



Installation Instruction / Commissioning

Fire Alarm Control Panel FACP 80-4 and FACP 80-8

(Part No. 788705 / 788706)

Intended purpose

This product 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 or recommended by Esser by Honeywell.

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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Shortcuts

AE	Monitored Output
FACP	Fire alarm control panel
FAS	Fire alarm system
FPE	Fire protection equipment
SOC	Switch on control (only for specific Esser Fire alarm detectors)
FDOP	Fire department operating panel
KB	Key box
LED	Light emitting diode (visual indicator)
ORM	Optical smoke detector
PAS	PE-rail (common earth)
PE	Protection earth
SST	Interface for extinguishing systems
TM /TD	Fixed heat / Rate-of-rise heat detector
IRM	Ionisation smoke detector
MCL	Manned centre link (fire routing)
VdS	VdS Schadenverhütung GmbH, Köln (Germany)
2DD	Co-incident detection for 2 detectors on a zone
2ZD	Co-incident detection for 2 zones

1 Installation Instruction

Operation of the Fire Alarm Control Panel FACP 80-4 and FACP 80-8 is governed by the national version of the operating system software used and the country version programmed in the customer data.

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 illustrations may differ from the real display messages due to customized and object related system configurations.

- The fire alarm panel may only be installed in a dry, clean room with controlled access and appropriate lighting. The environmental conditions must comply with IEC 721-3-3:1994, class 3k5.
- The panel must be mounted on a flat surface using appropriate hardware (screws and dowels). Avoid mechanical stressing. It may only be commissioned after correct mounting on a wall or other mounting surface of sufficient strength to support the weight of the unit.
- Avoid strong electric or magnetic fields as well as mechanical influences. This applies especially to the presence of fluorescent lighting or energy cabling in the close vicinity of the panel, its components and the associated cabling. Do not mount on vibrating, unstable surfaces such as light partitioning walls.
- Do not install the system in places where adverse conditions prevail. Parts and components of the system may only be installed in or led through locations which allow compliance with DIN VDE 0800.
- Control panels and visual indicators mounted on a wall should be installed at a height of 800 to 1800 mm above the floor.
- The fire alarm system is not suited for connection to IT power supply systems.



Danger – Electrical shock !

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

ESD 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.



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.

1.1 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 89/336/EEC and the Construction Products Directive (CPD) 89/106/CE.

These are examples:

- Standards of the DIN EN 54 "Fire alarm systems", particularly DIN EN 54-2 „Fire alarm control panels" and DIN EN 54-4 „Power supply units".
- Standards of the DIN VDE 0100 issue, particularly DIN EN 0100-410 „Installation of high-voltage systems 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, particularly 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 „Electrical 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, particularly 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, particularly 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, particularly 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.

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.

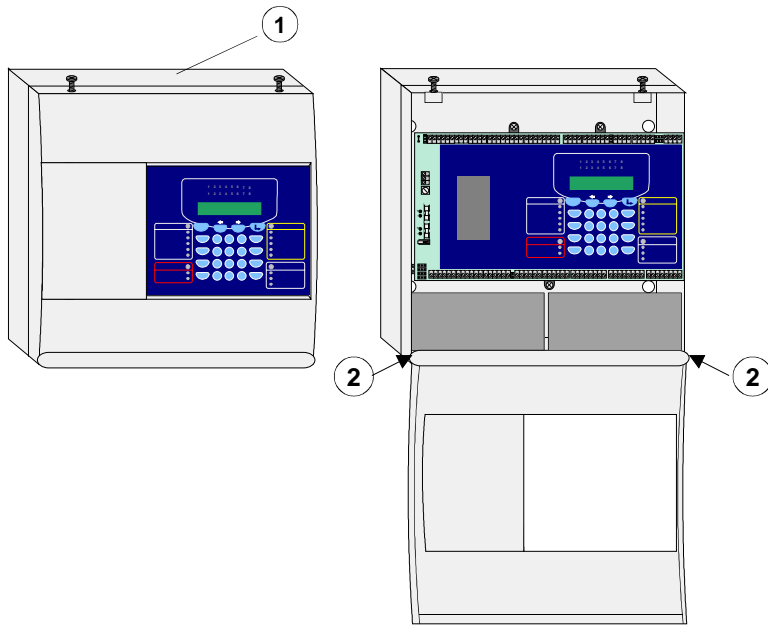
In addition to the above, the guidelines of the German VdS Schadenverhütung GmbH (VdS) may apply for systems installed in Germany.

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

2 Mounting

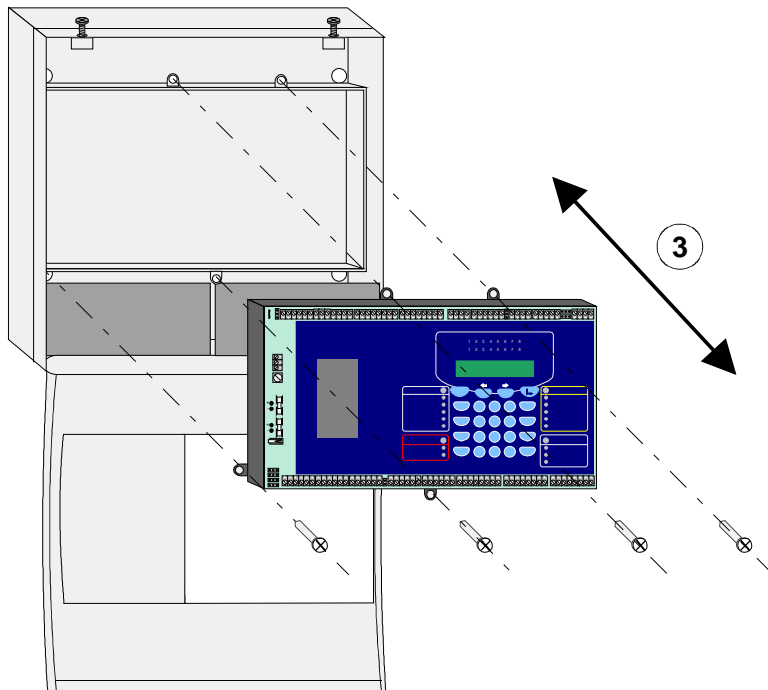
The FACP 80 is delivered as a complete assembly with Electronics module and front cover. The panel must be mounted as shown below.



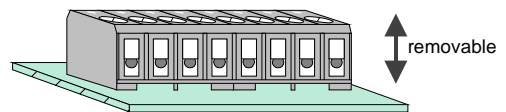
Remove the FACP from its packing.

Undo the top screws to open the cabinet door.

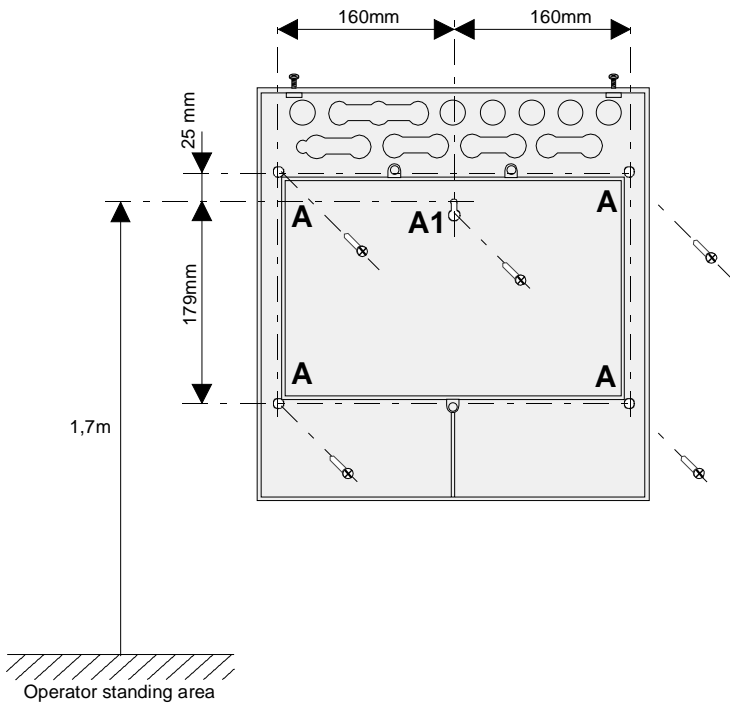
The front door of the two-section plastic housing may be lowered through 180 degrees or removed completely after removing the two securing pins.



The operating panel / electronics module may be taken out of the cabinet after removing the relevant fixing screws (5x). Not required for installation.



The terminal strip may be unplugged from the electronics module to allow easier connection.



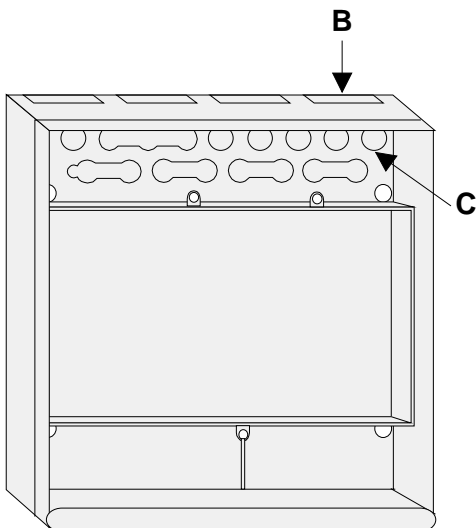
Wall mounting

Centre and align the mounting template (supplied) on the mounting surface.

Mark the 4 fixing points **(A)** on the mounting surface.

Drill the holes for the fixing points and insert appropriate wall plugs (use wall plugs with 6-8mm diameter and screws with a length of 40 mm minimum.).

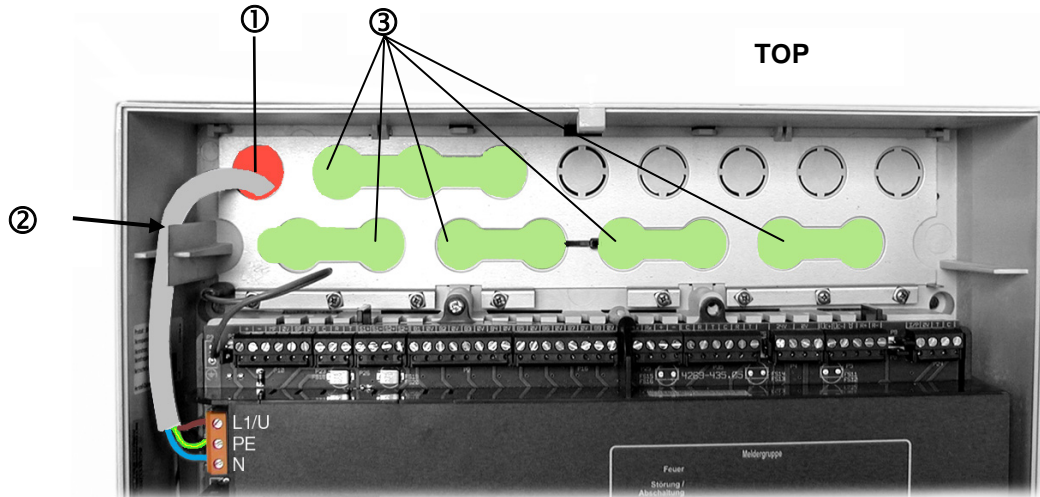
If the connecting cables are surface mounted on the wall then open the pre-cut cable entries **(B)** at the top of the housing. Use cable entries **(C)** at the rear of the panel housing if the mains and signal cables are concealed in the wall, pass cables through holes before fixing the housing to the wall. (ref. *cable entry*).



Fix the panel to the wall avoiding mechanical stress to the housing.

2.1 Cable entries

The power and signal cabling of the FACP 80 should be led through the wall into the cabinet. Only use the cable entries provided for this purpose.



1. Lead the 230V mains power cable through the wall and the cable entry ① provided in the rear of the unit ② (see illustration). Fasten it using appropriate devices, e.g. plastic cable straps.
2. Make sure that the mains and signal cables don't interfere with the rear panel of the cabinet or the cabinet frame, which is mounted on the rear panel.
3. Signal cables ③ must only be led through the other cable entries.



To prevent short circuits

All connected power and signal lines must be secured using appropriate fasteners, e.g. plastic cable ties. Make sure the mains cable cannot move or touch the signal lines. Remove all power (mains and battery) from the fire alarm system before any work is carried out.

Prevention of short circuits

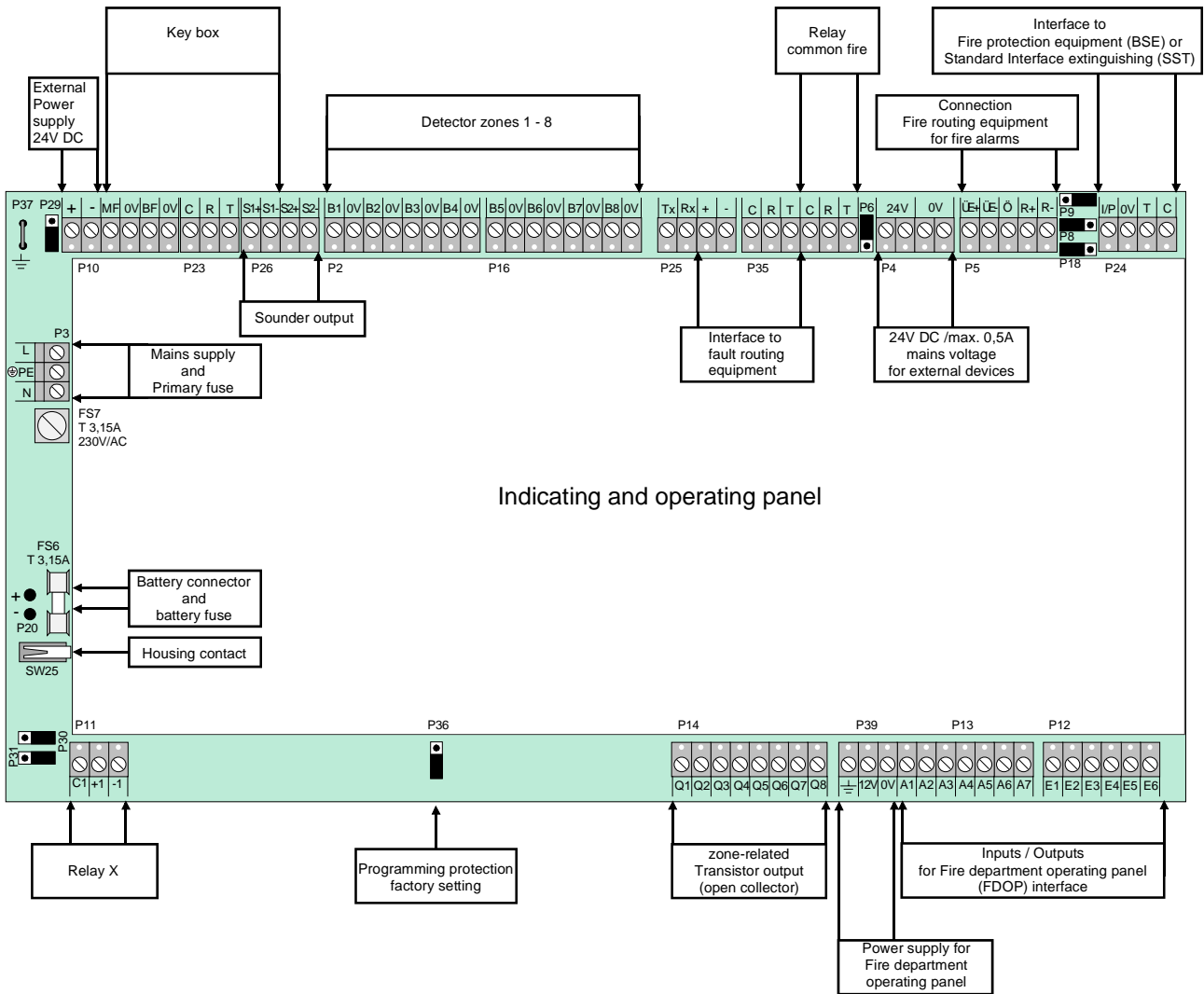
All connected supply and signalling cables must be fixed by means of appropriate fasteners, e.g. plastic cable straps. Make sure that the mains cable will not shift and touch the signalling lines (SELV). Switch off or disconnect all supply power (mains and emergency supply) before carrying out any work on the fire alarm system.

Cable insulation

Make sure that the outer cable sheath of all connecting cables is led into the housing. Remove the insulation only on the cable sections inside the panel housing.

2.2 Electronics module

The electronics module is mounted inside the control panel housing by means of 5 screws. The electronics module includes the mains power supply as well as all other connection terminals, fuses, and jumpers for configuring the panel. All these components are freely accessible without any need to remove the electronics module from the FACP housing.



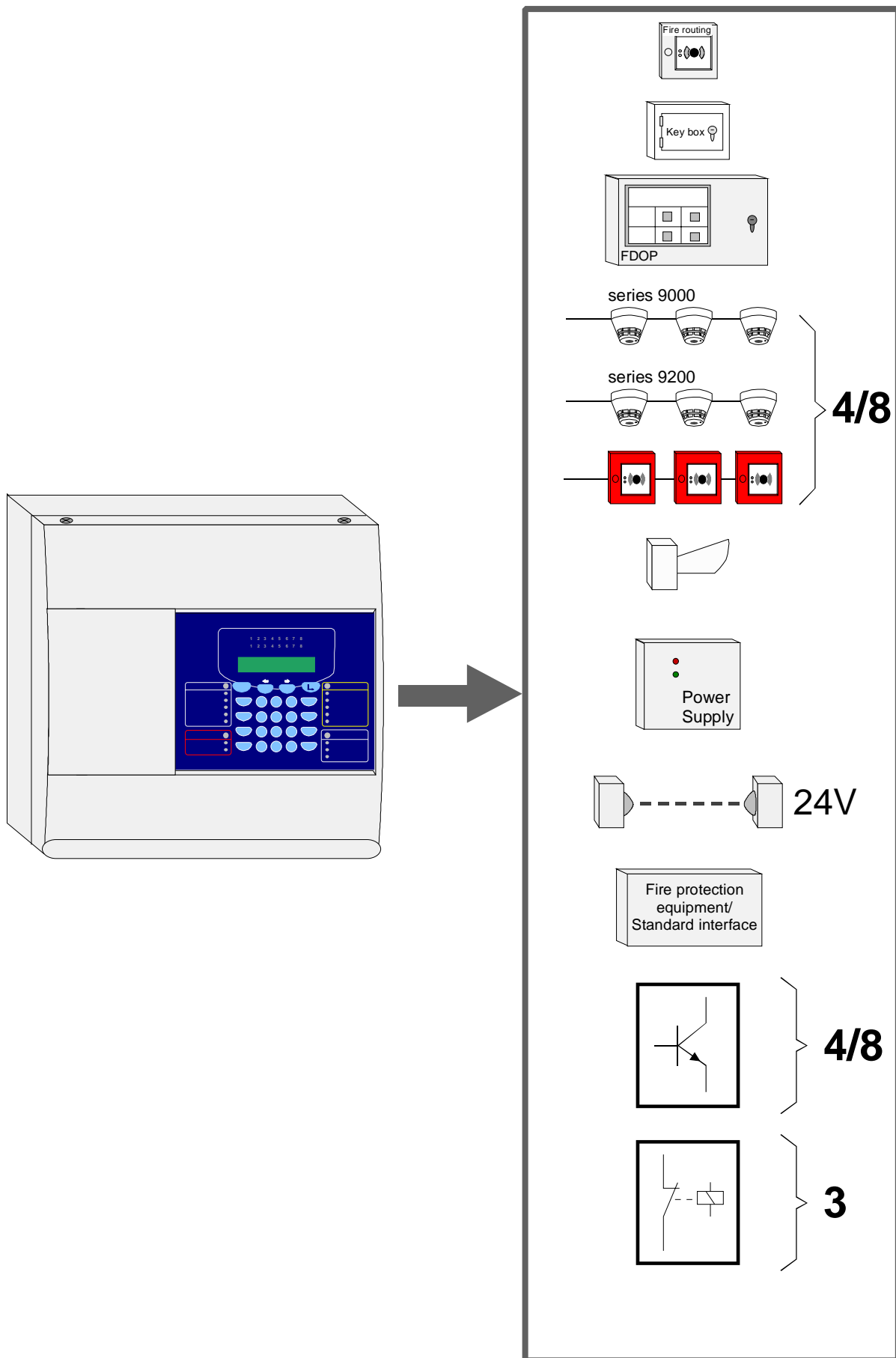
Jumper

- P6 : Mode Common fire relay
- P8/9 : " Manned centre link (MCL)
- P29 : " Audible Signal devices
- P30/31 : " Relay-X
- P36 : Customer data write protection / hardware reset

Fuses

- Power supply fuse (FS7) : T3.15A
- Battery fuse (FS6) : T3.15A

Scope



2.3 Mains connection

Connection of the 230 V AC mains supply cable to the fire alarm control panel.

- The 230 V AC mains supply must be installed in accordance with local regulations by a qualified technician.
- The fire alarm system 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, a separate device must be installed for the fire alarm system.
- Use an appropriate mains cable, e.g. NYM 3 x 1.5 mm² or a cable type with similar specifications.
- Unused knock-outs of the cable entries must be sealed.
- The installation must comply with local regulations on electrical safety.
- The electronics module of the panel must be connected to the metal plate at the rear of the housing via the FE connector (functional earth).
- The Protective earth conductor of the mains cable must be connected to the corresponding screw terminal on the fire alarm panel.
- The PE (Protective earth) terminals of the panel must be connected to the PE rail of the power distribution panel from which the fire alarm system is powered.



Danger !

Remove all power (mains and batteries) from the fire alarm control panel before any installation work is carried out.

To prevent short circuits !

All connected power and signal cables must be secured using appropriate fasteners, e.g. plastic cable binders. Make sure the mains cable will not move and touch signal lines.

Route all cables complete with their outer sheaths intact into the cabinet. Only remove the insulation from cables which are inside the cabinet.

Protective earth (PE) and Functional earth (FE) connections

To ensure proper functioning of the FACP all PE and FE connections should be made at the correct screw terminals and spade connectors of the FACP housing. Connect the PE terminal on the panel to the equip-potential bonding rail of the building. The FACP 80 is a class I protection device.

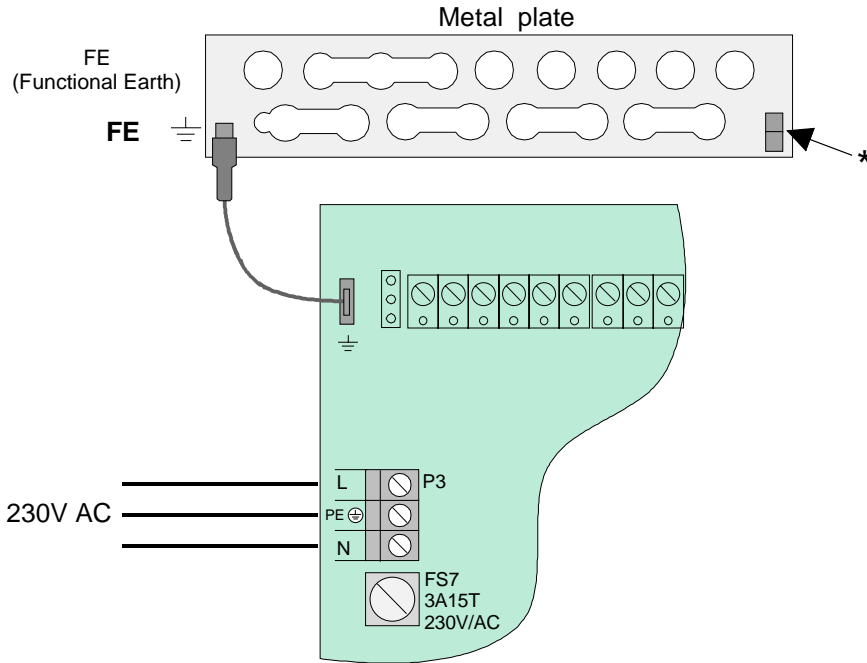


Fig. 1: Mains connection at the electronics module

* additional spade connector for signal ground (FE)

EMC protection

The FACP 80 fire alarm control panel is factory-fitted with EMC fine protection. If additional coarse and medium protection of the mains and signal cables is required, only the protective devices may be used.



ESD Protection

While handling electronic assemblies, the necessary precautions against electrostatic discharge must be taken.

2.4 Battery connection (24 V)

The Power supply of the FACP 80 is rated for a maximum capacity of **two series-connected batteries** (2 x 12 V DC / 7Ah). In the event of mains voltage failure, the batteries will immediately provide system power.

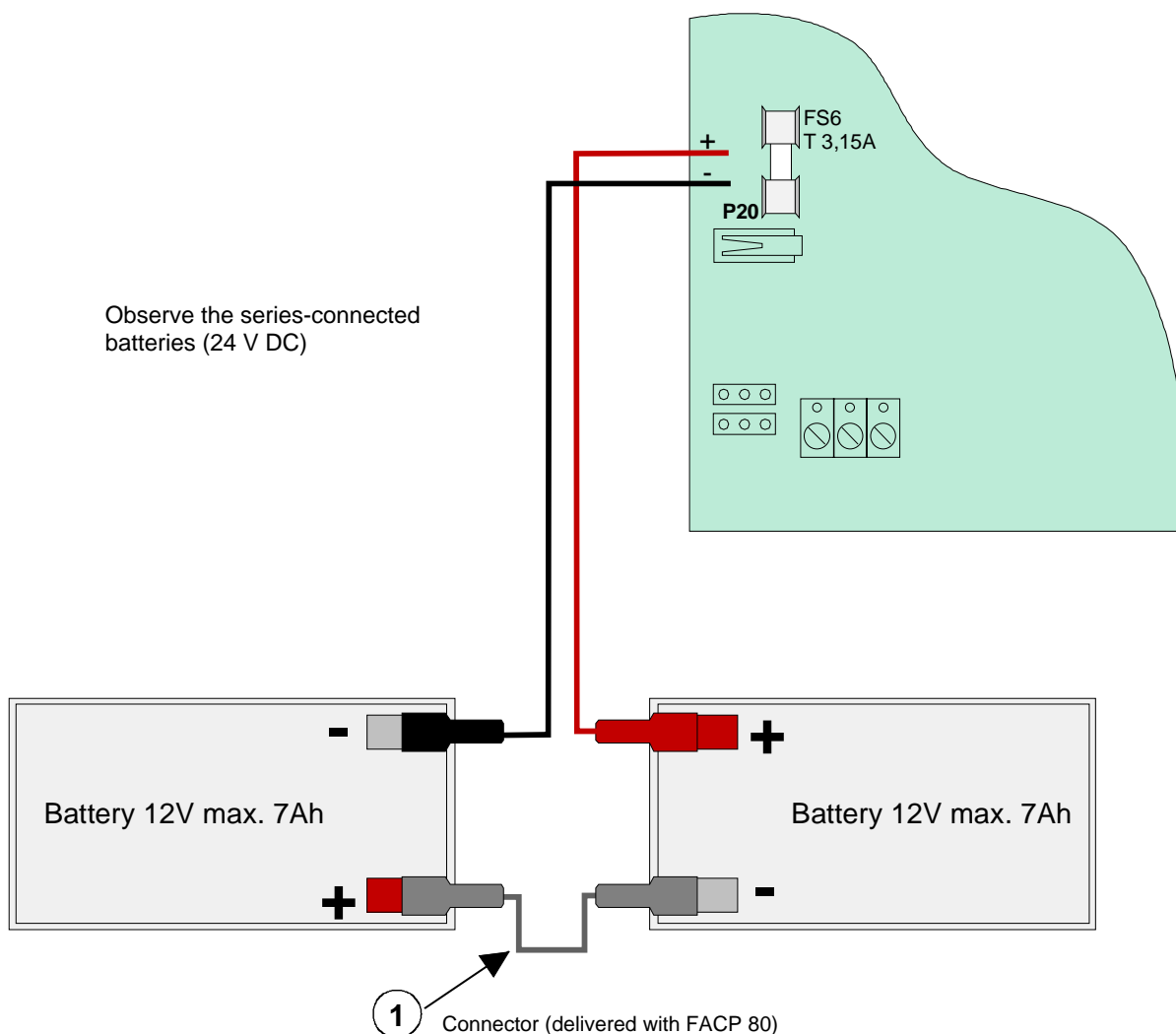


Fig. 2: Connecting both 12 V batteries (Series-connection = 24 V DC)



The two rechargeable batteries are mounted on their side in the panel housing. Only use rechargeable batteries of the type recommended for emergency power of the FACP 80. Observe the instructions given by the battery manufacturer and the guidelines on deep discharge of rechargeable batteries issued by VdS Schadenverhütung GmbH (VdS, Cologne, Germany).

Depending on the capacity of the batteries emergency operation of the panel may be possible for 72 hours or longer. During the period of mains supply failure the panel is powered from the batteries, which also supplies power to the external alarm devices in case of an alarm. Proper functioning of these devices must still be ensured if the final discharging voltage is reached.

Battery charging after a mains power failure

On re-establishing the mains power supply the FACP switches on again. The batteries will be charged automatically and after recovery the internal battery load test will show the terminal voltage of minimum 21 V DC. Failure to reach this voltage will cause a battery fault and the discharged batteries must be replaced or recharged externally.



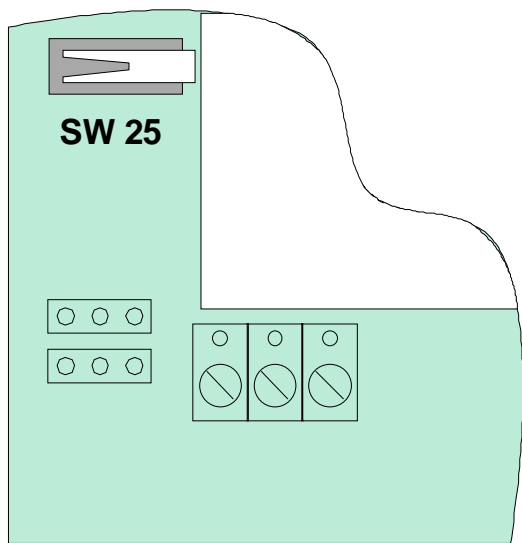
Exhausted batteries will not charge correctly. Only the Novar approved battery types must be used for supplying the fire alarm control panels with backup power.

2.5 System Test

The assembled FACP may be tested before any external equipment is connected, the test is a quick check of the FACP's functions.

Factory configuration

- The detector zone inputs are fitted with terminating capacitors (electrolytic, 35 V /22 µF)
- The relay for the Fire alarm routing equipment (FARE) is terminated with a resistor of 680Ohm.
- The alarm device control output is terminated with a resistor of 10 kOhm.

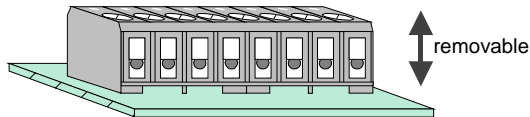


Opening the FACP housing opens the lid contact (SW25).

Factory settings:

Opening this contact does not disable activation of the master box (MB).

If required, automatic disabling of the MB may be programmed in the customer data.



The terminal strip may be unplugged from the electronics module in order to facilitate connection.

Re-fit the terminal strip to the module once all connections have been made.

Connecting cable: max. 2.5 mm²

1. Open front door/housing
2. Connect mains and batteries.
(After powering up the FACP 80 a battery failure may be reported if no batteries are connected.)
3. Close front door/housing or keep the lid contact (SW 25) depressed.
(Depending on the customer data programming, activation of the MB may be disabled on opening the lid contact. This state will be signalled on the operating panel.)
4. The FACP is now ready for a functional test.
 - In normal operation, the green LED >Power< will be lit.
 - Connecting a resistor (1 kOhm) in parallel to the terminating capacitor may trigger a fire event from a detector zone.
 - A failure of the detector zone may be simulated by removing the terminating capacitor or by unplugging the terminal strip.



ESD Protection

While handling electronic assemblies, the necessary precautions against electrostatic discharge must be taken.

2.6 Detector Zones

The FACP 80 has four or eight differential inputs for connecting automatic detectors or manual pushbuttons. The connected lines are monitored for wire breakage and short circuits. Any triggering, disablement, or failure of an individual detector zone will be signalled at the main display and at the individual zone indicator.

Part No. 788705: FACP 80 with 4 detector zones
Part No. 788706 FACP 80 with 8 detector zones

There is a transistor output (Q1-Q4 or Q8) for each detector zone (B1-B4 or B8). These zone outputs are activated in case of a fire alarm from the associated detector zone.

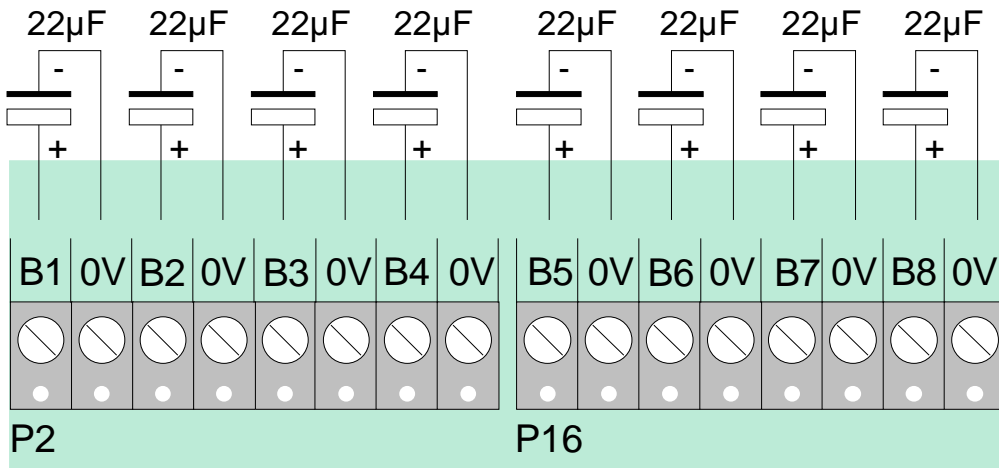


Fig. 3: Factory configuration with EOL- capacitors - FACP 80 with 8 detector zones

System limits:

- Max. 30 automatic Fire detectors Series 9000 (without SOC) per zone.
- Max. 30 Series 9200 automatic fire detectors per zone (in standard operation).
- Max. 10 non-automatic Fire detectors (Manual call points) per zone.
- Recommended installation cable: I–Y (St) Y n x 2 x 0,8 mm , cable length max 1000m.
- End-of-line capacitor for zone monitoring (22 µF / 35 V), fitted in last detector of the zone required (Observe the polarity of the electrolytic capacitor).



Unused zone inputs must be terminated with an End-of-line capacitor, mounted directly on the terminals of the PCB (refer Figure above).



In accordance with the Requirements of DIN VDE 0833-2 and the VdS Guidelines for Germany, automatic and non-automatic fire detectors must be installed in separate detector zones. A separate zone must be provided for each detector type.

2.6.1 Connection of automatic Detectors series 9000

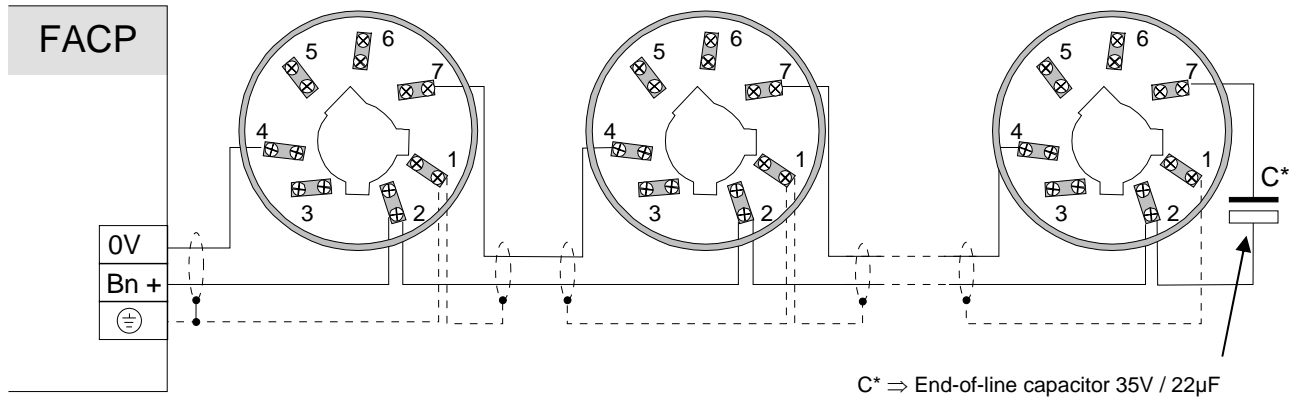


Fig. 4: Wiring of standard detector bases 781590 (Example)

Supported Detectors and Detector bases series 9000

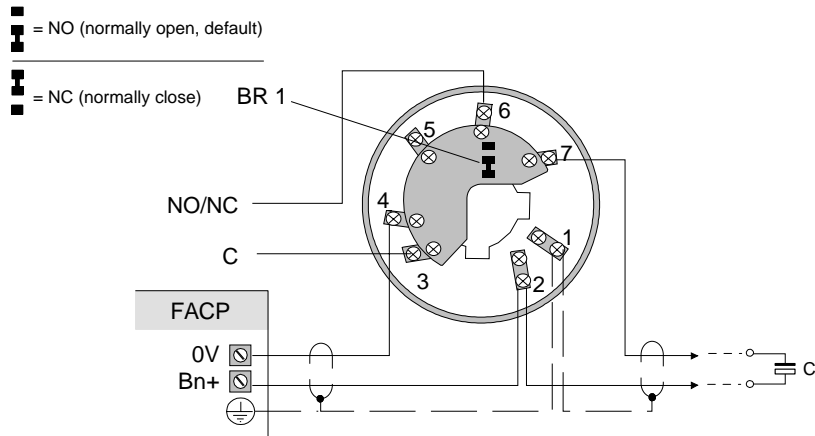
Part No.	Description	Max. Number per zone
761062	Ionization smoke detector Series 9000 (without SOC)	30
761162	Fixed Heat detector Series 9000 (without SOC)	
761167	Heat sensor	
761262	Rate-of-rise Heat detector Series 9000 (without SOC)	
761362	Optical smoke detector Series 9000 (without SOC)	
781590	Standard Detector base (The remote alarm indicator, Part No. 781804, may be connected through optional connecting module, Part No. 781487).	
781588	Detector base with relay output (30 V DC / 1A)	
781592	Detector base with Open collector output (30 V DC / 0,4A)	



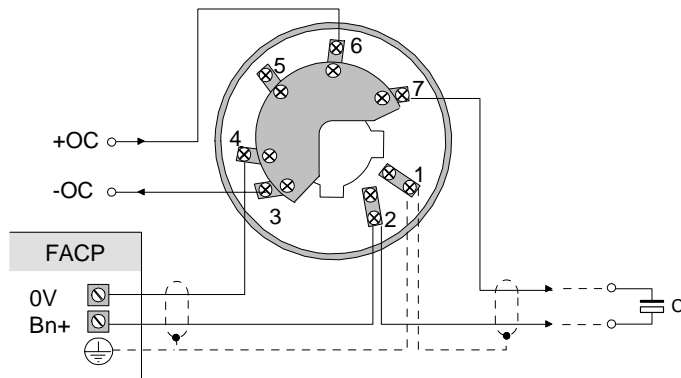
For detector zones with installed detector bases a 2ZD- mode is not possible.

Mixed operation of series 9000 and 9200 detectors in a detector zone is not permitted.

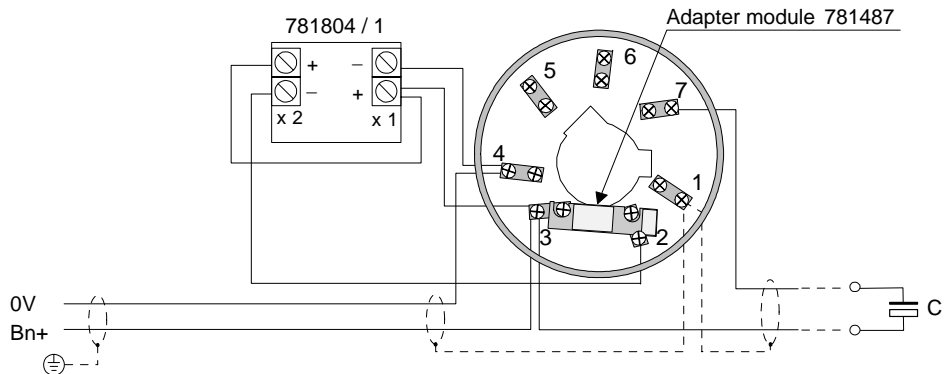
Wiring Detector base Part No. 781588 (with relay output)



Wiring Detector base Part No. 781592 (with Open collector output)



Wiring LED Remote indicator Part No. 781804 (with Adapter module Part No. 781487)



2.6.2 Connection of automatic Detectors series 9200

The FACP 80 supports the connection and within certain limits, the functionality of series 9200 fire detectors. These intelligent fire detectors are intended for operation on the analog loop of the series 8000 fire alarm system. They may, however, also be connected to the FACP 80 like normal series 9000 standard fire detectors, assumed they are installed in a separate detector zone. This provides the operation of multisensor detectors installed in a conventional detector zone without using the specific multisensor detector options.

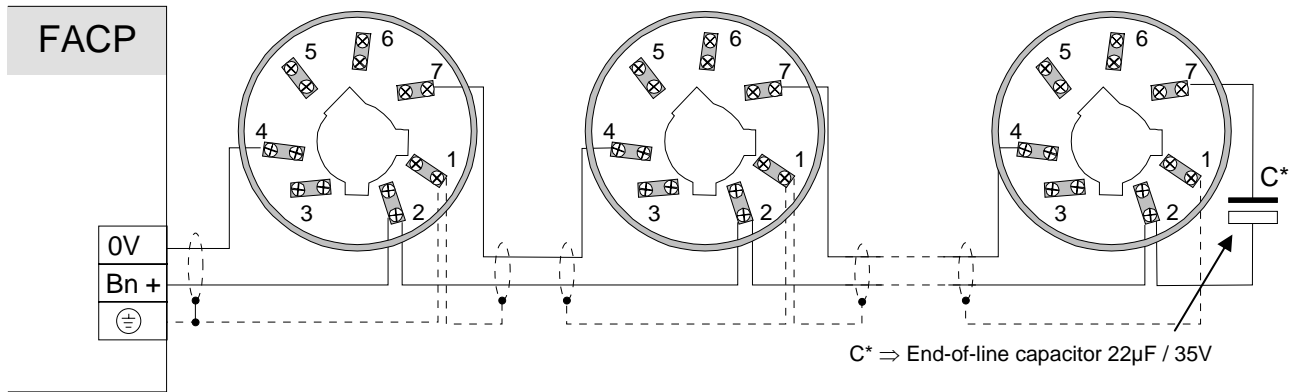


Fig. 5: Wiring of standard Detector bases 781590 (Example)

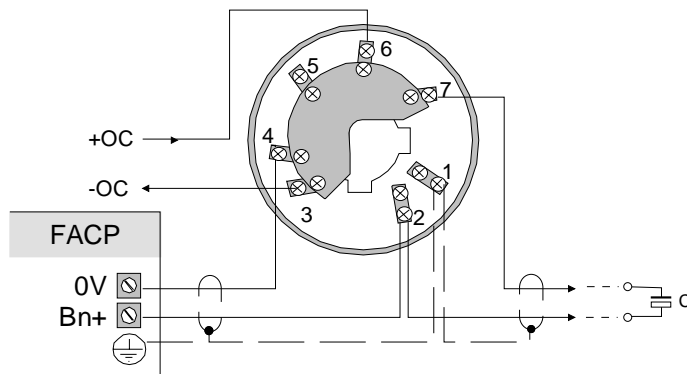
Compatible detectors and bases for the FACP 80

Part No.	Fire detector	Max. number per zone	Part No.	Detector base
801071	Ionization smoke detector series 9200	30	781590	Standard Detector base
801171	Fixed Heat detector series 9200		781591	Detector base with relay output (30 V DC / 1A)
801271	Rate-of-rise Heat detector series 9200		781592	Detector base with Open collector output (30 V DC / 0,4A)
801371	Optical smoke detector series 9200			
801373	OH- intelligent detector series 9200			
801374	O ² H- intelligent detector series 9200			
801973	OHI- intelligent detector series 9200			



- A reset time of 6 seconds must be programmed at the FACP 80 if series 9200 detectors are connected.
- As a consequence of the reset time of 6 seconds required for series 9200 detectors, Two-detector dependency (2DD) and alarm verification can not be used.
- Mixed operation of series 9000 and 9200 detectors in a zone is not permitted.

Wiring Detector base Part No. 781592 (with Open collector output)



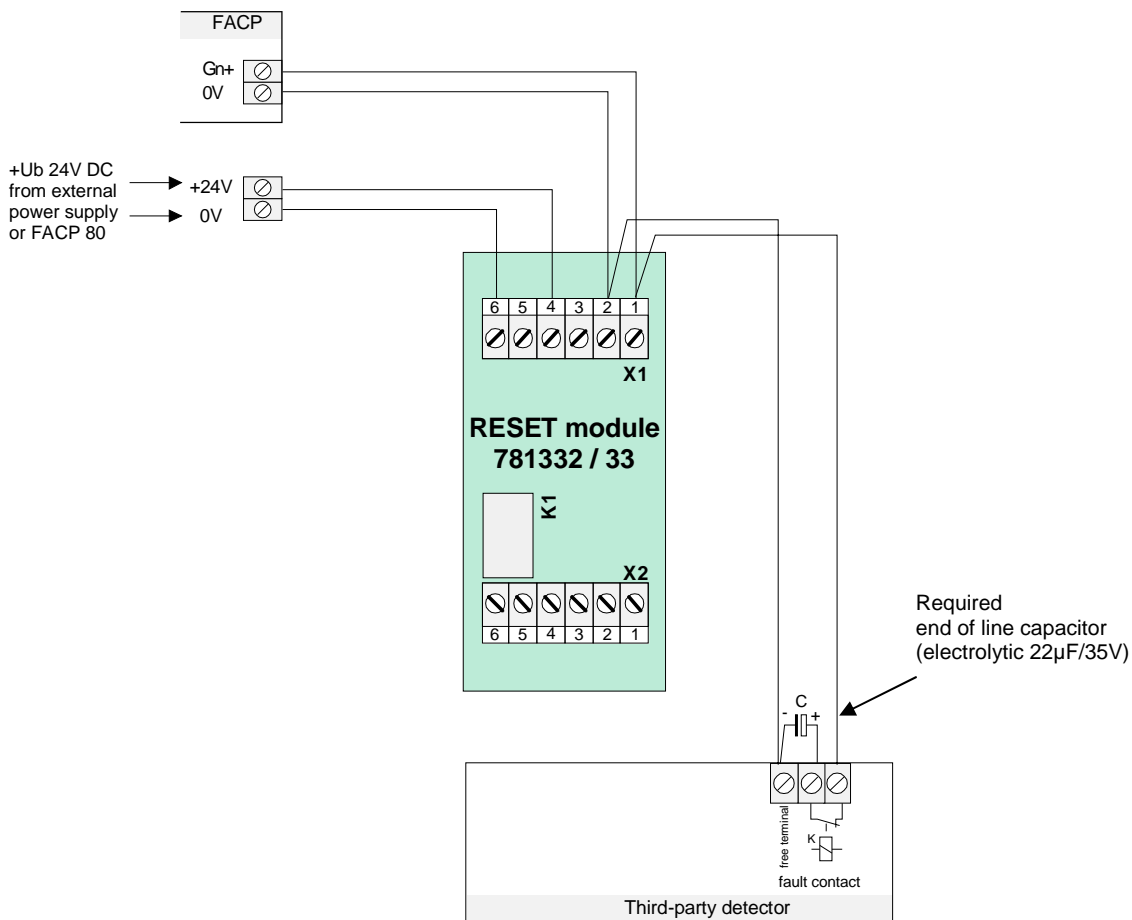
2.6.3 Connecting third-party detectors

The RESET module (Part No. 781332/33) is required for connecting third-party detectors, linear detectors e.g. Fireray or smoke extraction systems.



A separate detector zone and a dedicated RESET module must be provided for every connected third-party detector!

Connection



For the detailed detector base wiring refer to the supplied reset moduls manual.



Observe that a EOL-resistor **MUST NOT** be fitted for the detector zones if the RESET module is connected to the FACP 80. The detector zones connected to the FACP 80 are **always** terminated with an electrolytic capacitor (22µF / 35 V).

2.6.4 Wiring the non-automatic Fire detectors (MCP)

The FACP 80 detector zones are provided for connecting Manual call points.

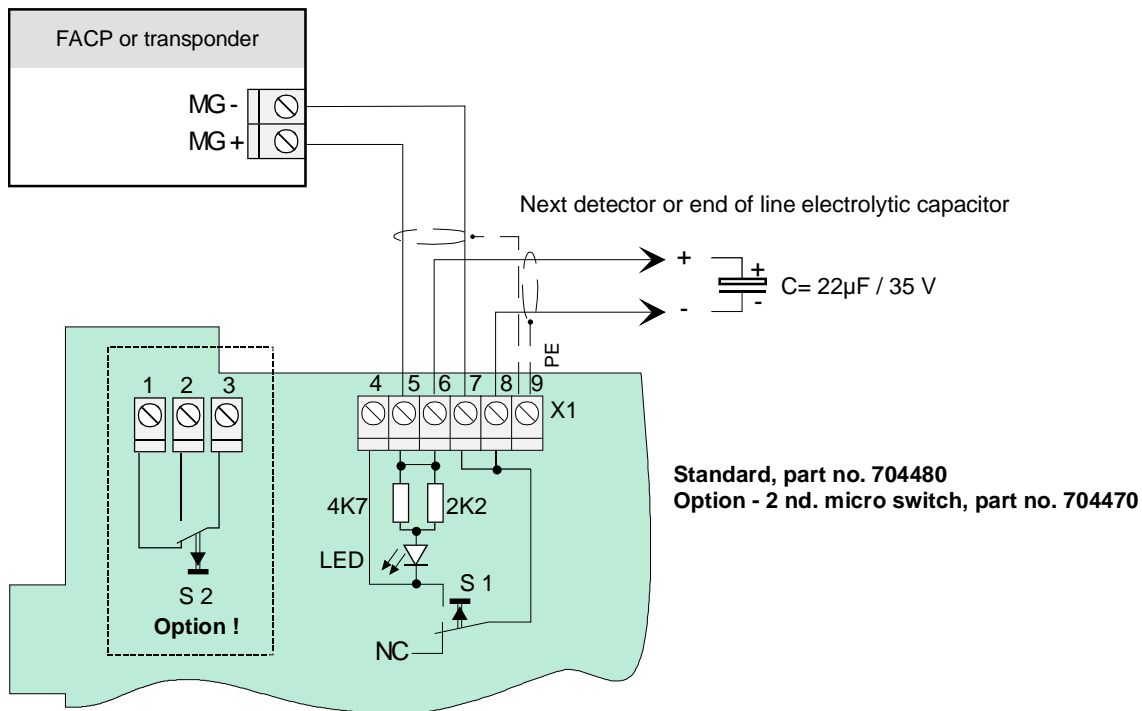


Fig. 6: Wiring example: Manual call point



Refer to the appropriate manuals of the MCPs for detailed wiring informations.

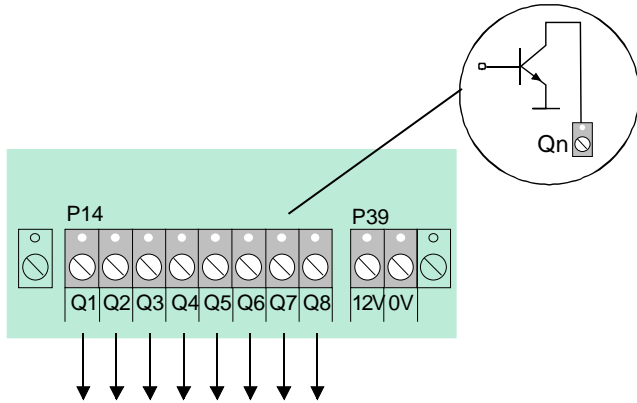
Part No.	Description	Max. number per zone
704480 ²⁾	series 9000 electronics module (for 24 V DC Operating Voltage)	10 ¹⁾
704470 ²⁾	series 9000 electronics module with 2 nd micro switch (24 V DC)	
804900	Conventional MCP electronic module, large design	
804901	Conventional MCP electronic module with second microswitch, large design	
804970	Conventional MCP electronic module, compact, small design	

¹⁾ in accordance with the Requirements of the DIN VDE 0833-T2 and the VdS-Guideline 2095 the total number of non-automatic detectors must not exceed 10 per zone.

²⁾ The electronics module may be fitted into one of the housings supplied for manual call points. The different combinations are listed in the product group catalogue fire alarm technology available.

2.7 Transistor outputs

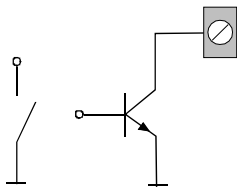
The zone-related transistor outputs (Q1 to Q8) are activated in case of a fire alarm from the relevant detector zone. These outputs may be used to control an additional signalling device per detector zone, e.g. for remote alarm signalling.



- 4- or 8- transistor zone outputs (open collector) (number depends on the panel configuration for 4- or 8- zones)
- short-circuit proof
- switching to ground

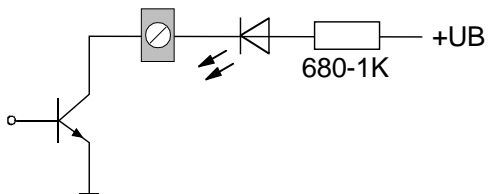
Fig. 7: Zone-related Transistor outputs of the FACP 80-8

Elementary circuit diagram of an open collector Transistor output



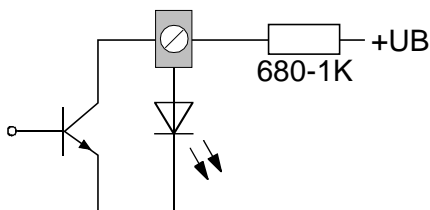
Transistor output with N.O. function (switch mode)

Wiring examples



Transistor output is switched on to switch on a remote LED indicator

- breaking capacity
12 V DC or 24 V DC/ max. 50 mA



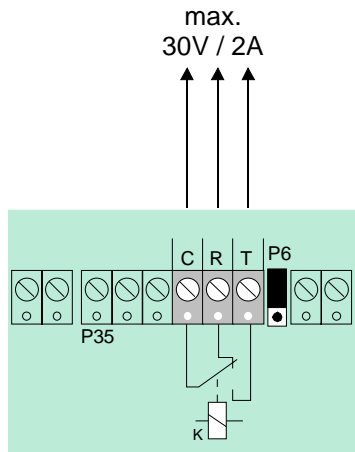
Transistor output is switch off to switch on a remote LED indicator

- breaking capacity
12 V DC or 24 V DC/ max. 50 mA

2.8 Relay outputs

The Fire alarm panel FACP 80 provides three relay outputs for individual control of functions.

Common Fire relay



The relay is triggered at each fire alarm of the panel in accordance with EN54-2.

Voltage free change-over contacts (contact rating max. 30 V DC / 2A)

The contact state shown on the left corresponds to the stand-by state in normal operation.

P6



Normal operation

The relay will be activated in case of a fire alarm (**factory setting**)

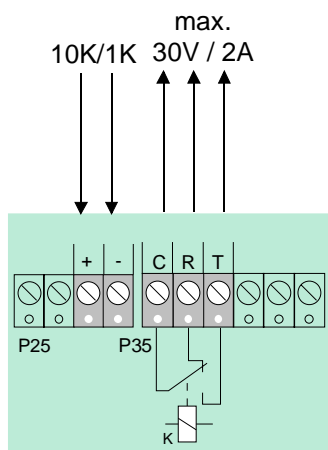
P6



Inverted operation

The relay is activated during normal operation of the FACP. On a fire alarm from this FACP, the relay will be de-activated and a change of state will occur at the output. This function can be used e.g. for controlling door hold magnets.

Relay common fault / fault routing equipment input



This relay is activated during normal operation of the FACP (inverted operation). It will be de-activated in case of any malfunction and a change of state will occur at its output. This configuration ensures that any malfunction will be signalled even in case of a complete break-down of all supply power (mains and battery).

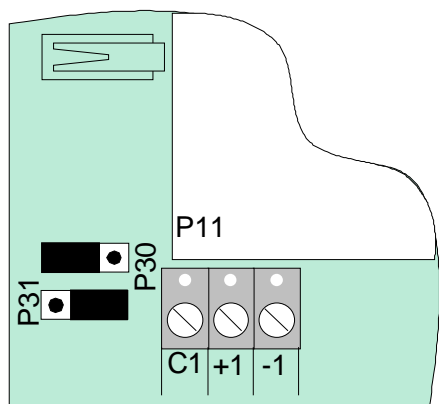
Voltage free change-over contacts (contact rating max. 30 V DC / 2A)

Fault routing equipment input

Monitored 10K/1K input for connecting the fault signal of a fault routing equipment, e.g. a telephone dialling unit (10 k Ohm = stand-by / 1 k Ohm = activation). The fault is indicated by the 'common fault' LED and on the display of the operating panel.

Relay – X (additional relay)

Relay X (additional relay) may be assigned through the system configuration to one of four possible states, i.e. >common fire<, >pre-alarm<, >fault, disablement<, >FDC system< or >MB-acknowledgement<. Relay X will be activated if the relevant event occurs.



Factory setting:
common fire, voltage free

Fig.8: Terminal and jumper layout for relay X

Voltage free change-over contacts

The contact positions shown are the standby positions in normal operation. This relay contact may also be configured for inverted operation.
Contact rating: max. 30 V DC / 2A.

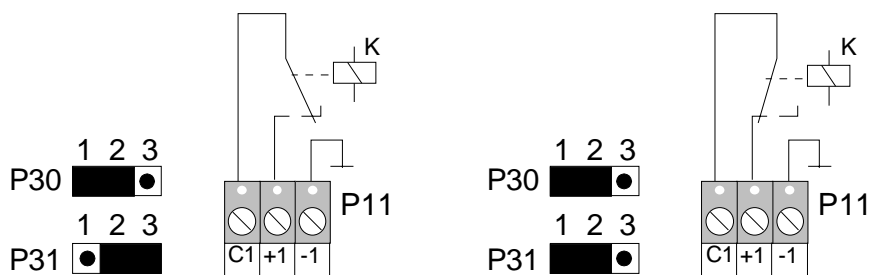


Fig.9: Voltage free, N/O

Voltage free, N/C

Positive switching contact (24 V DC)

In case of an event and depending on the configuration of relay X, the active switching state will either be opened (N/C) or closed (N/O).

Contact rating: +24 V DC_{intern.} /max. 0,5A

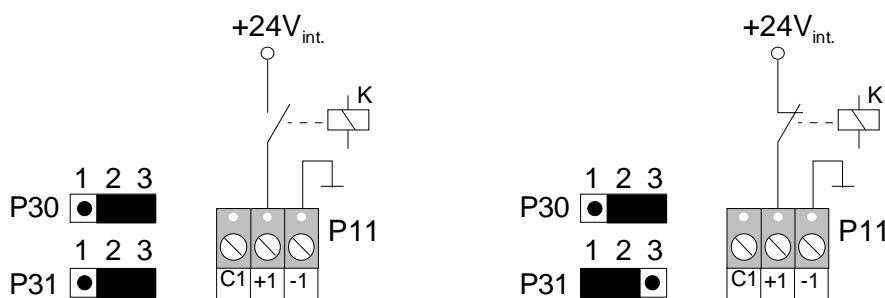


Fig.10: Voltage free, N/O

Voltage free, N/C

2.9 Connection of alarm devices

Terminals S1± and S2± are provided for connecting alarm devices e.g. sounders for external alarm. The outputs will be activated in accordance with EN54-2 in case of a fire alarm at this panel unless they have been manually switched off or disconnected via the operating panel. Output S1 can only be used for unlocking the key box (KB), if this feature has been programmed in the customer data.

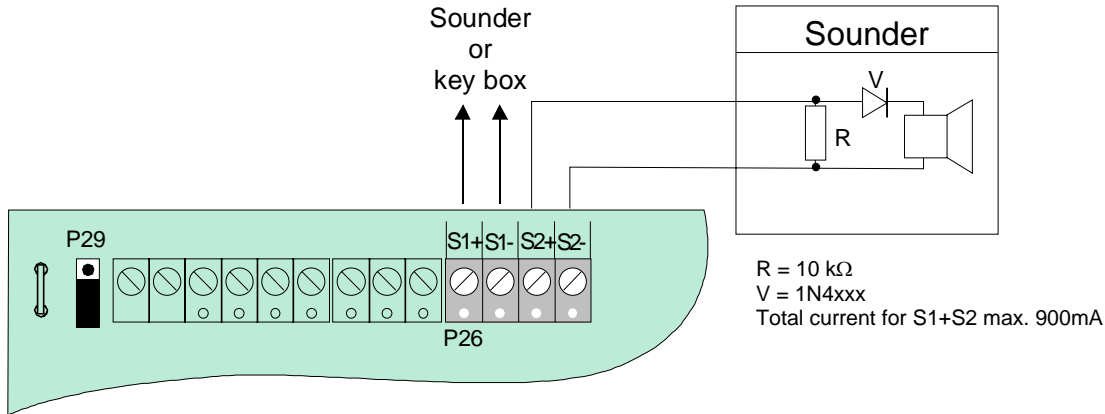


Fig. 11: Terminals for audible alarm device

P29



Factory setting

With the factory settings the line connected to terminals S1± and S2± is monitored for line breakage and short-circuits. This function uses a sensing current (< 2mA) for which a termination resistor (10 k Ohm) and a diode (1N4xxx) need to be connected. These elements are installed inside the housing of the alarm device, immediately at the connecting terminals. In case of an event, the **signal polarity** at terminals P26 (+S2/-S2) changes and the internal supply voltage (+24 V DC / GND) is applied to the alarm device.

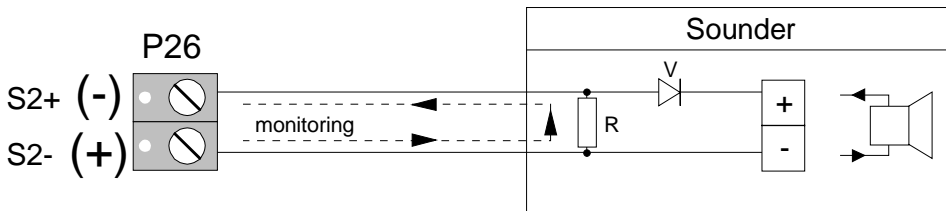


Fig. 12: Monitoring (Normal mode), example output S2

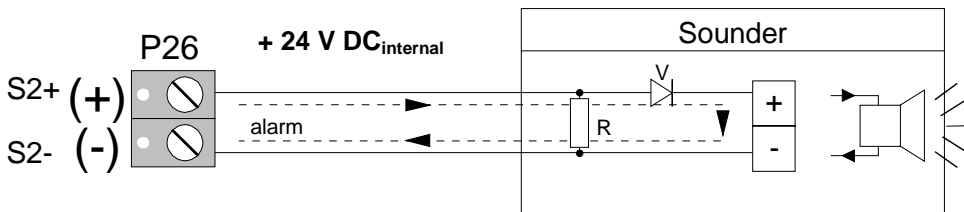


Fig. 13: Activation (Fire alarm), example output S2

2.9.1 Connecting an external power supply for alarm devices

Alarm devices connected to terminals S1/2 can also be powered by an external source.

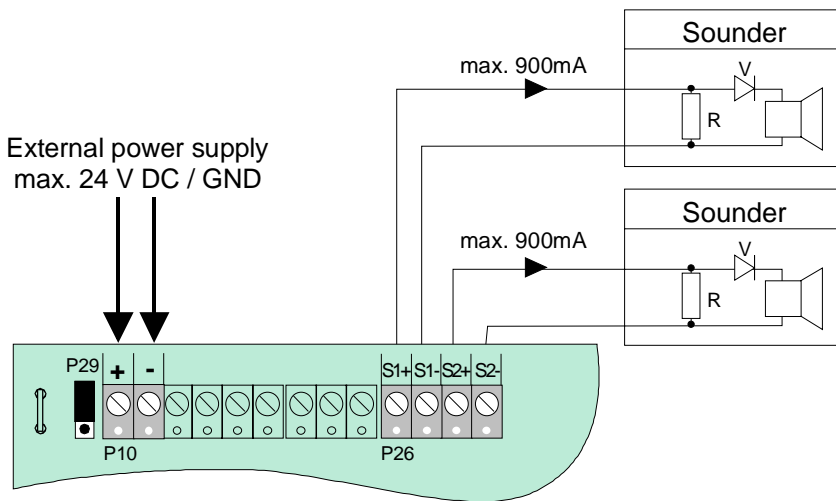


Fig. 14: Connecting an external power supply for audible alarm devices

- P29** external An external mains power supply unit (30 V DC max.) powers alarm devices connected to terminals S1/S2.
- In case of an event, terminals +S2 ($+U_{b_{ext}}$) and -S2 ($0V_{ext}$) of the external power supply are switched through.
 - The external supply voltage is not monitored.

Connection of an external power supply for the audible alarm devices is only required if:

1. several devices with a high current drain are used. The external power unit may supply up to 900mA per S1/S2 output.
- or
2. audible alarm devices requiring supply voltages other than the $+24 V_{ext}$ from the FACP are used.

VdS Due to the absence of any monitoring, external supply used for signalling devices is not in accordance with VdS guidelines.

2.10 Connecting a fire department operating panel (FDOP)

The FACP 80 provides a factory built-in Interface for connection of a Fire department operating panel (Part No. 784710).

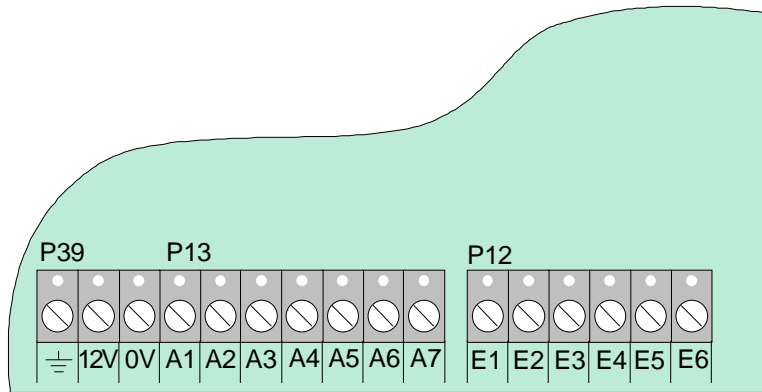


Fig. 15. Connection terminals fire department operating panel

Outputs		
A1	Fire routing activated	positive switching, 12V DC / max. 14mA
A2	Fire routing disabled	
A3	Alarm signals off	
A4	Extinguishing system activated	
A5	Fire protection off	
A6	Common fire	
A7	Not used (do not connect)	
Inputs		
E1	Fire protection equipment off (Connect to 0V/GND if terminal is unused, default setting)	Active High
E2	Fire routing (MCL) disabled	Active Low switches to 0V / GND
E3	Check fire routing (MCL)	
E4	Reset FACP	
E5	Alarm signals off	
E6	Not used (do not connect)	

The power supply voltage of the Fire department operating panel can be connected to the terminal P13 (+12 V / GND).

2.11 Key box

Connection and operation of a key box in accordance to the German VdS guidelines VdS 2104 (e.g. Part No. 785588 with 24V Technology). Required signal cable: LiYY 10 x 0,5 mm².

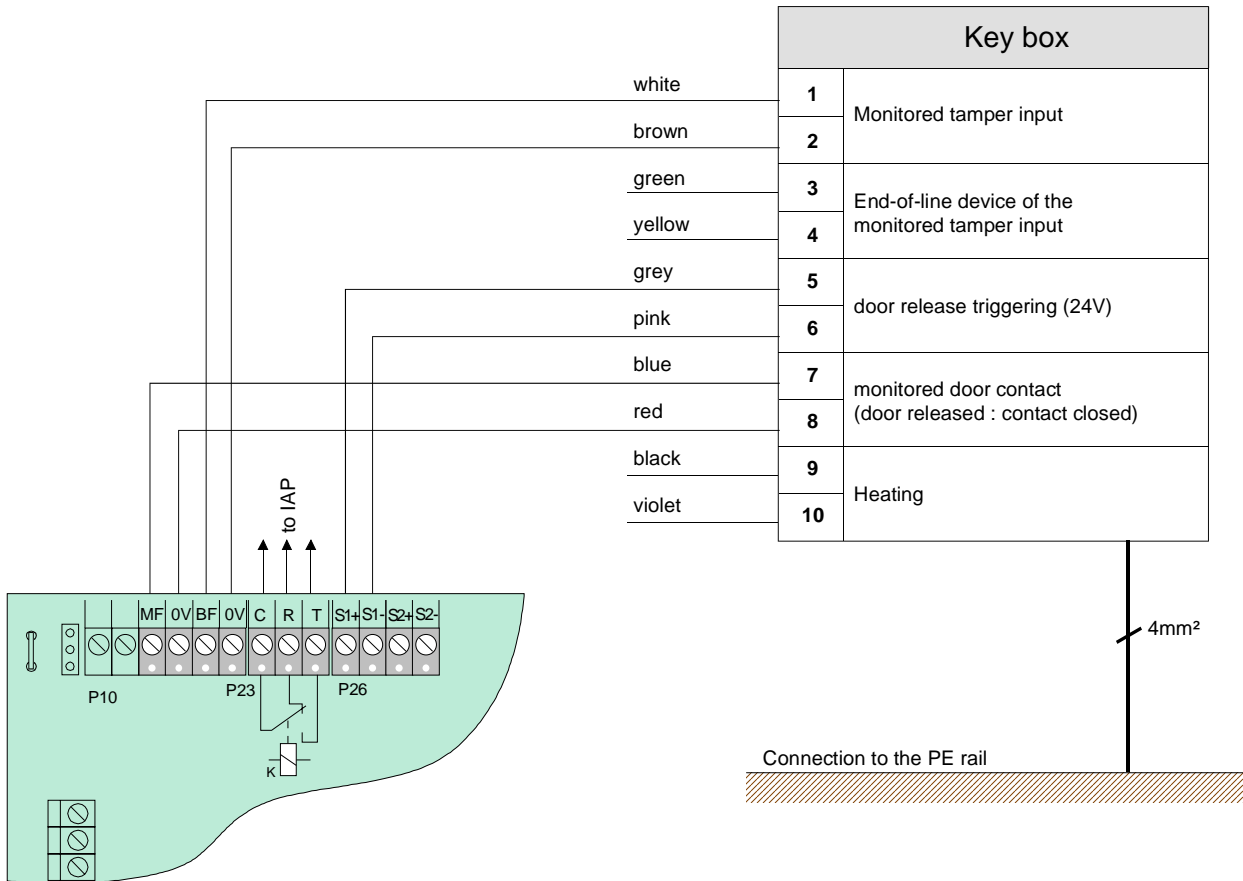


Fig. 16: Connection terminals for the Key box

MF / 0V	Input for monitoring the door contact of the fire service key box. This input is used to signal the state of the door contact (open/closed) to the FACP 80.
BF / 0V	Tamper surveillance input for connecting the tamper surveillance line of the fire service key box. The fire service key box has an integrated 2.2 k Ohm terminating resistor. The FACP monitors the line for the presence of this resistance. Relay >AUX< is activated in case of wire breakage, short circuit, or destruction of the tamper protection. This relay may be used to forward a tamper alarm e.g. to an intruder alarm system.
Relay AUX	Voltage free change-over contact, contact rating max. 30 V DC / 2A. This relay is activated during normal operation of the FACP. It changes its state if the tamper input is triggered.
S1+/S1-	This output provides the 'unlock' function, if a key box has been programmed in the FACP 80 customer data. This output will be activated (+24 V DC) on the acknowledgement from the master box in order to unlock the outer door of the key box. The keys in the box are still protected by the inner door of the KB. The key to this inner door is held by the fire department.

2.12 Connection of fire routing equipment

These terminals are used to connect a fire routing equipment or a telephone dialling unit for signalling alarms to the fire brigade. The activation mode (continuous / pulsed) is set as part of the system configuration.

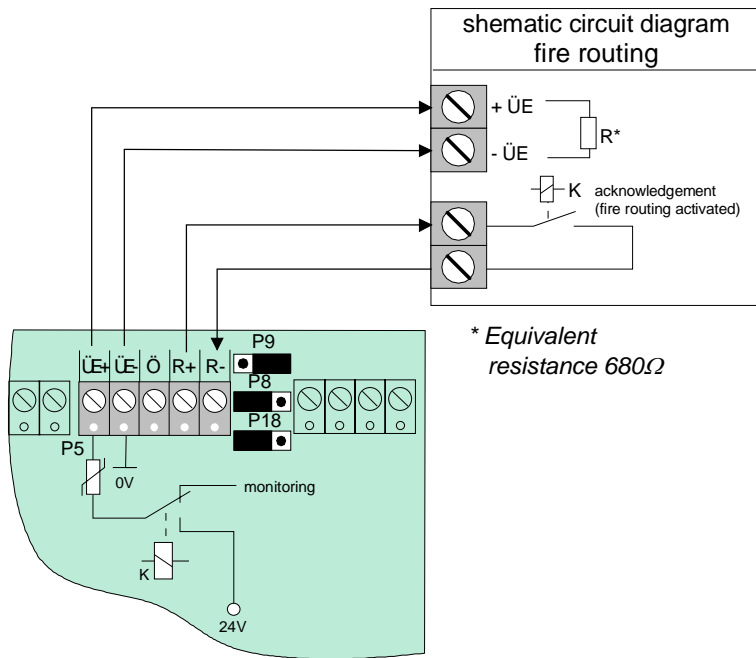


Fig. 17: Connecting a master box (switching the ,+‘ line, monitored)

Master box

Mode “+24V switching” must be selected by means of jumpers P8/P9 (ref. fig. 17).

Jumper P18 is used to configure the MB output monitoring.

The MB acknowledgement input must be programmed as ‘latching’ or ‘non-latching’ to match the installed master box.

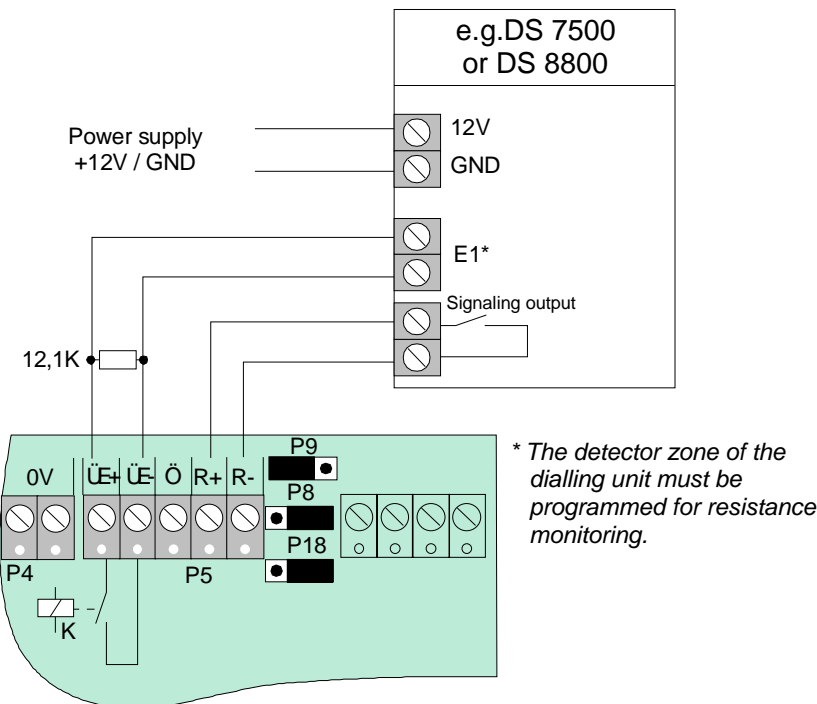


Fig. 18: Connecting a telephone dialling unit (floating, not monitored)

Telephone dialling unit

Mode ‘floating’ must be selected with jumpers P8/P9 (ref. fig. 18).

Jumper P18 is used to configure the MB output as “not monitored”.

The MB input may be programmed as “latching” in the customer data in order to accommodate the short acknowledgement pulse from the dialling unit.

2.13 Connection of a Fire protection equipment

This interface is used for connecting a fire protection system.

Fire protection systems actively fight fires (e.g. by extinguishing systems), limit their spreading (e.g. by automatic fire protection doors), or support fire fighting (e.g. smoke extraction systems).

The FACP 80 fire alarm control panel provides a voltage free relay output and a monitored input for connecting a fire protection system. This relay is activated in case of an event in order to engage the connected fire protection system. The failure signalling input may be used for monitoring the fire protection system. Fire protection systems with own failure signalling contacts are connected to the failure signalling contact of the FACP 80. This connection is monitored for the presence of a resistance of 10K/1K. A value of 10 kOhm indicates normal operation, 1 k Ohm is used to signal a failure. Failures of the fire protection system are indicated via *Fault* indicator (yellow LED) and in the display of the FACP 80.

Connection and programming of a fire protection system

The following page includes three examples for connecting various fire protection systems. The required mode of operation for the connected system must be programmed via the customer data settings (system level, access level 4).

Example 1

Standard Interface, in accordance to the German VdS-Guideline 2496, for connecting an electrical control device for extinguishing systems.

Required mode: SST

Example 2

Fire protection equipment, general

Required mode: BSE

Example 3

Triggering a door control device (e.g. door magnet). The relay is energized in normal condition of the FACP 80.

Required mode: BSE invers

1) Interface (SST), in accordance to VdS-Guideline 2496

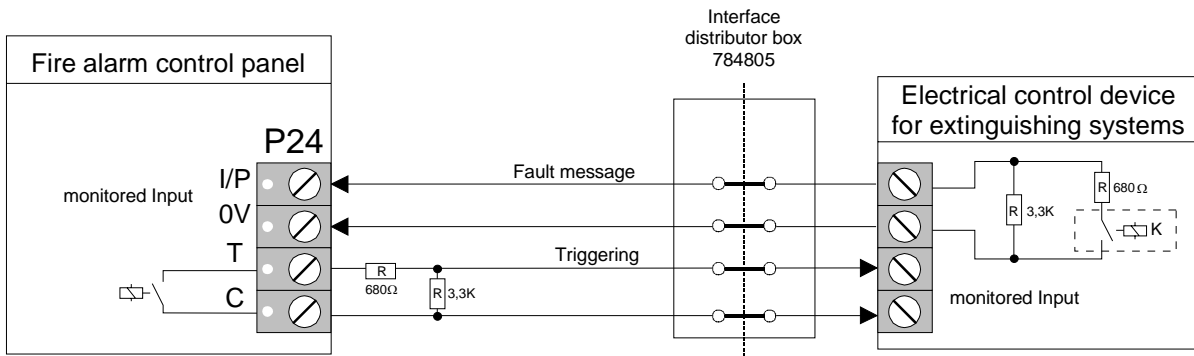


Fig. 19: Standard Interface (Wiring Principle)

2) General Fire protection equipment (BSE)

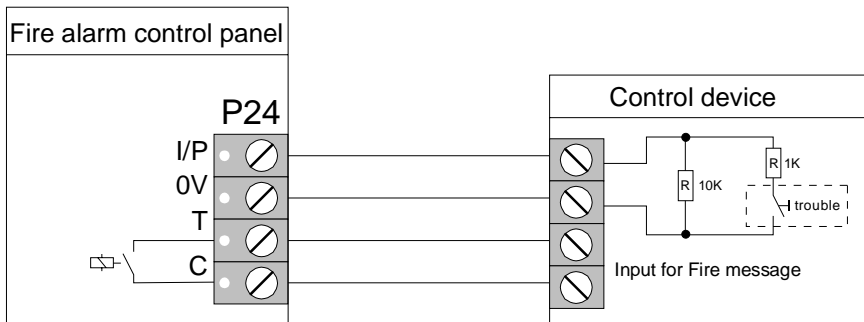


Fig. 20: Fire protection equipment (Wiring Principle)

3) Fire door controls, magnet (BSE, invers)

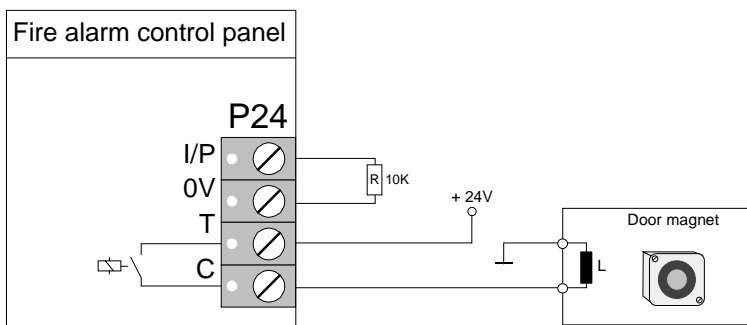
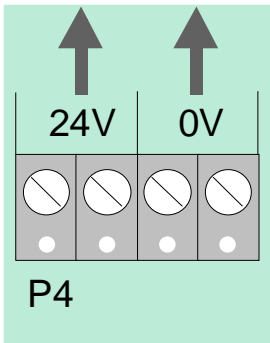


Fig. 21: Fire door controls (Wiring Principle)

2.14 Power supply for equipment (+24 V DC)



Connect the power input of external devices or equipment of the fire alarm system to terminal P4 (24 V DC).

Contact rating: 24 V DC ($U_{b_{int}}$) / max. 500 mA

2.15 Write protection for EEPROM / Reset

Jumper (P36) enables/disables the write protection for the customer data or carries out a system reset.

P36



Programming protection activated

Jumper P36 in lower position

In accordance with standard EN54, system settings can not be changed.

On entry of a level 3+4 password, the LC display will show a message informing about the activated programming protection.

P36



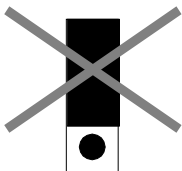
Programming protection de-activated

Jumper P36 removed

The system settings may be changed after input of a level 3 or 4 password.

With the exception of the values for the factory settings all earlier settings will be overwritten irrevocably.

P36



Re-activating the factory settings

Temporary closure (approximately 2s) of jumper P36 in its upper position re-activates the factory settings. The previous settings will be overwritten irrevocably.

The jumper must not be left in this position!

3 System configuration

The FACP 80 fire alarm control panel can be configured via its numeric keypad. The display shows the relevant menu with all sub-menus. A service PC is not required for programming this system. Configuration is carried out in two different access levels: level 3 (installer level) and level 4 (system level). Further configuration options in addition to those provided at the installer menus are available at the system level.



User level (access level 2)

The user level allows normal operation of the FACP 80 by the owner of the system. The owner of the FACP 80 may change the access code at access level 2.

Default access code [2] : **1-2-3-4**

--	--	--	--

changed access code 2

Installer level (access level 3)

The installer level is used to program the object-specific customer data. Programming protection jumper P36 needs to be removed in order to save the modified data. The values of the factory settings are complemented or modified but not deleted through the installer programming. Hence, the factory settings may be re-activated at any time. The choice of programming options available in the installer level may be limited by appropriate programming in the system level (access level 4).

Default access code [3] : **4-3-2-1**

--	--	--	--

changed access code 3

System level (access level 4)

This level is used to program the basic settings (system configuration) of the FACP 80. Depending on the settings selected here, some functions, e.g. master box, fire protection system, or the fire service key box, may be excluded from the FACP 80 functionality and be made not accessible in the installer level.

Default access code [4] : **1-4-9-6** **fixed**

3.1 Installer level (Access level 3)

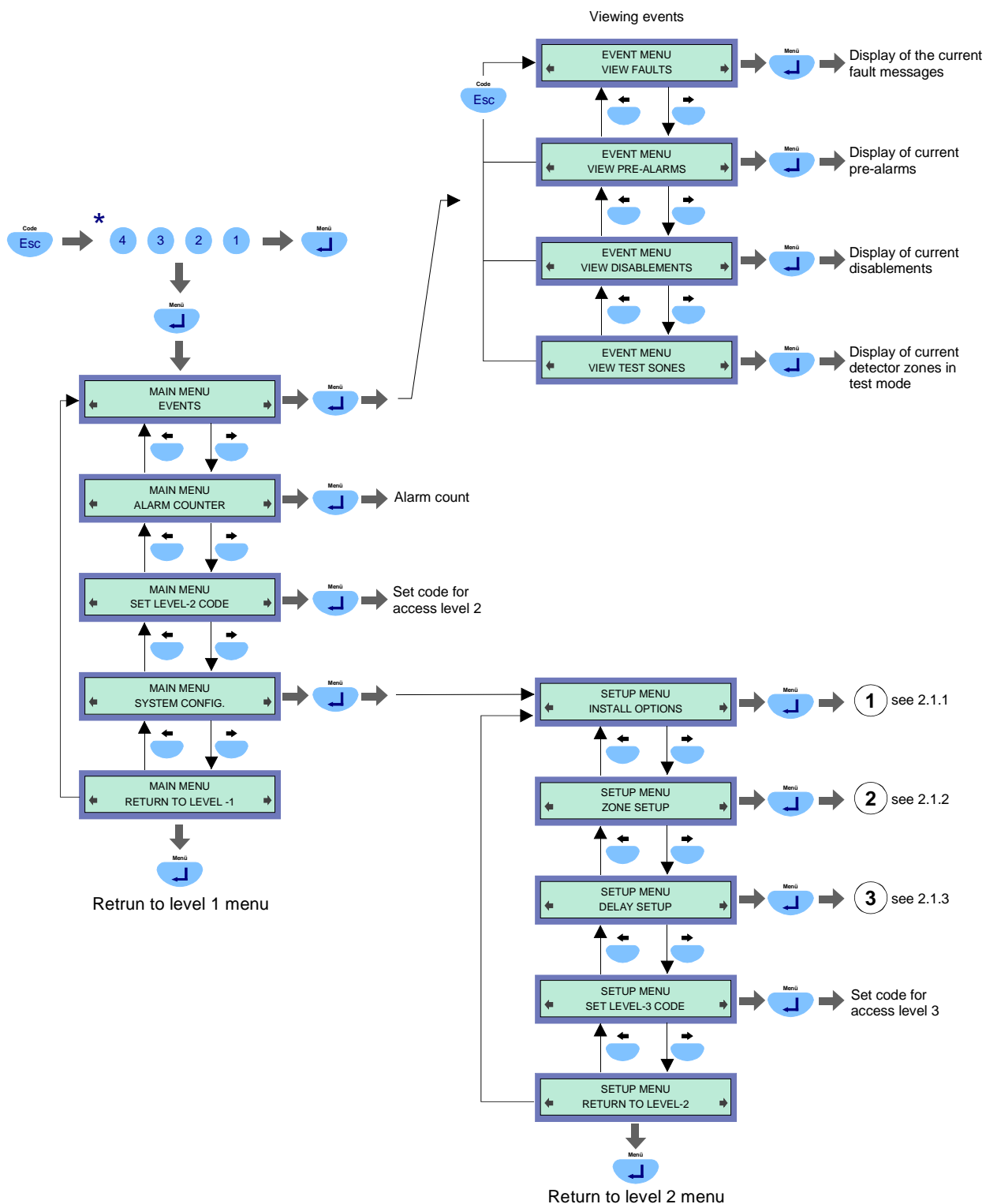
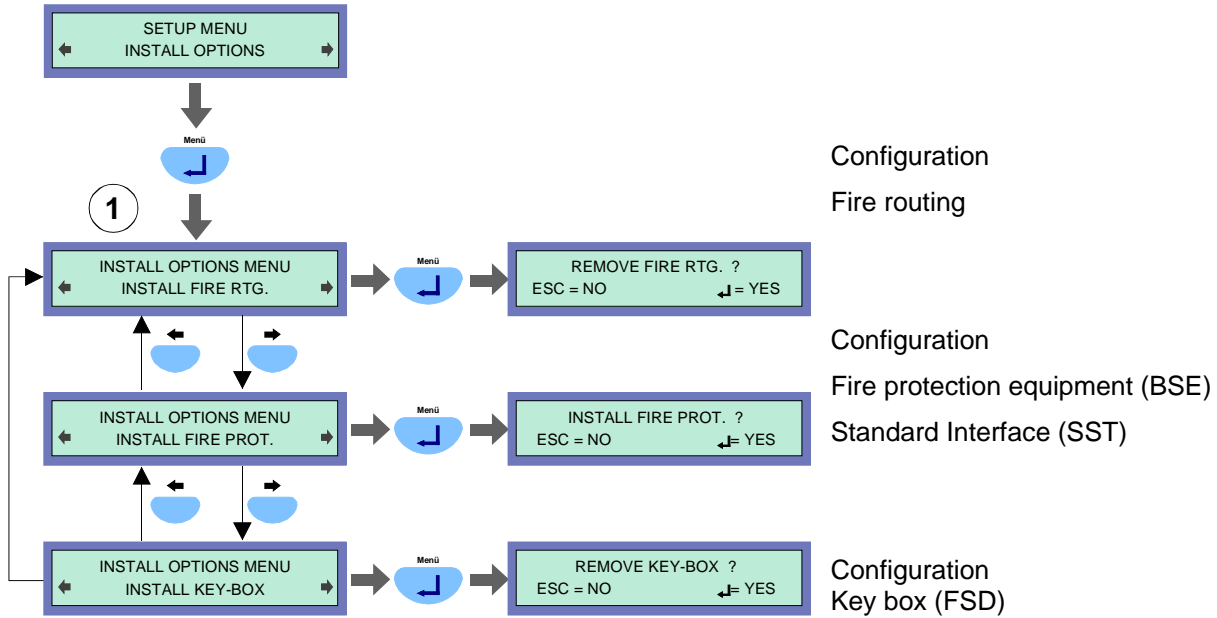


Fig. 22: Navigation Access level 3 (Part 1/2)

* Factory code setting.

3.1.1 Configuring options (Options menu)

This menu is used to disable or re-enable particular options of the panel configuration. Once an option has been disabled, all associated menu selections will no longer be displayed. The relevant menu selections will again be available after the option has been re-enabled.

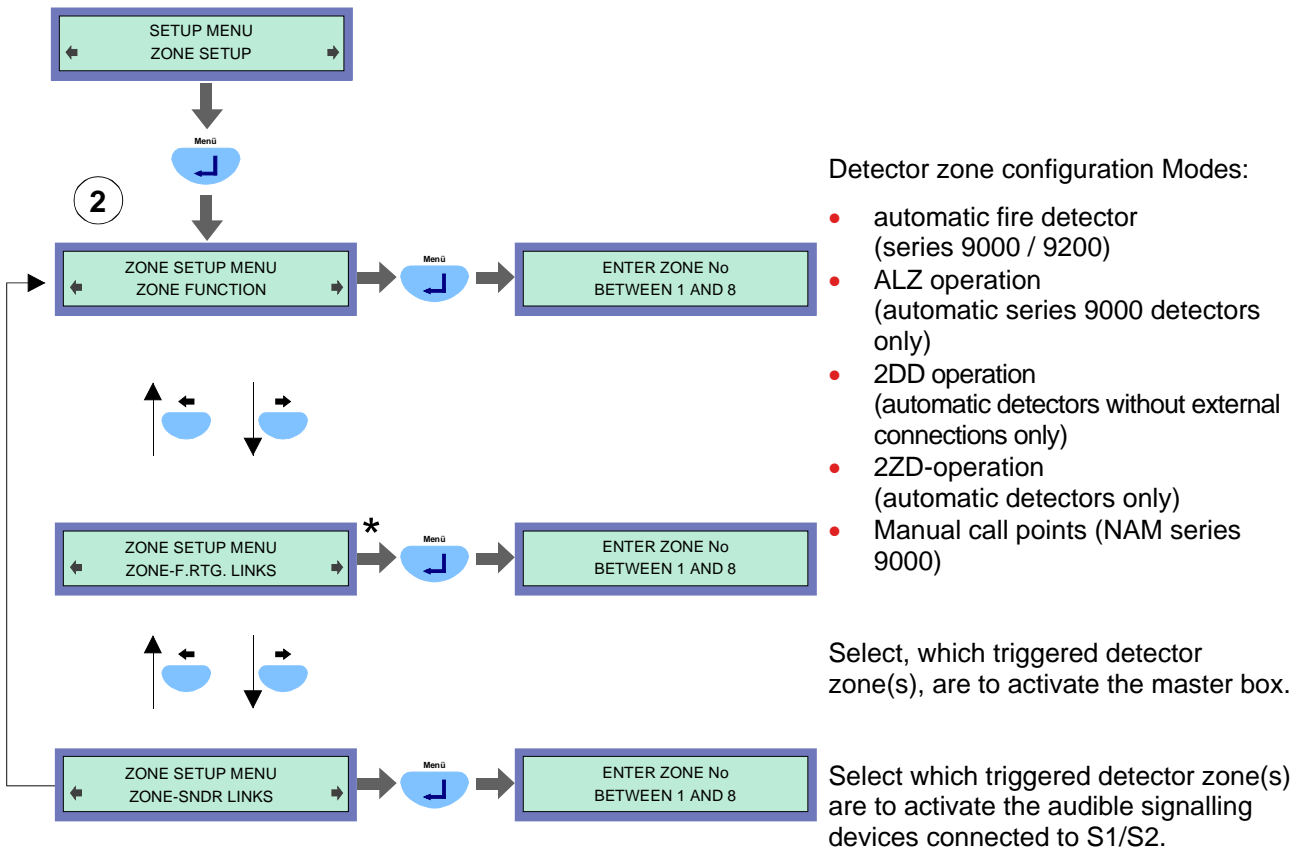


* The factory settings must have been loaded at the system level in order to display and configure this menu option.



Loading the factory settings irrevocably destroys the current customer data.

Detector zone Configuration

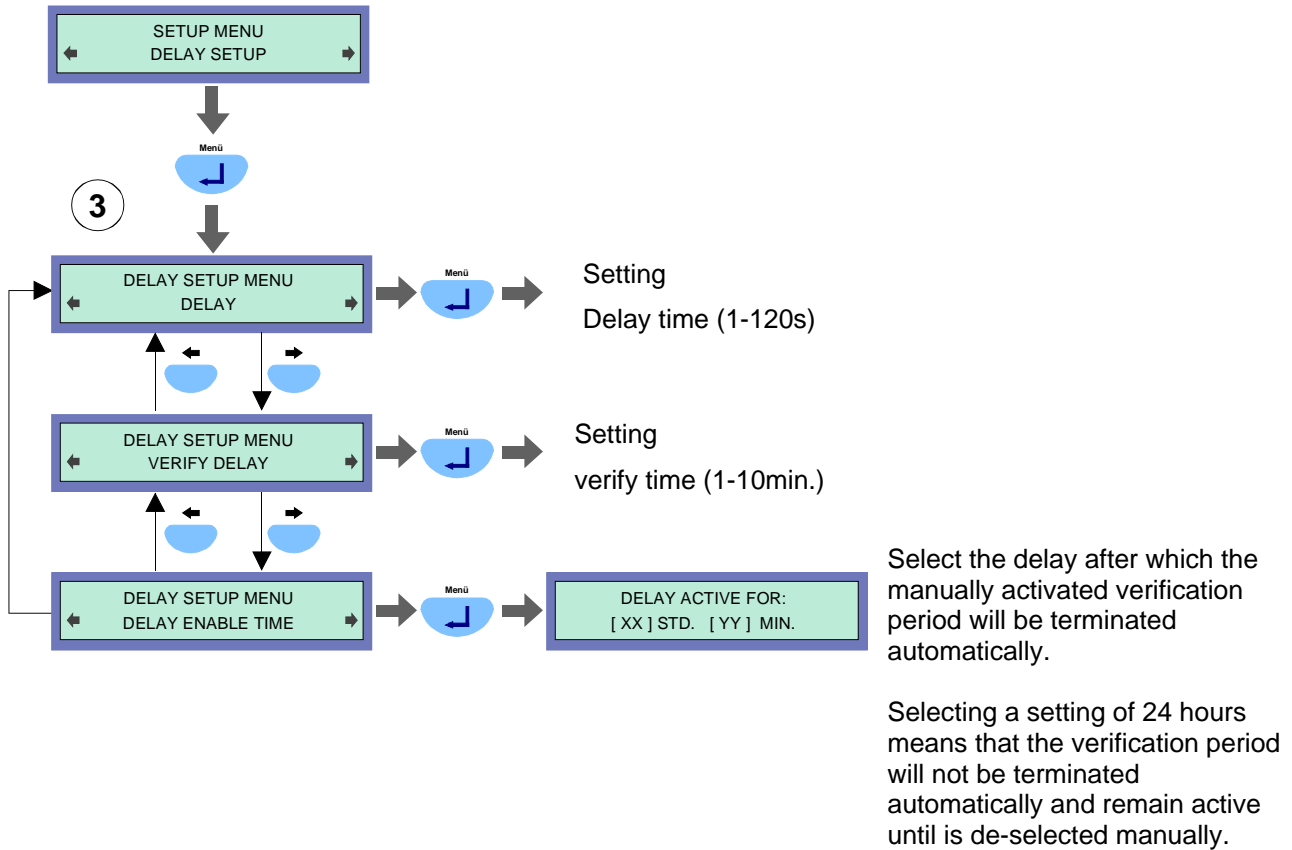


* Not available as part of the factory settings!
 This menu option is only available if a master box (MB) has been configured in the Options menu.



The FACP 80-4 only provides four detector zones for selection!

3.1.2 Delay and Verify Configuration



VdS In accordance with DIN V0833 and VdS 2095, verification must be terminated automatically once every 24 hours (max. permitted entry: 23 hours and 59 minutes.)

3.2 Menu options at the System level (Access level 4)

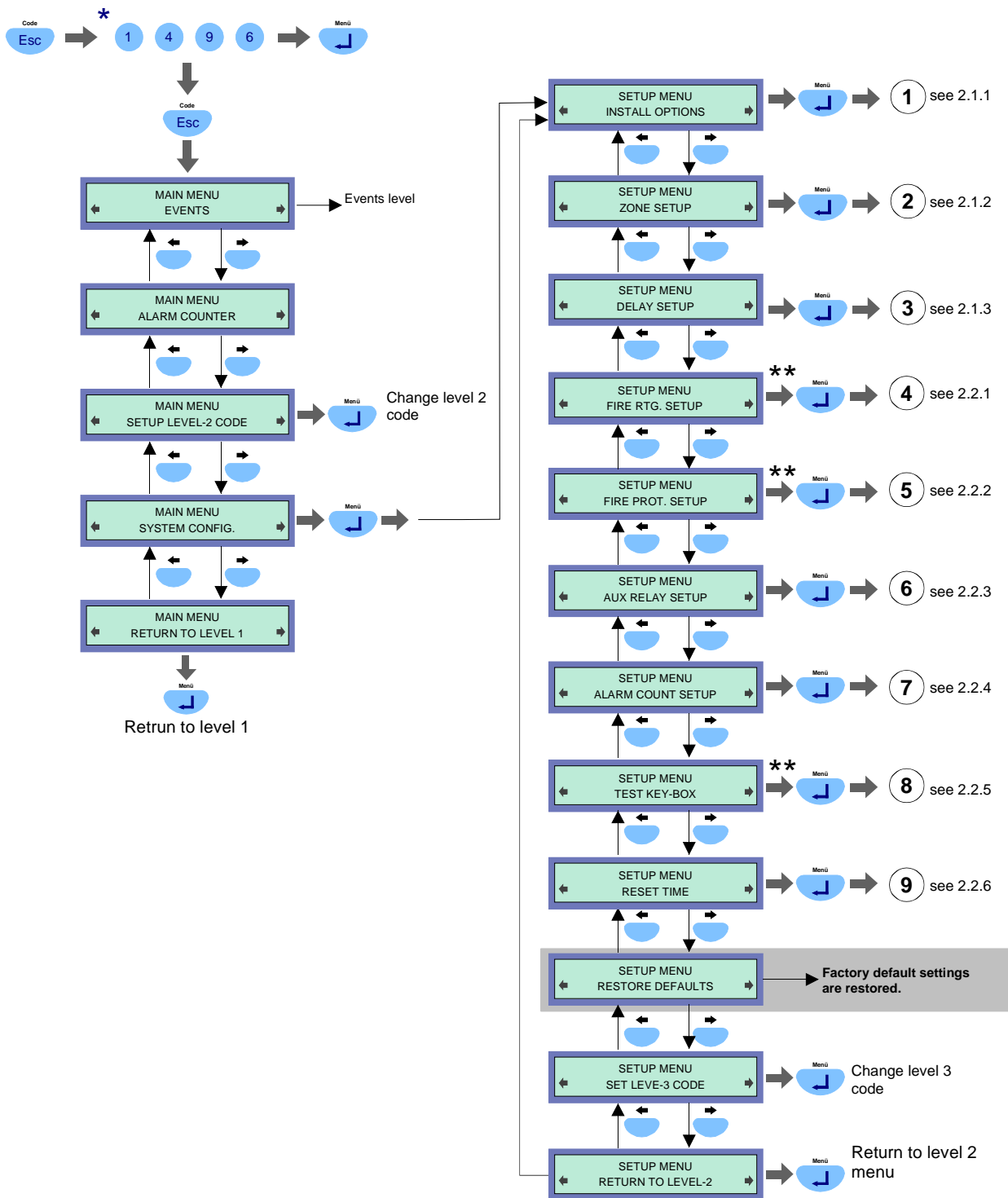
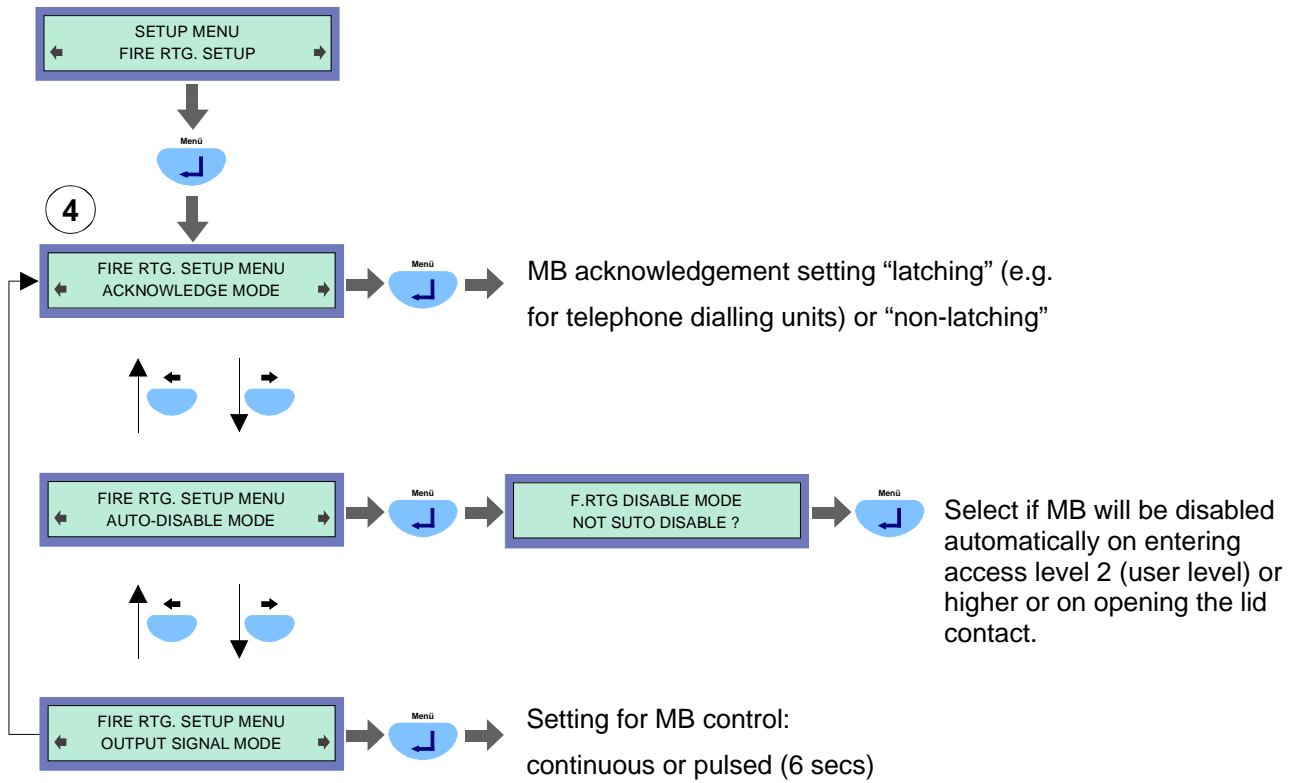


Fig. 23: System level menus (part 1/2)

* Factory code setting.

** Only available if option has been configured (ref. section 2.1.1)

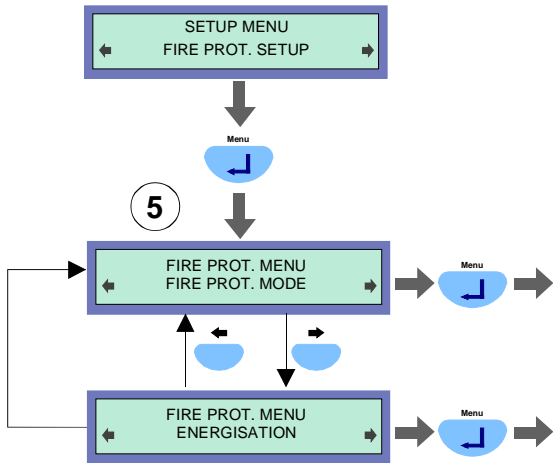
3.2.1 Fire routing Configuration



Factory setting:

Activation of the master box is not automatically disabled on opening the lid contact (SW25) or entering access level 2. Activation of the MB can only be disabled manually via the operating panel (requires access level 2 or higher).

3.2.2 BSE / SST output - Configuration



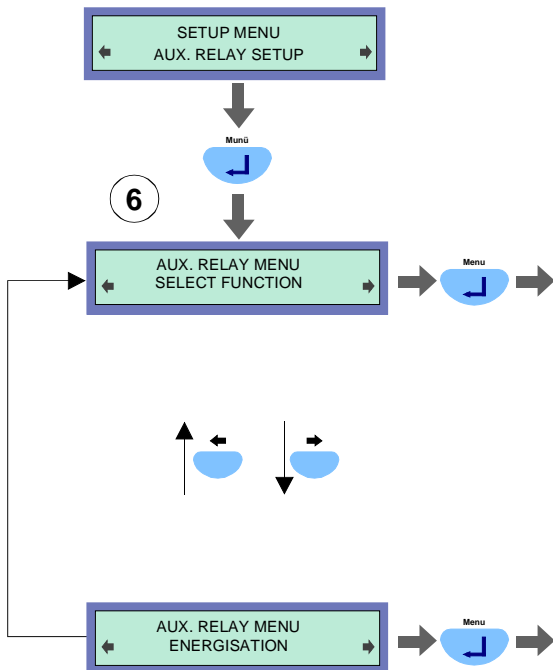
Configuration Operation mode for Fire protection equipment (BSE) or Standard Interface (SST)

Output control mode

- normal operation (NO)
- inverted operation (NC)

For fire door magnets the inverse mode is required (BSE-Invers)

3.2.3 Auxilliary Relay-X Configuration



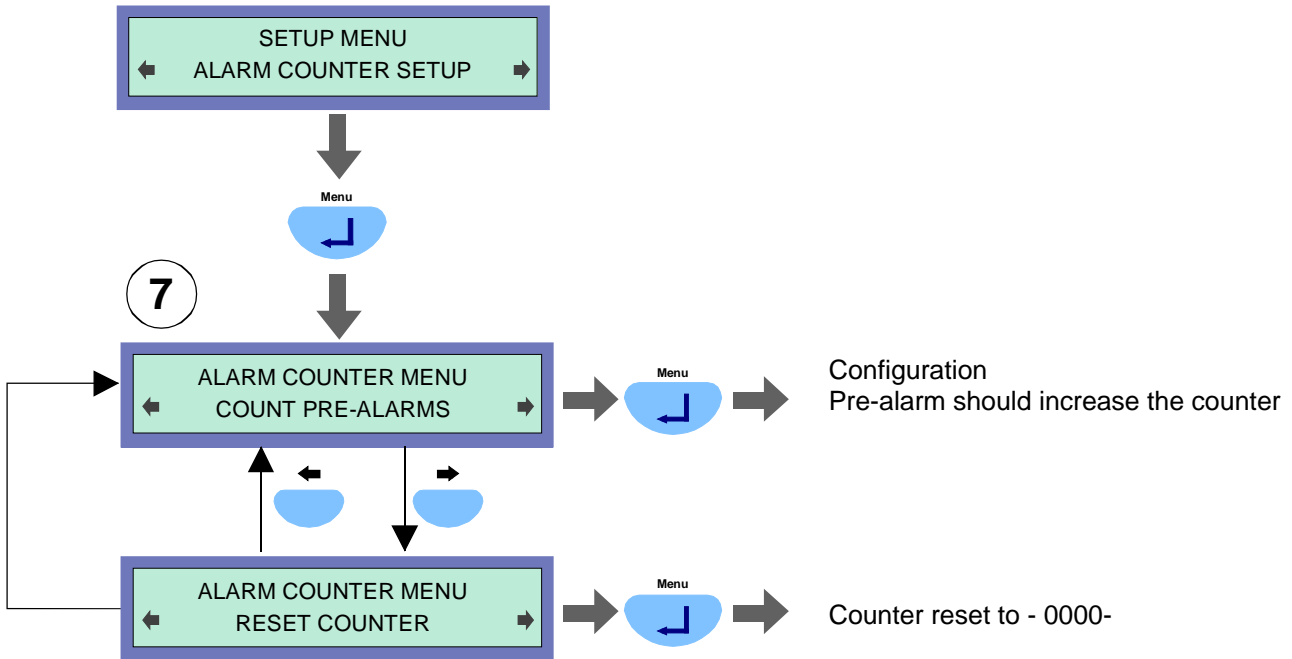
Configuration Relay X mit der Schaltfunktion:

- Common fire (default)
- Common fault
- Common disablement
- Pre-alarm
- FSA (Fire, fault, disablement, e.g. in combination with inverted operation for controlling a door magnet)
- MB acknowledgement (relay X is activated on activation of the MB acknowledgement output)

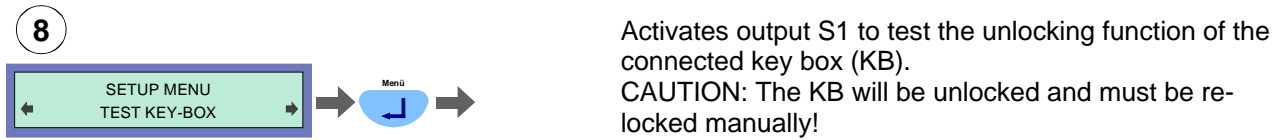
Normal mode

Inverse mode (energised in normal operation)

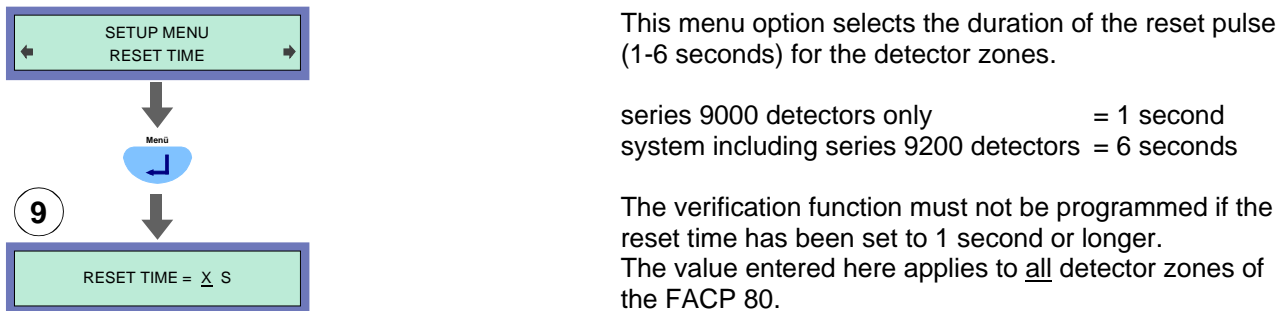
3.2.4 Alarm counter Configuration



3.2.5 Key box test function



3.2.6 Reset time



4 Technical data

Rated voltage	:	230 V AC (+10% / -15%)
Rated current	:	0.3 A
Rated Frequency	:	50 – 60 Hz
Output voltage	:	24 V DC
Output current for external devices	:	
	@ 12 V DC	: max. 400 mA (e.g. for FDOP)
	@ 24 V DC	: max. 500 mA (constant current)
Quiescent current	@ 24 V DC	: typ. 16 mA, max. 68 mA
Max. current consumption for 72h emergency back-up supply with max. battery capacity	:	max. 620 mA
Battery capacity	:	max. 2 x 12 V DC / 7Ah (24 V serial connected)
Battery charging voltage	:	27.3 V DC / max. 620mA @ 20°C, temperature controlled
Ambient temperature	:	-5 °C to +45 °C
Storage temperature	:	-5 °C to +50 °C
Protection class	:	IP 31
Housing	:	ABS plastic
Housing colour	:	light grey with blue operating panel
Dimensions (W x H x D)	:	355 x 375 x 115 (mm)
VdS-Approval	:	G 202050

Indicators

LC-Display	:	alphanumeric Display, 2 x 20 characters, illuminated
35 (LED)	:	Status indication of panel and zones
Buzzer	:	audible signal of panel status and alarm Volume 60 dB(A) at closed housing

Inputs

B1 - B8 (FACP 80-8)	:	
B1 - B4 (FACP 80-4)	:	detector zones for connecting automatic detectors or manual call points

Outputs

Relays	:	programmable, contact rating max. 30 V DC / 2A
Transistors	:	zone-related, Open collector max. 30 V / 50 mA switching to ground
Signalling device (S1/S2)	:	max. total current with internal supply 900mA (900 mA max. per output with external supply)

Object data sheet FACP 80 (page 1/2)

Object: _____

Address: _____

Authorised Person: _____

Phone no.: _____

Access code 2:

--	--	--	--

(default 1-2-3-4)

Access code 3:

--	--	--	--

(default 4-3-2-1)

Access code 4:

1	4	9	6
---	---	---	---

fixed

Zone no.	Manual call point	autom. detector →	with ALZ ²	with 2ZD ³	with 2DD	with Sounder	With MCL
1							
2							
3							
4							
5 ¹⁾							
6 ¹⁾							
7 ¹⁾							
8 ¹⁾							

¹⁾ FACP 80-8 with 8 detector zones only (Part No. 788706)

²⁾ not functional with series 9200 detectors

³⁾ not available with detector bases with additional output

Control output 1 (Fire routing)	floating	Monitored	With acknowl.	Disable from level 2	triggering	
					normal	inverse

Control output 2 (AE)	U_bint +24 V DC	external voltage

Control output 3 (Com-fire)	Triggering	
	normal	inverse

Object data sheet FACP 80 (page 2/2)

Control output (BSE / SST)	Operation mode		Triggering	
	BSE 10kΩ / 1kΩ	SST 3,3kΩ / 680Ω	normal	inverse

Control output 6 (Rel-X)	Triggered at					Operation mode				
	common fire	pre- alarm	fault	Dis- ablement	MB ack.	n.c. +24 V DC	n.o. +24 VDC	Two-way contact, floating	normal	inverse

Delay and Verify	Delay time		Verify time (1-11min.)
	Duration (1-120s)	unlimited (24h) ⁴⁾ or until autom. termination	

4) The setting 'unlimited' is not in accordance with DIN 0833 and VdS2095

Alarm counter	only Fire alarm	Fire incl. Pre-alarm

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Verwaltung

KBC

