



Operation and Installation Instruction

Hazard Alarm Computer 2001

Intended purpose

This product must only be used for the applications outlined in the catalogue and the technical description. Only connect third-party equipment or components recommended by the manufactures.

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 here.

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:



Danger of death, severe injury or considerable material damage if the relevant safety precautions are not observed.



Important information on the product or a particular section of this manual, which should be read with particular attention.

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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1 General

The Hazard Alarm Computer 2001 is a combined intruder and fire alarm control panel that is ideal for use in private applications, such as in single-family or small multi-family dwellings. The control panel features two detector zone inputs that are capable of taking a total of 60 alarm contacts, such as fire detectors, motion detectors, glass-break sensors, hold-up push-buttons or magnetic contacts.

Combined intruder and fire detector control panel

The combined fire and intruder alarm constantly monitors the premises, day and night, with the early fire detection facility. Intruder monitoring can be activated separately. If the premises are left unoccupied, it is recommended to arm the system in such a way that the entire premises are monitored for intrusion and a visual and acoustic alarm (with optional alarm devices) is given as soon as intruders enter the premises or doors and windows are opened.

Intruder alarm panel

The intruder alarm system is armed/disarmed at the control panel itself or at an optional, remote key switch installed, for instance, outside in the vicinity of the main entrance door. Arming/disarming the system will initiate an "activation delay" giving you time to leave the premises without setting off an alarm yourself. The control panel is functional once the selected delay time has elapsed. By the same token, the selected "alarm delay time" prevents an alarm from being set off when returning home to an armed intruder alarm panel. This period of time allows you to re-disarm the control panel and prevent an alarm from being set off. If the control panel is not disarmed within the selected "alarm delay time" an alarm will be set off automatically.

Fire alarm control panel

Operating as a fire detector control panel, the Hazard Alarm Computer 2001 constantly monitors all fire detectors connected. A fire alarm will be signalled by the buzzer inside the control panel. Additional alarm devices may be connected to the control panel outputs.



Any operation on the installed Hazard Alarm Computer 2001 must only be carried out by authorised personal in accordance with relevant safety procedures and in co-ordination with the emergency services.

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, informations and declaration of conformity are available for comparison on the www.esser-systems.de homepage.

2 Operating panel and indicators

The clearly structured operating panel of the Hazard Alarm Computer 2001 comprises six visual indicators, a key switch and a button that is used for carrying out all control operation.

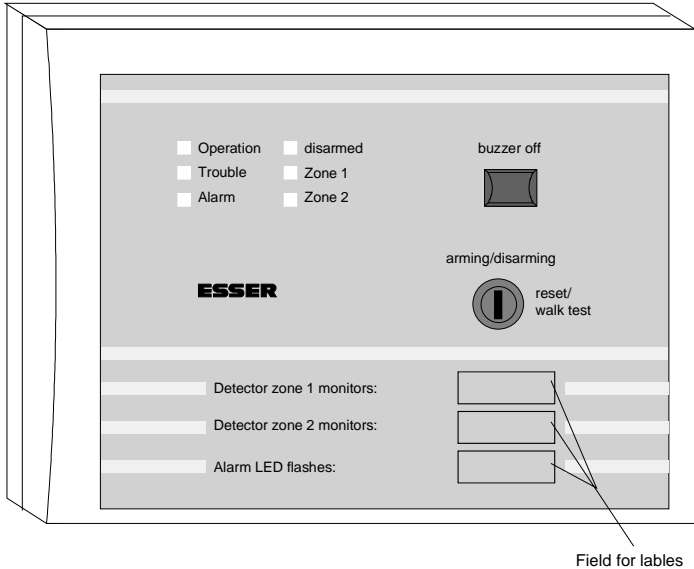





Fig. 1: Hazard Alarm Computer 2001 operating panel

Area for adhesive labels

These areas are intended for the adhesive labels (pictograms) enclosed in the packaging. The labels affixed to these areas must reflect the way the control panel is programmed.

For example:	Detector zone 1 monitors:		Special fire detectors
	Detector zone 2 monitors:		Intruder alarms
	Alarm LED flashes:		Tamper alarm

Operation (green LED)

Permanently lit	⇒	Normal mode
LED flashes	⇒	Emergency power supply failure
LED off	⇒	Operation voltage failure (230 V AC / 50 Hz)

Trouble (yellow LED)

- LED off ⇒ Normal mode (no trouble alarm)
- Permanently lit ⇒ At least one failure at the control panel, e.g. mains voltage and emergency power supply or of a fire detector zone has been identified.

Any trouble signalled by a fire detector zone will be shown by the yellow LED flashing for the relevant detector zone (1 or 2).

Alarm (red LED)

- LED off ⇒ Normal mode (no alarm signals)
- Permanently lit ⇒ At least one alarm signal or a tamper signal has been identified. In the event of an alarm in detector zones 1+ 2 the relevant detector zone LED will also light up.
- Flashing ⇒ Detector zone 3 is in a state of alarm.

On the intruder alarm panel, this detector zone works as a hold-up or tamper alarm zone.

In practice, manual call points will be connected to this zone when the system is being used as a fire alarm control panel.

Disarmed (yellow LED)

- Permanently lit ⇒ The intruder alarm zone is disarmed.

- LED off ⇒ A) The intruder alarm zone is armed and functional
or
B) Hazard Alarm Computer 2001 is only being used as a fire alarm control panel. (Detector zone 1+2 programmed for fire alarm)
- Flashing ⇒ Activation delay time in progress for arming the control panel.
- Flashing rapidly ⇒ Maintenance mode activated
(The housing is open and DIL-switch, position 8, set to "maintenance")

Detector zones 1+2

Each of the two detector zones inputs MG1 and MG2 is provided with its own two-colour indicator LED (red/yellow).



In the event of an alarm, the "alarm" LED will also light up in addition to the detector zone LED.

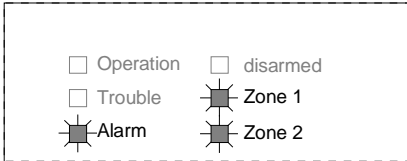


Fig. 2: Detector zones + alarm LED

- Flashing red ⇒ Initial alarm detection, the first alarm was set off by this detector zone
- Lit red ⇒ Alarm signal, detector zone has responded

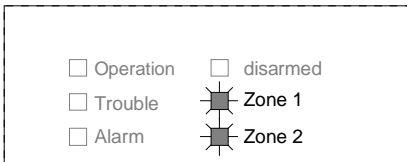


Fig. 3: Detector zone LED

- LED off ⇒ Normal mode
- Lit red ⇒ The intruder alarm zone has responded while unarmed, e.g., as a result of a person having entered the area covered by a motion detector. However, no alarm is given.
- Lit yellow ⇒ Disconnection, detector zone has been disconnected.
- Flashing yellow ⇒ Trouble, this fire detector zone is no longer functional.
- Flashing red/yellow ⇒ The disconnected intruder alarm zone has responded. For example as a result of an open monitored window (magnetic contact) or a motion detector. No alarm is given if the disconnected intruder alarm zone responds.



Once disconnected, an intruder alarm or fire detector zone will not signal any alarm in the event of an intrusion or fire.

3 Operation

3.1 Resetting the internal buzzer

The buzzer can be acknowledged by briefly pressing the key on the operating panel.

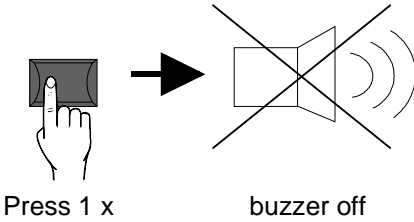


Fig. 4: Acknowledging the control panel buzzer



The buzzer cannot be switched off while the arming/disarming delay time is in progress (may be set from 0-90 seconds). The continuous tone indicates that delayed control panel arming or disarming is activated.

3.2 Activating / deactivating detector zones 1 + 2

Detector zones 1 and 2 can be separately activated and deactivated when the Hazard Alarm Computer 2001 is disarmed.

1. Key switch in horizontal position *reset/walk test*
2. Briefly press key once or several times to activate or deactivate the desired detector zone (alternating function)

The **yellow LED** will light up permanently to show the detector zone that has been deactivated.

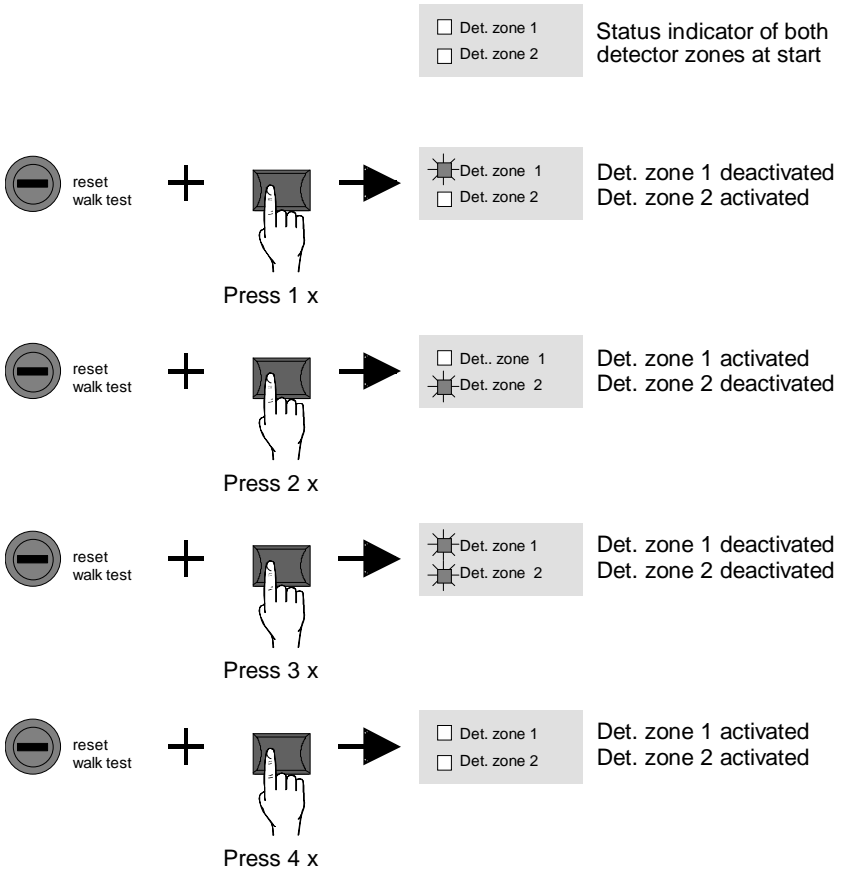


Fig. 5: Activating and deactivating the detector zones



Once deactivated, an intruder alarm or fire detector zone will not signal an alarm in the event of an intrusion or fire.

3.3 Resetting the audible alarm devices

Briefly actuating the key switch to the horizontal position (*reset / walk test*) will only deactivate the control panel buzzer and the audible alarm device connected to relay 1. This process will not reset the visual indicators on the operating panel or activation of any visual alarm device installed (relay 2).



Fig. 6: Resetting the audible alarm devices



Disarming the control panel by briefly turning the key will also reset the buzzer and the external audible alarm device at relay 1.

3.4 Resetting all alarms and alarm devices

Keeping the key switch in the horizontal position for longer than 4 seconds will reset all alarms, detector zones as well as audible and visual alarm devices. The resetting process may take up to 30 seconds for special fire detectors.



Fig. 7: Resetting all alarms and alarm devices

Detector zones that are still responding or in a trouble condition after they are reset will continue to be shown at the indicator as responding or in a trouble condition. Before resetting it will first be necessary in this case to remedy the cause of response / trouble.

3.5 Arming / disarming

The Hazard Alarm Computer 2001 is armed and disarmed either by means of the key switch on the operating panel or a remote switch-contact, such as key switch SS90. When arming / disarming, attention must be paid to the differences between intruder and fire detector zones.

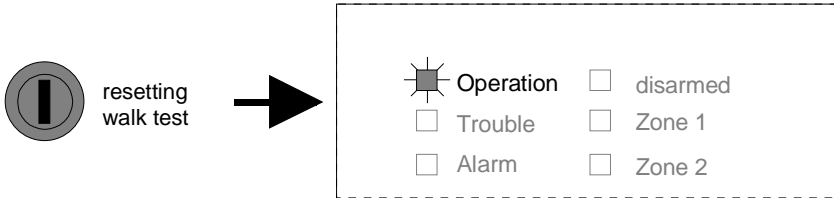


Fig. 8: Indication for a trouble-free control panel when armed

Activation of alarm devices in the event of an alarm

Activation of the internal and external alarm devices will depend on the control panel operating mode. If Hazard Alarm Computer 2001 is being used as a pure fire alarm control panel, alarm identification will always produce an external alert.

Control panel mode	Control panel disarmed	Control panel armed
Fire alarm control panel (fire alarm)	audible alarm device relay 1 visual alarm device relay 2	audible alarm device relay 1 visual alarm device relay 2
Intruder/fire alarm control panel (intruder or fire alarm)	internal buzzer	audible alarm device relay 1 visual alarm device relay 2
Intruder alarm panel (intruder alarm)	---	audible alarm device relay 1 visual alarm device relay 2



Once deactivated, an intruder alarm or fire detector zone will not signal any alarm in the event of an intrusion or fire.

3.5.1 Intruder alarm zones

In practice, an intruder alarm panel or intruder alarm zone will be disarmed when anyone is using the premises or area being monitored. On vacating the premises it is recommended to arm the control panel. In the event of an intrusion, an alarm will be given through the audible and visual alarm devices connected to the system.

Detector zones may be deactivated in order to omit specific areas from monitoring. A classic example of this is a single-family dwelling where the ground floor is monitored and the detector zones covering the 1st floor, e.g., bedrooms occupied at night, have been switched off.

Activation of the audible alarm devices (relay 1) may be limited to a time period of 1 -180 seconds. The audible alarm devices will be reset automatically once the activation time has elapsed. If an activation time of more than 180 seconds is selected, the audible alarm device connected to relay 1 will remain continuously activated until the control panel is disarmed.

Activation of the visual alarm device (relay 2) is factory-limited to 30 minutes. This setting may be altered at solder jumper J5 to provide continuous activation until the control panel is disarmed.



Activation time for the external audible alarm devices must not exceed 180 seconds.

Disarmed

When the control panel is disarmed, an intruder alarm zone response will only be indicated by the red LED for the detector zone responding. No external alarm will be given. Tamper and hold-up alarms (detector zone MG3) will continue to be identified and signalled without restriction even when the system is disarmed.



Intruder alarm zones are not functional in the disarmed or deactivated state.

Intruder alarm zone delay times

If a delay time has been programmed for arming the control panel, the alarm delay time (adjustable from 0-90 seconds) will commence automatically as soon as anyone enters the area being monitored. The control panel must be disarmed during this period using the key switch on the operating panel or an alarm will be set off.

If the Hazard Alarm Computer 2001 is disarmed at a remote key switch outside the monitored area, the alarm delay time will not apply and the control panel will be disarmed immediately. In this case, there is no need for any additional disarming on the operating panel.

3.5.2 Fire detector zones

Unlike an intruder alarm zone, a fire detector zone is also functional in a disarmed state.

Disarmed / armed

Irrespective of the status of the control panel, an external alarm will be given by audible and visual alarm devices when a fire detector zone responds.

Delay time

The activation/alarm delay time has no significance to fire detector zones.

Disconnection

In order to deactivate fire-monitoring for a particular area, the relevant fire detector zone may be disconnected. Disconnection of the zone will be indicated on the operating panel.



A disconnected fire detector zone will not give any alarm in the event of a fire.

3.5.3 System will not arm

An intermittent buzzer tone will sound if it is not possible to arm the control panel, for example, because of a trouble or alarm condition. Before arming the control panel it will first be necessary to remedy the trouble or reset the alarm signal.

Example: The intruder alarm panel is armed although a monitored window is still open.

The monitored window still open will prevent the control panel from being armed for security reasons. The control panel buzzer will sound and the activation delay time will start to run.

Only once all monitoring contacts are in the normal contact position (closed) will the control panel be armed automatically - provided arming has not been previously cancelled manually.

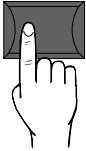
Automatic arming will take effect, for example, on leaving the monitored area by closing the last monitored door.

3.6 Lamp test

The lamp test should be carried out at regular intervals to ensure that all visual and audible indicators are in proper working order.

- Press key for more than 4 seconds
- The control panel buzzer will sound and all LED will come on, the LED (two-colour) for the detector zones will light up red
- The control panel buzzer will switch off after 2 seconds and the LED (two-colour) for the detector zones will change to yellow

buzzer off



Press key for longer than 4 sec.

Fig. 9: Lamp test to check indicators for proper working order



Installation Instruction

Hazard Alarm Computer 2001

4 Standards, guidelines and instructions for installation

- The hazard alarm panel may only be installed in a dry, clean room with controlled access and appropriate lighting. The environmental conditions must comply with IEC 721-3-3:1987, 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 hazard 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.



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

Standards and guidelines

The general technical rules must be observed when installing hazard 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).

These are e.g.:

- DIN VDE 0100 Installation of power systems with nominal voltages up to 1000 Volt
- DIN VDE 0105 Operation of power installations
- DIN VDE 0108 Installation and operation of power installations in communal facilities
- DIN VDE 0185-103 Lightning protection systems
- DIN VDE 0701 Repair, modification and testing of electrical household appliances and similar equipment
- DIN VDE 0800 Telecommunications
- DIN VDE 0815 Installation cables for communication and data processing systems
- DIN VDE 0833 Hazard detection systems
- DIN 14675 Fire alarm systems
- DIN VDE 0845 Protection of telecommunication systems against lightning, electrostatic discharges, and surge from electric power installations

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 Schadenverhütung GmbH (VdS, Association of German Property Insurers) may apply for systems installed in Germany.

These are e.g.:

- VdS 2095 Design and installation of fire alarm systems
- VdS 2311 Design and installation of intruder alarm systems
- VdS 2347 Requirements of integrated alarm systems

5 Mounting the cabinet / Installation

The power and signal cabling of the Hazard Alarm Computer 2001 should be led through the wall into the cabinet. Only use the cable entries provided for this purpose.

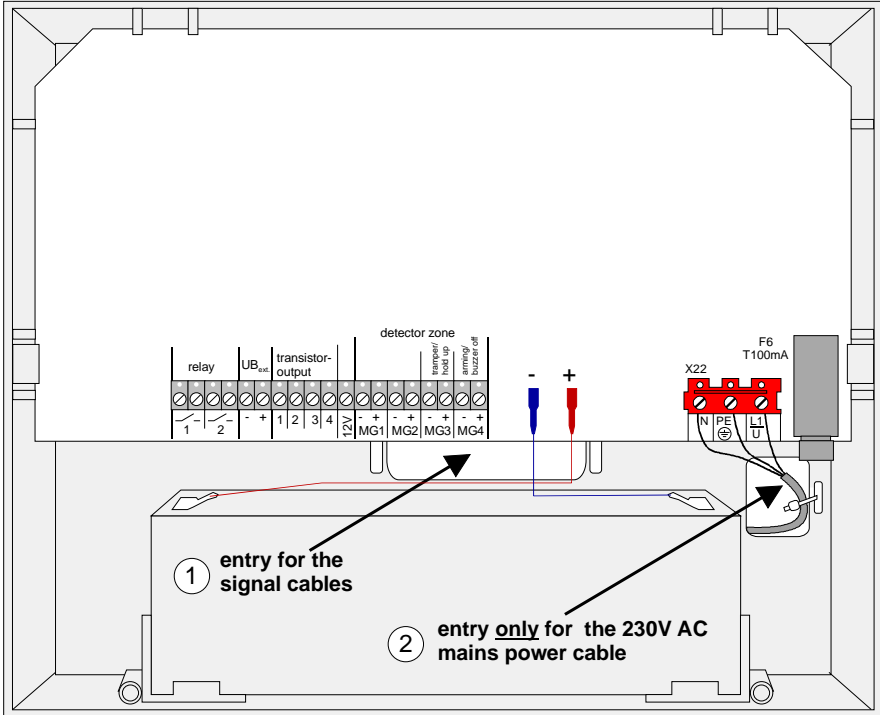


Fig. 10: Mounting the cabinet / Installation

1. Lead the 230V main power cord through the wall and the cable entry ② provided in the rear of the unit (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. All other cable entries ① must only be used for the signal cables.

5.1 Mains connection and grounding

The Hazard Alarm Computer 2001 is powered by a built-in power supply unit. The power supply unit provides the voltage for both the control panel and the external loads as well as the monitored charging voltage for the battery. The charging voltage is factory-set to 13.8 V DC (at 20°C).

The power supply unit provides of 350 mA. Power required for additional loads operating for limited periods, such as audible alarm devices, is taken from the battery.

Connecting the 230 V mains power cable for the power supply of the Fire alarm system.

Maximum battery capacity : 12 V DC / 2 Ah

Battery charging current : 100 mA

Current for ext. loads : 350 mA max.



Danger – electrical shock

This unit may only be operated while the cabinet is closed. Its operation is not permitted if the cabinet is open, cabinet openings have been altered or cabinet panels (e.g. plastic cabinet of the Hazard Alarm Computer 2001) have been removed.

To prevent short circuits

All power and signal lines connected to the main pc board must be secured using appropriate fasteners, e.g. plastic cable binders. Make sure the mains cable will not move and touch the signal lines. Remove all power (mains and battery) from the fire alarm system before any work is carried out.

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.

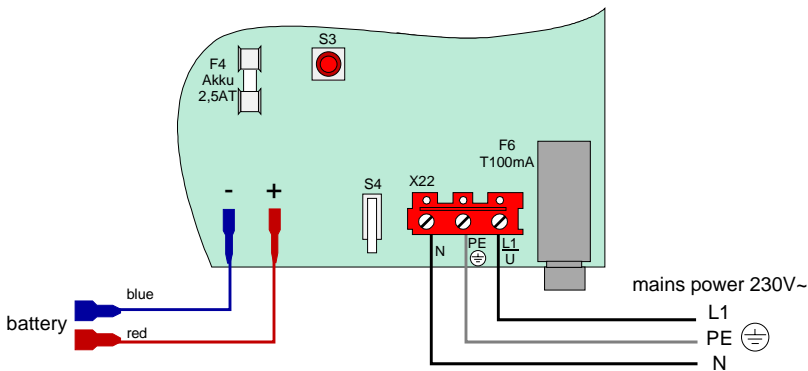


Fig. 11: Mains connection and grounding

- The 230 V AC mains supply must be installed in accordance with local regulations by a qualified technician.
- On applying the mains voltage, make sure that the mains fuse (F6, T1 A) is unscrewed from the circuit board and only screwed into place once the mains and battery have been connected.
- The hazard alarm system must be supplied from the 230 V mains through a separate isolator or an appropriately labelled safety switch. In systems fitted with earth fault devices, a separate device must be installed for the hazard alarm system.
- The fuse for the power supply of the hazard alarm system must be clearly labelled (red marking).
- The protective earth conductor of the mains cable must be connected to the corresponding screw terminal at the fire alarm panel.
- Use appropriate cable for mains connection, e.g. NYM 3 x 1.5mm² (max. 2.5 mm²) or a cable type of similar specifications.
- The installation must comply with local regulations on electrical safety .

6 Main pc board

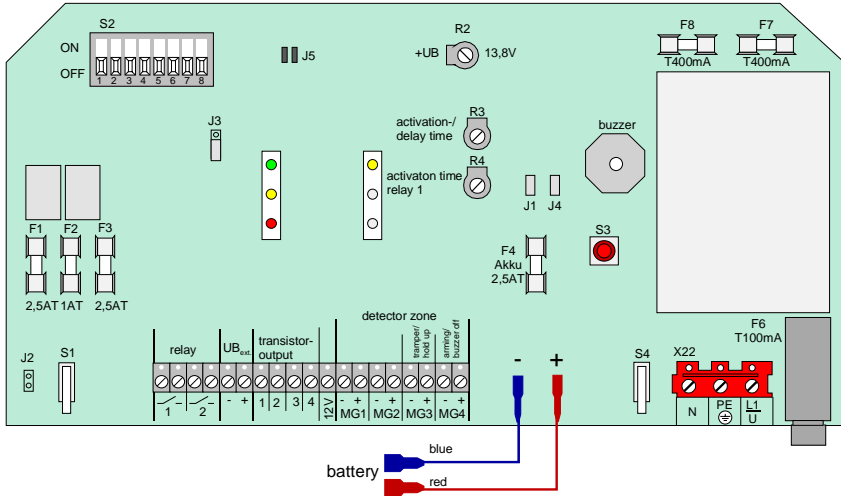


Fig. 12: Position of modules on the main pc board

L, N, PE	Mains connection 230 V AC / 50 Hz	
F1	Fuse, 250 V / 2.5 AT	relay 1
F2	Fuse, 250 V / 1 AT	relay 2
F3	Fuse, 250 V / 2.5 AT	+12 V DC for external loads
F4	Fuse, 250 V / 2.5 AT	battery
F6	Fuse, 250 V / T100mA	primary fuse 230 V AC
F7	Fuse, 250 V / T400mA	+12 V DC, internal supply voltage
F8	Fuse, 250 V / T400mA	+12 V DC, internal supply voltage
J1 - J5	Coding bridges (refer to Sec. <i>Function of coding bridges</i>)	
S1	Tamper contact (housing monitoring) open ⇒ tamper alarm (housing open) closed ⇒ normal mode	
S2.1 - 2.8	DIL-switch for programming (refer to Sec. <i>Setting the DIL-switch</i>)	
S3	"buzzer off" key	
S4	Key switch	

7 Description of inputs and outputs

7.1 Inputs

Hazard Alarm Computer 2001 has four Inputs. Inputs MG1 and MG2 may be used for connecting intruder and/or fire detector zones. Inputs MG3 and MG4 perform a switching or monitoring function, depending on the purpose for which the control panel is used.

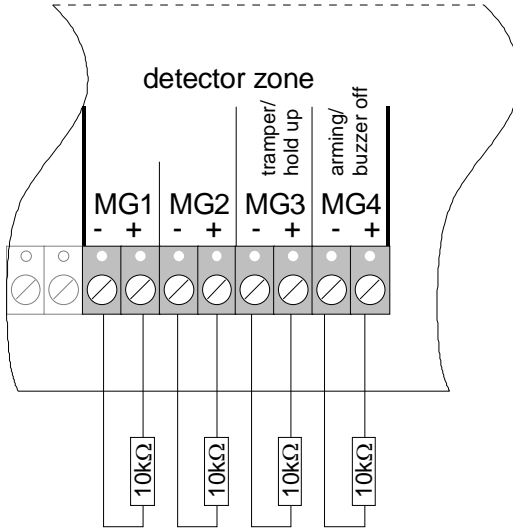


Fig. 13: Schematic circuit diagram for the four differential inputs

7.1.1 Detector zone inputs MG 1 and MG 2

These two inputs are provided for connecting fire detectors or intruder alarms only. A detector zone may be used for connecting either fire detectors or intruder alarms. It is not possible to mix fire detectors and intruder alarms within one and the same detector zone.

Intruder alarm zones

Motion detectors, magnetic contact and other intruder alarms may be connected to an intruder alarm zone.

The intruder alarm zone is monitored for an end-of-line resistor in the $10k\Omega \pm 40\%$ range. An alarm will be identified outside this resistance range, e.g., as a result of a broken wire, short circuit or other manipulation. The end-of-line resistor must be installed in the last detector of the detector zone.



Refer to example configurations in the "Appendix".

Fire detector zones

Special fire detectors or manual call points (push-button fire alarms) may be connected to a fire detector zone. The number of fire detectors capable of being connected per zone is limited by the type of detector used.

- No more than thirty 9000-series threshold detectors without switch-on control (part no. 76xxxx)
- No more than ten 9000-series threshold detectors with switch-on control (part no. 78xxxx)
- No more than ten 9100-series diagnostic detectors (without addressing function)
- No more than ten push-button fire alarms

The fire detector zone is monitored for an end-of-line resistor of $10K\Omega$ (quiescent) and $1 K\Omega$ (alarm). The end-of-line resistor must be installed in the last detector in the detector zone.

7.1.2 Monitored input MG 3 (tamper or hold-up)

Input MG3 may, for example, be used for connecting the housing contacts of motion detectors, distribution boxes as well as hold-up buttons. The housing contact is also looped into this zone. Opening the alarm contact will trigger input MG3 and produce an alarm. The housing contact may be bypassed by means of jumper J2. The tamper monitoring facility for the control panel housing is out of action when the housing contact (J2) is jumpered.

DIL-switch S2.3 may be used for programming input MG3 either to tamper or hold-up mode. Input MG3 is monitored for an end-of-line resistor of 10kΩ nominal in the 10kΩ ±40% range. An alarm will be identified outside this resistance range, e.g., as a result of a broken wire, short circuit or other manipulation. The end-of-line resistor must be installed in the last detector of the detector zone.

Connecting manual call points

Input MG3 may also be used for connecting a maximum of 10 manual call points (push-button fire alarms). To do this, you must set DIL-switch S2.3 to the ON "hold-up" position. Each response by a detector as well as any trouble, such as broken wire or short circuited supply lines, will produce an external alarm.



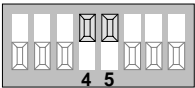
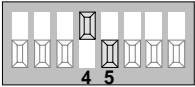
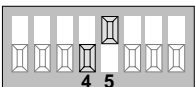
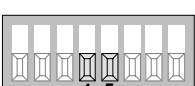
Refer to example configurations in the "Appendix"

7.1.3 Input MG 4 (momentary or sustained contact switch)

Input MG4 may be used for connecting an external switching facility, such as key switch SS90 for...

- A) arming/disarming the control panel
or
- B) resetting the buzzer and external audible alarm device (relay 1).

DIL-switch S2.4 is used for programming the desired mode of operation (A or B).

DIL-switch S2	Operating mode of inputs MG 3 and MG4
<p>ON </p> <p>OFF</p>	<p>Resets the buzzer inside the control panel by means of switch-contact at input MG4</p>
<p>ON </p> <p>OFF</p>	<p>Resets the buzzer and the external audible alarm device (relay 1) by means of a momentary contact switch at MG4</p>
<p>ON </p> <p>OFF</p>	<p>Arms/disarms the control panel by means of a sustained contact switch at input MG 4. The key switch on the operating panel cannot be used for arming/disarming.</p>
<p>ON </p> <p>OFF</p>	<p>Arms/disarms the control panel by means of a momentary contact switch at input MG 4. The key switch on the operating panel cannot be used for arming/disarming alongside this mode of arming/disarming.</p>



Input MG 4 must always be wired to an end-of-line resistor of 10KΩ even if no external switch-contact is connected.

Input MG4 with sustained contact for arming / disarming

An external switch with sustained contact will identify the series-connected $10K\Omega \pm 40\%$ resistor when the contact is closed and disarm the control panel.

Arming/disarming : DIL-switch S2.4 = OFF

Sustained contact : DIL-switch S2.5 = ON

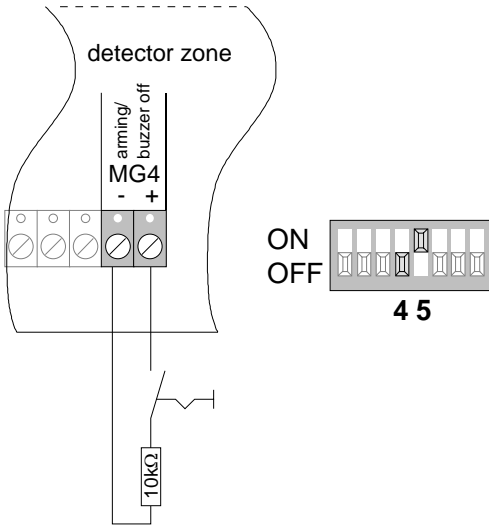


Fig. 14: Schematic circuit diagram for a sustained contact switch

Input MG4 with momentary contact for arming / disarming

Any actuation of an external switch with momentary contact will change the control panel status from armed to disarmed (and vice versa).

Arming/disarming : DIL-switch S2.4 = OFF

Momentary contact : DIL-switch S2.5 = OFF

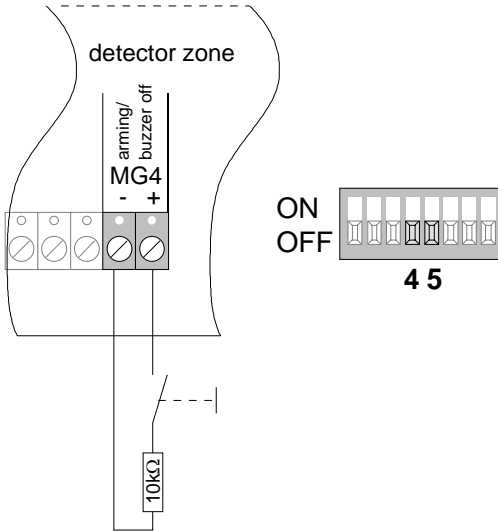


Fig. 15: Schematic circuit diagram for a momentary contact

A trouble or alarm will always prevent the control panel from being armed. This will be indicated by an audible signal from the buzzer inside the control panel. The control panel can only be armed when it is in a functional and trouble-free state.

Input MG4 (deactivation of buzzer and audible alarm device)

If input MG4 is programmed to *buzzer off* (S2.4=ON), the internal buzzer and relay 1 (external audible alarm device) will, irrespective of whether a pulse contact or sustained contact switch is connected, be deactivated each time the switch is actuated while the control panel is disarmed.

Buzzer / audible

- Deactivate alarm device : DIL-switch S2.4 = ON
- Momentary contact : DIL-switch S2.5 = OFF
or
- Sustained contact : DIL-switch S2.5 = ON

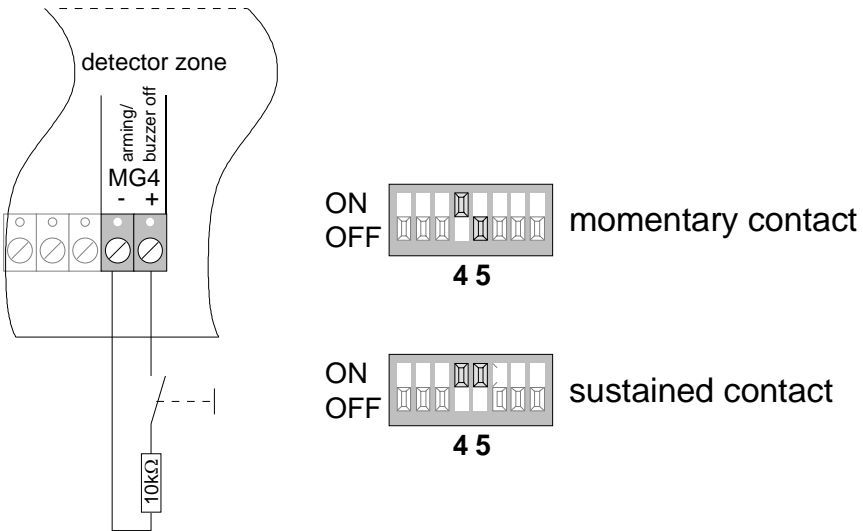


Fig. 16: Schematic circuit diagram for a switch-contact for resetting alarm devices

7.2 Relay outputs

Both floating relay outputs on the Hazard Alarm Computer 2001 can be used for connecting the devices for external alarm (alarm sounder, flashing lamp).

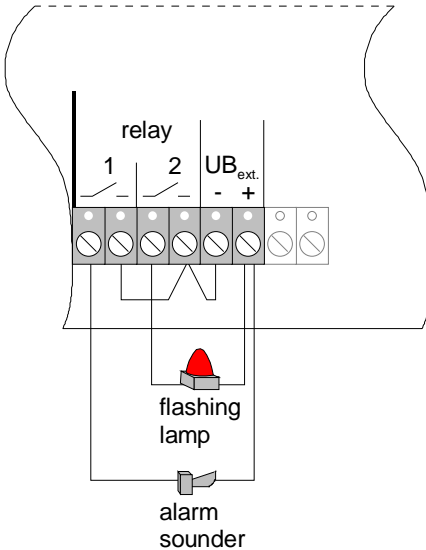


Fig. 17: Schematic circuit diagram for the external alarm devices

7.2.1 Relay 1 (audible alarm devices)

Floating relay output for activating audible alarm devices. The period of activation may be limited from 0–180 seconds using regulator R4. The activation period will commence upon the first alarm to be identified and is not extended by further alarm signals.

Selecting an activation time in excess of 180 seconds (regulator R4 set to max.) will activate the relay until the operator disarms the control panel or the alarm is reset manually.

Contact rating : 30 V DC / 1 A max.

Fuse : F1, 250 V /2.51AT

Activation : When an alarm is triggered by the control panel

Period of activation : Adjustable at regulator R4 from 0 to 180 seconds or continuous until the control panel is armed or the alarm is reset manually.

Setting the period of activation (relay 1, external audible alarm device)

When the control panel is in the maintenance mode (DIL-switch S2.8 OFF), regulator R4 may be used for setting the period of activation for relay 1 from 0 to 180 seconds or to continuous activation. The six LED's on the operating panel will indicate the period of time that has been selected.

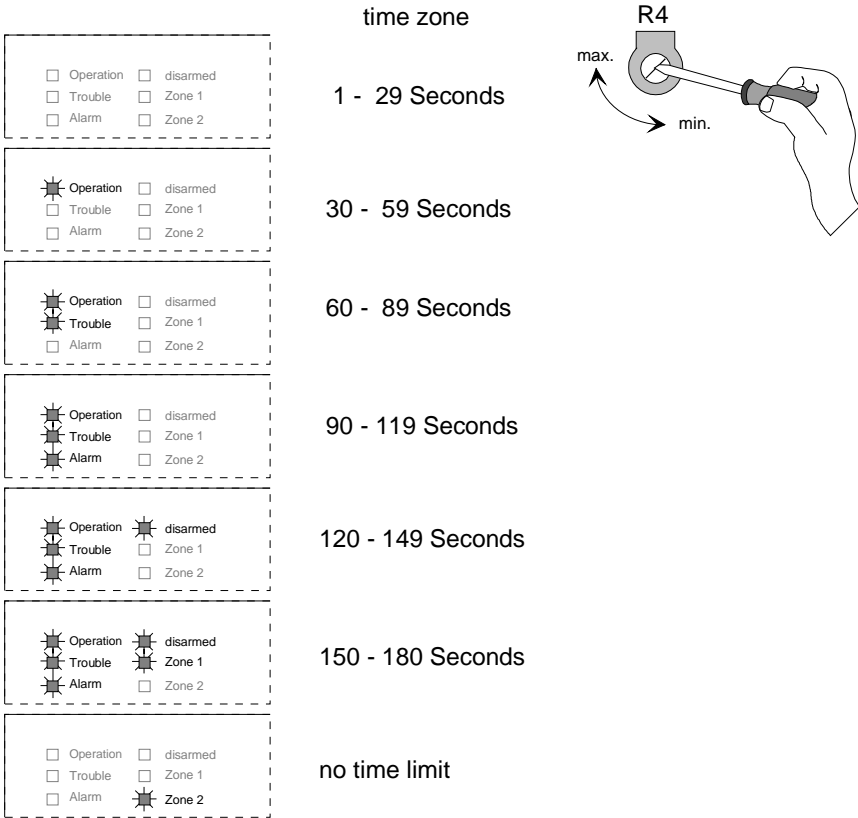


Fig. 18: Setting the activation period for relay 1



This setting can only be made in the relevant maintenance mode. Also refer to Section "Maintenance / settings"

7.2.2 Relay 2 (visual alarm device)

Floating relay output for indicating a trouble or alarm condition.

Contact rating : 30 V DC / 1 A max.

Fuse : F2, 250 V / 1AT

Activation : May be selected by means of jumper J3, when an alarm is given while the control panel armed or in the event of a trouble (common trouble)

Activation time : May be selected for "alarm" mode with solder jumper J5, limited to 30 minutes or continuous until control panel is disarmed

Operating as alarm output (jumper J3 in "ALARM" position)

In the "alarm" mode, relay 2 will be activated in the event of an alarm. In practice, this relay output will be used for connecting the external visual alarm devices.

Activation time for the visual alarm device is selected at solder jumper J5. Activation time for relay 2 is limited to 30 minutes on leaving the factory.

Operating as trouble output (jumper J3 in "TROUBLE" position)

In the "trouble" mode, the relay will be activated in the release state irrespective of whether the control panel is armed or disarmed.

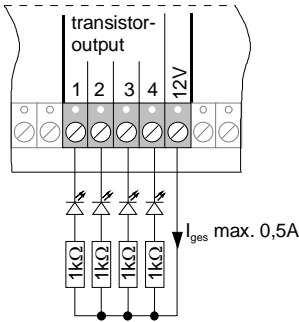
In the event of a trouble, the activation will be interrupted and the relay contact will open. This permits alarm indication via the floating relay contact even in the event of mains or battery failure.



Also refer to Section "Function of coding bridges"

7.3 Transistor outputs

The Hazard Alarm Computer 2001 has four transistor outputs. The transistor outputs have different functions depending on whether the system is operating as an intruder and/or fire alarm control panel (DIL-switch S2.6). The transistor outputs can be used for connecting external visual indicators or also additional alarm devices. When operating as an intruder alarm, transistor outputs TR1 and TR2 are both used for controlling motion detectors.



The +12 V DC voltage supply for external devices is limited to a max. current of 0.5 A.

Fig. 19: Schematic circuit diagram for the four transistor outputs

DIL-switch S2.6	TR1	TR2	TR3	TR4
ON (fire)	Activation as a result of detector zone response MG1	Activation as a result of detector zone response MG2	Buzzer	Common trouble
OFF (intruder)	Activated when disarmed	Activated if key switch is actuated for more than 4 seconds (reset / walk test)	Buzzer	Common trouble

Switching mode: negative switched, open collector

Contact rating: 12 V DC / 0.5A (current limited)



The total current of all four transistor outputs must not exceed 0.5 A.

8 Setting the delay time

Regulator R3 may be used for selecting a delay time of 0 to 90 seconds for arming and disarming the control panel. The delay time is restarted each time the control panel is armed. The internal buzzer (continuous tone) will sound while the delay time is running. The control panel will be armed automatically when the delay time has elapsed.

An intermittent buzzer tone will sound if it is not possible to arm the system, for example, because of a trouble or alarm condition. Before arming the control panel it will first be necessary to remedy the trouble or reset the alarm. The activation delay time will be prolonged until all detector zones are in the normal state and the control panel can be armed. If an alarm or trouble condition exists after the activation delay time has elapsed, arming will be impeded.

It is possible to select a common activation and alarm delay time of 0 to 90 seconds. To enhance user information, the LED will also provide a visual indication of the time selected. If no delay time is set, the red LED will light up for detector zone 2.

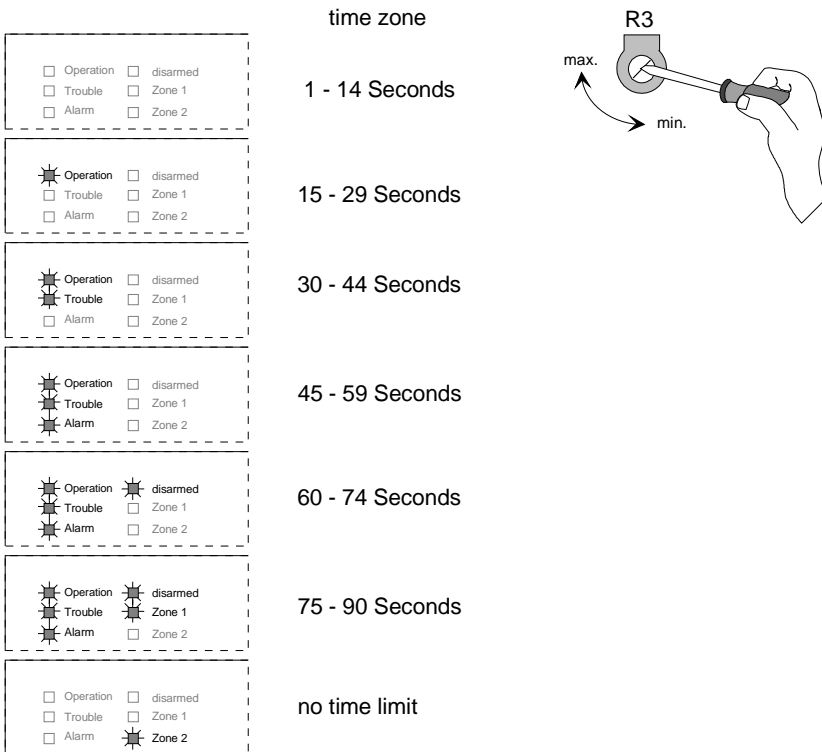


Fig. 20: Setting the delay time



This setting can only be made in the relevant maintenance mode. Also refer to Section "Maintenance / settings"

9 Programming

The control panel is configured by means of jumpers, a DIL-switch and the two R3 / R4 regulators.



Changes to the DIL-switch and time settings will be instantly adopted after any change to the position of DIL-switch S2.8 or also after restarting the control panel (voltage on/off).

9.1 Setting the DIL-switch (S2)

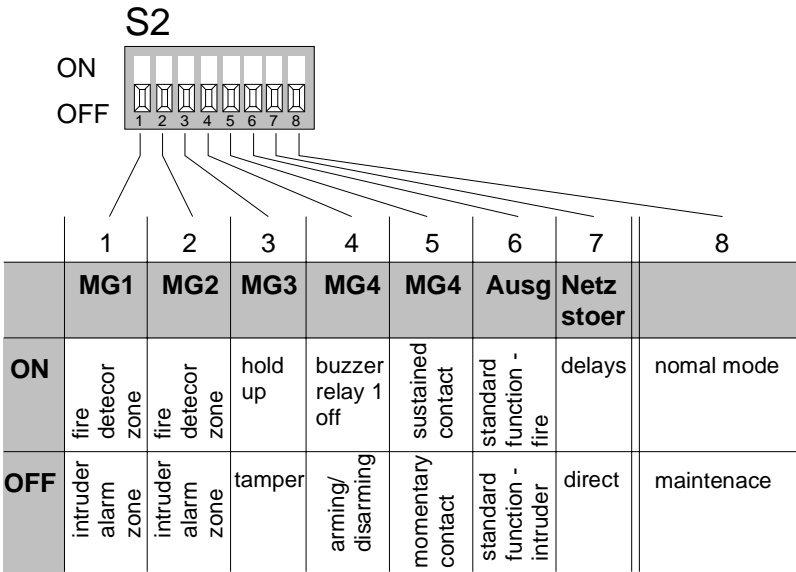


Fig. 21: DIL-switch assignment (circuit board label)

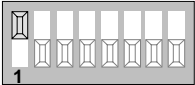
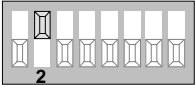
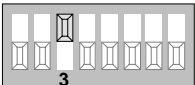
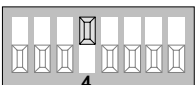
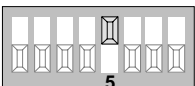
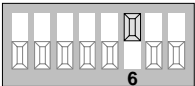
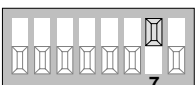
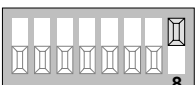
ON OFF		S2.1	ON detector zone 1 = fire detector zone OFF detector zone 1 = intruder alarm zone
ON OFF		S2.2	ON detector zone 2 = fire detector zone OFF detector zone 2 = intruder alarm zone
ON OFF		S2.3	ON Monitored input (MG3) - hold-up with alarm repetition and external alarm when disarmed OFF Monitored Input (MG3) - tamper, disarmed, buzzer activation only
ON OFF		S2.4	ON Input (MG4) deactivates buzzer and relay 1 OFF Input (MG4) controls arming/disarming
ON OFF		S2.5	ON Sustained contact for arming/disarming at MG 4 OFF Momentary contact for arming/disarming at MG4
ON OFF		S2.6	ON Standard function - fire An alarm triggered by MG 1/2 will activate output TR 1/ 2. OFF Standard function - intruder Output TR 1 for indicating "disarmed" state and TR2 for indicating reset/walk test
ON OFF		S2.7	ON Delays AC failure signal by 30 minutes OFF Direct signal in the event of AC failure
ON OFF		S2.8	ON Normal mode (functional, monitoring in operation) OFF Maintenance mode

Fig. 22: Setting for individual switch-contacts

9.2 Maintenance / settings

The Hazard Alarm Computer 2001 is provided with a maintenance mode that can be activated by means of DIL-switch S2.8 on the circuit board. To do this, it is necessary to open the control panel housing.



On opening the housing, the tamper contact will activate the buzzer inside the control panel even if it is disarmed.

DIL-switch S2.8 OFF "maintenance"

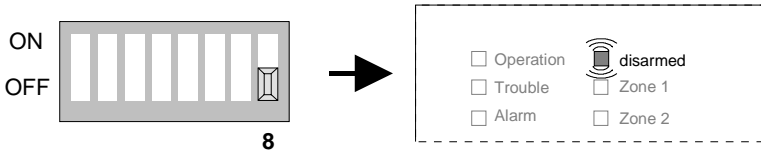


Fig. 23: Activating the maintenance mode

The *disarmed* LED will flash rapidly after activating the maintenance mode. Various maintenance modes may now be selected using the *buzzer off* key. The LED indicator will change on actuating the button for the key switch and the maintenance mode selected will be indicated. The only LED to light up now will be the one belonging to the maintenance mode currently selected.

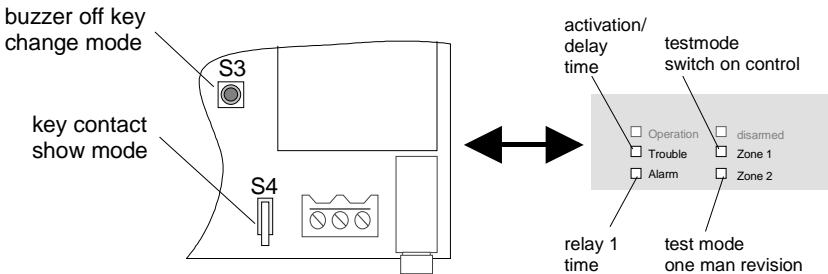


Fig. 24: Selecting / changing maintenance mode

- Hold down key switch contact and select the desired maintenance mode using the *buzzer off* button (see Table on next page)

The following will be indicated. On releasing the key switch, the mode will be activated that was selected with the *buzzer off* key.

The maintenance mode is time-monitored. If neither the *buzzer off* key nor the key switch is actuated for 30 minutes, the control panel will activate the buzzer and the *disarmed* LED will start flashing rapidly to show that the maintenance mode is still active. The maintenance mode will be terminated by setting DIL-switch S2.8 to ON. Once an activation time of approx. ten seconds has elapsed, the control panel will return to the normal mode automatically.

LED illuminated	Function
Trouble, yellow LED	Activation/alarm delay time is set to 0-90s or continuous with regulator R3 (see Section 8)
Alarm, red LED	Activation time is set for relay 1, 0-180s or continuous, with regulator R4 (see Section 7.2.1)
Detector zone 1, yellow LED	Test mode switch-on control for special fire detectors (see Section 9.2.1)
Detector zone 2, yellow LED	Test mode One-man revision (see Section 9.2.2)

Table 1: Visual indications of the various maintenance modes

9.2.1 Switch-on control test mode

The switch-on control (SOC) facility can be used for testing special Esser fire detectors, such as 9000-series threshold detectors (part no. 78xxxx). While switch-on control is in progress, an automatic self-test will be performed cyclically for each detector which checks it for proper working order. The result of this test is indicated by the red detector LED (detector housing) for each detector.

Test cycle (automatic)

1. Zone voltage switched off for 12s
2. Zone voltage switched on for 12s (red detector LED lights up)
3. Reset
4. Zone voltage switched on for 12s
red detector LED off = detector OK
red detector-LED on = detector soiled
5. Reset
6. Zone voltage switched on for 12s
red detector LED off = detector OK
red detector LED on = detector faulty
7. Start again at step 1

The cycle will be repeated automatically until the switch-on control test mode is deactivated again on the control panel.

9.2.2 One-man revision test mode

The one-man revision facility provides assistance in checking the intruder alarms or fire detectors connected to inputs MG1, MG2 and MG3 during inspection and maintenance work. Input MG4 cannot be tested with the one-man revision facility.

If a detector responds during the function check, the control panel buzzer will sound for approx. 5 seconds, audibly signalling that an alarm has been identified. The buzzer and responding detector zone will be reset automatically after this 5-second period. It is possible to check further detectors without having to reset the alarm manually each time on the control panel.

During one-man revision no external alarm is given when detectors respond.



Please note that optical fire detectors (smoke detectors) must only be triggered using the test gas approved by the manufacturer. Triggering a smoke detector with unsuitable test gas or, for example, cigarette smoke may leave residue in the detector chamber and impair proper function or damage the detector.

9.3 Function of coding bridges

Jumper J1/J4 (buzzer activation)

With the housing closed, the buzzer will attain a volume of at least 60 dB (A) at a distance of 1m

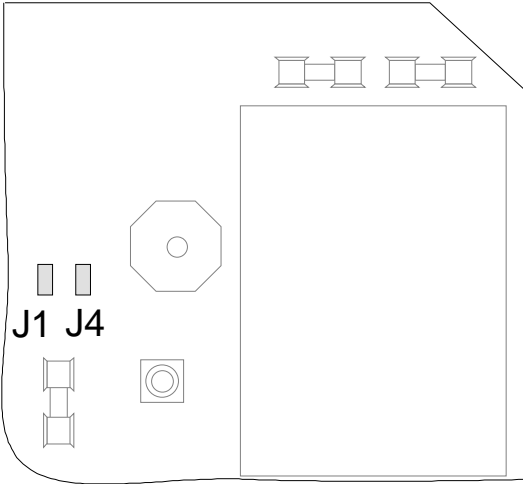


Fig. 25: Position of coding bridges J1 and J4 on the circuit board

- J1 closed ⇒ buzzer activated upon alarm, trouble and negative acknowledge
- J1 open ⇒ control panel buzzer disconnected, no activation

- J4 closed ⇒ control panel buzzer at maximum volume of 60 dB (A)
- J4 open ⇒ control panel buzzer at reduced volume

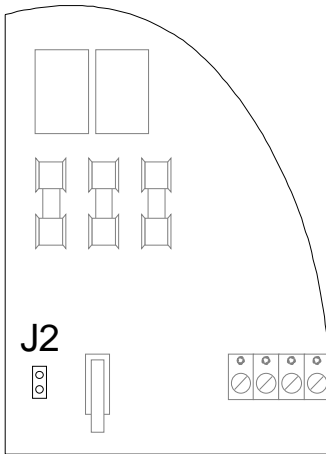
Jumper J2 (tampering at housing)

Fig. 26: Position of coding bridge J2 on the circuit board

J2 closed ⇒ Housing not monitored by the cover tamper switch
(tamper switch is bypassed)

J2 open ⇒ Housing being monitored with cover tamper switch

Jumper J3 and solder jumper J5 (activation of relay 2, visual alarm device)

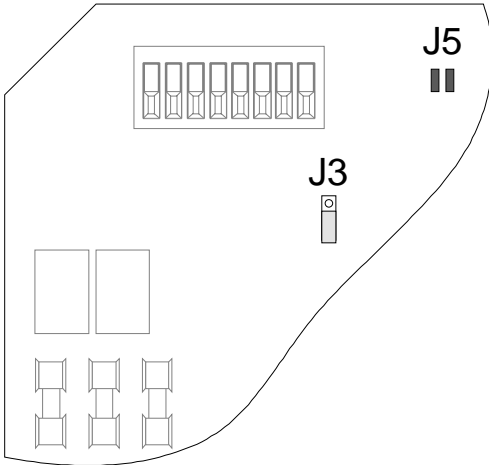


Fig. 27: Position of coding bridges J3 and J5 on the circuit board

J3 upper position (alarm): Relay 2 activated upon alarm

J3 lower position (trouble): Relay 2 activated upon trouble, relay contact closed during trouble-free operation, relay contact open in the event of control panel trouble

J5 closed: Activation time for relay 2 limited to 30 minutes(factory setting)

J5 open: Continuous activation of relay 2 in alarm condition until control panel is disarmed or alarm device is reset

10 Specifications

Mains voltage	:	230 V AC
Rated current	:	0.1A
Rated frequency	:	50 Hz
Operating voltage	:	12 V DC
Quiescent current @ 12 V DC	:	approx. 40 mA
Voltage for external loads	:	12 V DC / max. 350 mA
Battery capacity	:	1x 12 V / 2 Ah
Battery charging voltage	:	13.65 V DC / 0.1 mA @ 25°C
Protection class	:	I (in accordance to DIN EN 60950)
Protection rating	:	IP 40
Ambient temperature	:	-5 °C to +45 °C
Storage temperature	:	-10 °C to +50 °C
Dimensions (w x h x d)	:	270 x 221 x 71 mm
Housing	:	ABS, V-0
Housing colour	:	White, with blue front panel

Indicators

6 light-emitting diodes	:	For indicating the status of control panel and detector (LED) zones, also serving as visual setting aid in maintenance mode
Buzzer	:	Audible indication of control panel status and internal alarm, approx. 60 dB(A) with housing closed

Inputs

MG 1 / MG 2	:	For connecting fire detectors or intruder alarms, Intruder \Rightarrow monitored window = $10\text{ K}\Omega \pm 40\%$, Fire \Rightarrow $10\text{ K}\Omega$ quiescent / $1\text{ K}\Omega$ = alarm / other = trouble
MG 3	:	Monitored input, Function will depend on setting of DIL-switch S2.3, Monitored window = $10\text{ K}\Omega \pm 40\%$
MG 4	:	Input for external sustained or intermittent contact, Monitored window = $10\text{ K}\Omega \pm 40\%$

Outputs

Relay 1	:	Activation of external audible alarm devices, Max. contact rating 30 V DC / 2A
Relay 2	:	Activation of external visual alarm devices, Max. contact rating 30 V DC / 1A

Transistor output

Switching mode	:	negative switched, open collector
Contact rating	:	V DC / 0.5A (current limited)

11 Appendix

Example application: fire alarm control panel

Special fire detectors are connected to detector zones MG1 and MG2. A fire alarm on MG1 or MG2 will activate the external alarm devices (J3 in ALARM position). The activation time for the visual alarm device is limited to 30 minutes (J5 closed). The tamper contact looped into input MG3 for monitoring the housing has been bypassed by jumper J2 because manual call points have been additionally connected to input MG3. A momentary contact with reset function is connected to input MG4 for alarm devices and alarms. The four transistor outputs control external visual indicators.

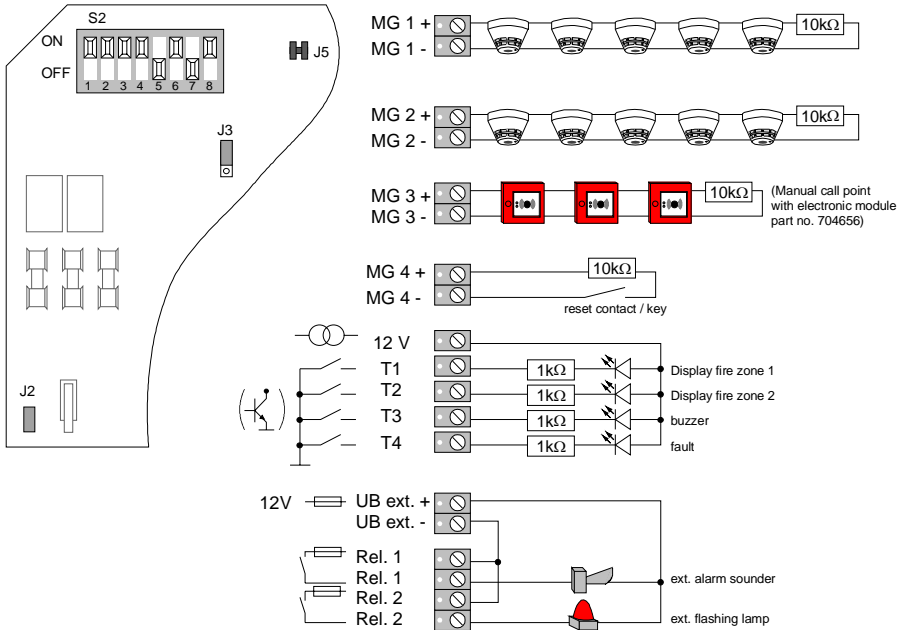


Fig. 28: System being used as a pure fire alarm control panel (example)

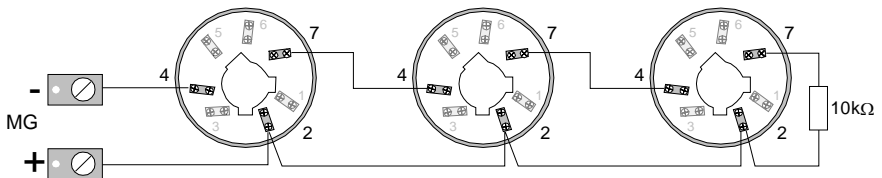


Fig. 29: Wiring detector base- standard (Part no. 781590)



For additional wirings refer to the appropriate product manuals.

Example application : intruder alarm panel with pulse contact

Intruder alarm panel with two detector zones MG1, MG2 for monitoring alarm contacts. Input MG3 used for monitoring the housing contacts for tampering. This has been done by removing jumper J2 from the control panel. The control panel is armed with the key switch (input MG4).

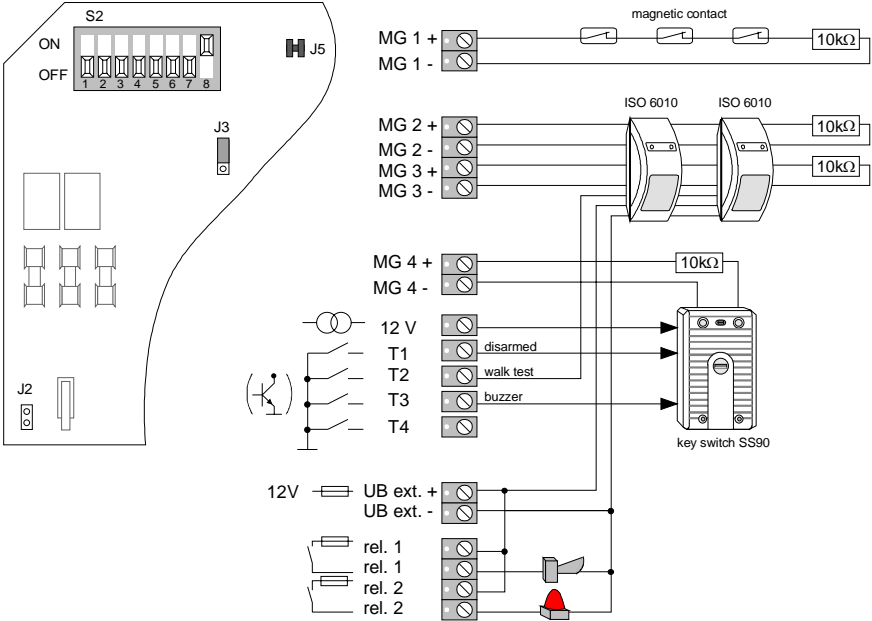


Fig. 30: System being used as an intruder alarm panel with pulse contact switch (example)

Example application : intruder alarm panel with switch contact

Intruder alarm panel with two detector zones MG1, MG2 for monitoring alarm contacts. Input MG3 used for monitoring the housing contacts for tampering. This has been done by removing jumper J2 from the control panel. The control panel is armed/disarmed with the key switch (input MG4).

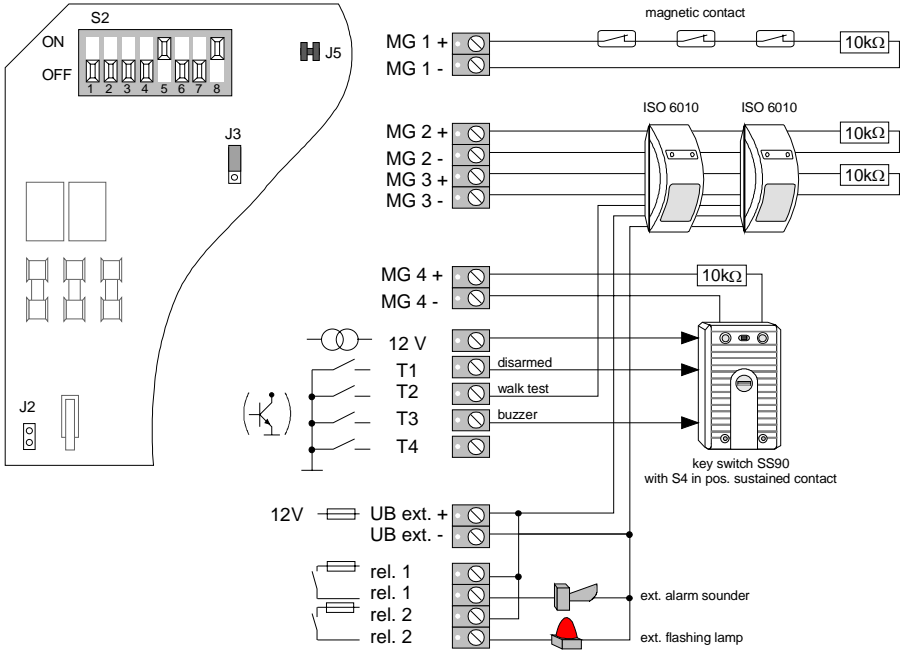


Fig. 31: System being used as an intruder alarm panel with switch contact switch (example)

Example application: Combined intruder / fire alarm control panel

Combination of fire and intruder alarm panel. Special fire detectors are connected to input MG 1 and motion detectors at input 2 for intrusion monitoring. Input MG 3 is designed as a tamper zone for the cover contacts on the motion detectors. The housing contact on the control panel is also looped into input MG3 (jumper J2 open). Standard function as intruder alarm panel is programmed with DIL-switch S2.6, i.e., output TR 1 indicates the *disarmed* status and TR2 the *reset/walk test* status.

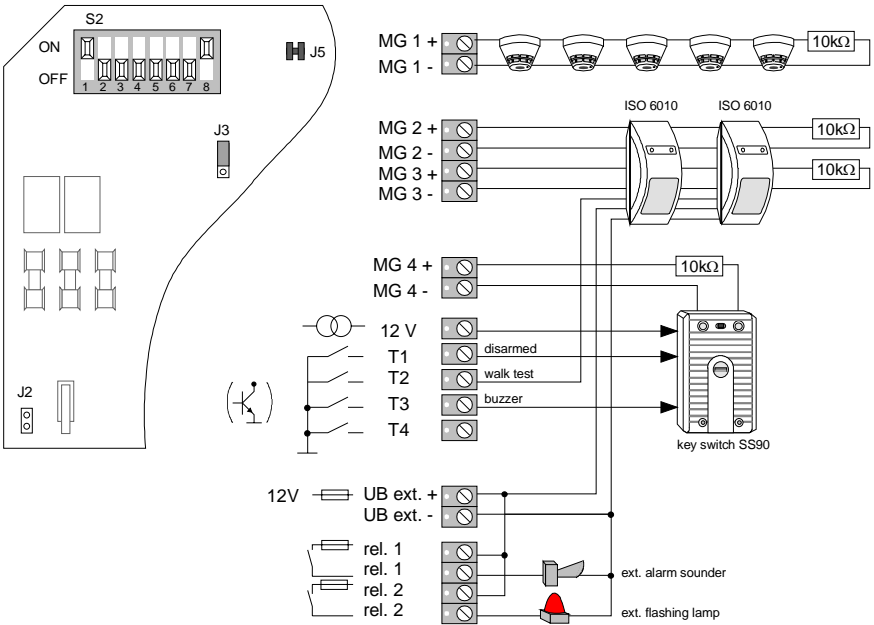


Fig. 32: System being used as a combined intruder and fire alarm control panel (example)



This application provides an external alarm only during the armed condition of the Hazard Alarm Panel (incl. Fire alarms) !

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