes and on the power cable (caused by the valve current) must be considered.
- An Extinguishing Computer 8010 is connected to the multisector interface via the appropriate monitored relay output of the 8010.

Example:

| | | |
|---|---|---|
| Final discharging voltage of the 8010 | : | 21,2 V DC |
| Valve current load | : | 750mA |
| Decoupling diodes | : | 2 x 0,5 V DC |
| Silicon diodes | : | 0,7 V DC |
| Total resistance of the cable (Length approx. 50m, diameter 0,8 mm) | : | 4 Ohm |

Max. available voltage for the control valve:

(21,2 V DC – 2 x 0,5 V DC – 0,7 V DC) – (4 Ohm x 750 mA) = 21,2 V DC – 1,7 V DC – 3 V = **16,5 V DC**

The installed valve must be suitable for this voltage range (e.g. 16,5 V DC) and a proper valve activation must be ensured.

**Example for a Multisector-Control application**

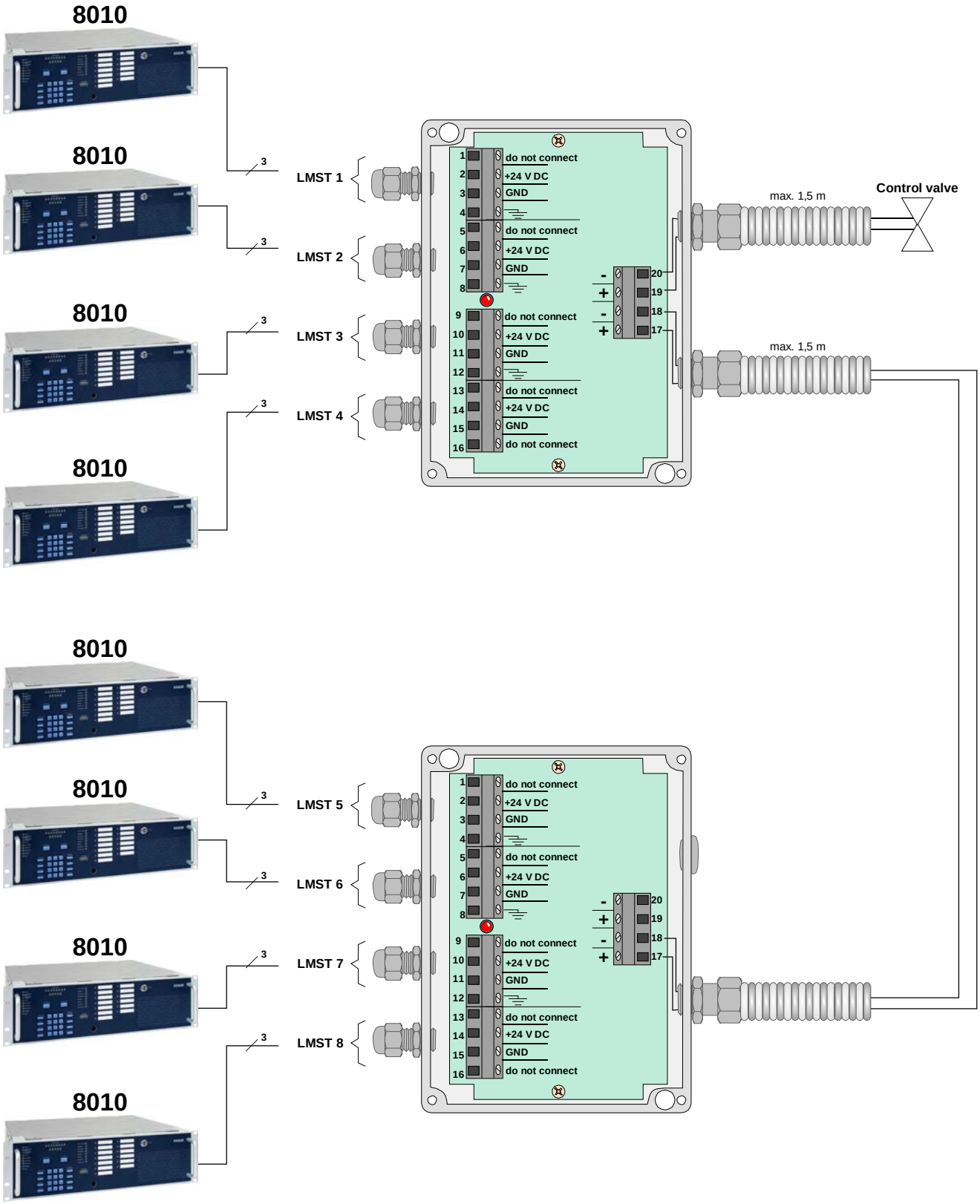



*Fig. 52: Example for a Multisector-Control application*

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