



Security Technology Fire Alarm Control Panel BZK4E Product Manual

Contents

1	Important notes	7
2	Terms	8
3	Scope of delivery	9
4	Expansion options	10
5	General description	10
5.1	CE marking	11
5.2	Standby batteries	12
6	Technical data	12
6.1	General	12
6.2	ZTB06-2 Central Processing Module.....	13
6.2.1	Power supply	13
6.2.2	Inputs.....	13
6.2.3	Outputs.....	14
6.3	ZEB2-1 Zone Expansion Module	14
6.4	RL58-1 Relay Module	15
6.5	RL58-2 Relay Module	15
7	Standby batteries	16
7.1	Significance of standby power supply internal resistance.....	16
7.2	Determining the maximum current.....	16
7.3	Reading out the internal resistance	17
8	Design layout	18
8.1	Marker strips	18
9	Installing the panel and fitting optional modules	19
9.1	Schematic diagram of housing	19
9.2	Mounting the panel.....	19
9.3	Installing add-on modules	20
9.3.1	Installing the standby batteries	21
9.3.2	ZEB2-1 Zone Expansion Module.....	21
9.3.3	RL58-1/RL58-2 Relay Modules or other add-ons.....	21
9.3.4	Where to install the fire alarm control panel.....	21
10	Switch-on	22
10.1	General switch-on	22
10.1.1	Threshold detector module switch-on principle	22
10.1.2	Siren switch-on principle.....	22
10.1.3	Strobe switch-on principle	22
11	Detector switch-on	23
11.1.1	Manual fire alarms/MCPs	23
11.1.1.1	Connecting manual fire alarms/MCPs	23
11.1.1.2	Connecting MHD4/KL-MHDH4/KL Manual Fire Alarms/MCPs.....	23
11.1.2	Detector series 300	23
11.1.3	Detector series FC650	24
11.2	ZTB06-2 Central Processing Module.....	24
11.2.1	Switching on the power supply, standby batteries and external loads	24
11.2.2	Connection diagram, position of terminals and fuses	25
11.2.3	Description of inputs and outputs (default setting)	26
11.3	ZEB2-1 Zone Expansion Module	26
11.4	Relay module RL58-1 or RL58-2	27
11.5	RL58-1	27
11.6	RL58-2	27
11.7	Connection for 20 mA interface (InfoBUS)	28
12	Start-up	29
12.1	Getting started	29
12.2	Connecting the supply voltage	29
12.3	Initial operating steps	30

12.4	Checking power failure buffering time	30
12.5	Setting the standby power supply internal resistance threshold	31
12.6	Default parameters	31
13	Operating and display elements	32
13.1	Display elements.....	32
13.2	Signaling display area	33
13.3	Zone LED display area	33
13.4	Audible indicators.....	33
13.5	Operating controls.....	34
14	Operation	34
14.1	Authorization (access code entry).....	34
14.1.1	Authorization level 1 (no proof of authorization)	34
14.1.2	Authorization level 2 (operator rights – 'Authorization' LED illuminates)	34
14.1.2.1	Entering the operator code	35
14.1.3	Authorization level 3 (engineer rights – 'Authorization' LED flashes)	35
14.1.3.1	Engineer code entry.....	35
14.2	Reset (operator code required).....	35
14.3	Silencing the internal buzzer (no authorization required).....	36
14.4	Display test	36
14.5	Operating the signaling installation	36
14.5.1	Silencing/reactivating the signaling installation	36
14.5.2	Switching the signaling installation on and off	37
14.5.3	Testing the signaling installation	37
14.6	Intervention	38
14.7	Daytime/nighttime operation	38
14.8	Operating the zones.....	38
14.8.1	Switching detector zones on and off	39
14.8.2	Switching detector zones to test condition	39
15	Functional description	40
15.1	Normal condition.....	40
15.2	Fire alarm condition	41
15.2.1	Silencing the buzzer	41
15.2.2	Dealing with intervention	41
15.2.3	Silencing the signaling installations.....	41
15.2.4	Terminating a zone alarm	41
15.2.5	Resetting fire alarm condition.....	42
15.3	Fault condition.....	42
15.3.1	Fault code.....	43
15.4	Disablement condition.....	45
15.5	Test Condition.....	46
16	Function tests	46
16.1	Function testing the fire alarm control panel.....	46
16.2	Function testing the detectors.....	47
16.3	Function testing the signaling installation	47
17	Parameterization	48
17.1	General notes on parameterization.....	48
17.2	Operating the panel at authorization level 3 (parameterization level)	48
17.2.1	Accessing and quitting parameterization.....	48
17.2.2	Key functions	49
17.2.3	Menu overview	50
17.2.4	User interface.....	51
17.2.5	Basic procedure	52
17.2.6	Parameterization example.....	53
17.3	Description of menus	55
17.3.1	Global parameters.....	55
17.3.1.1	Mains fault	56
17.3.1.2	Battery fault.....	56
17.3.1.3	Earth fault	56
17.3.1.4	End-of-line for zones 1–4.....	57
17.3.1.5	Intervention	57
17.3.1.6	Alarm delay time (for intervention mode).....	57

17.3.1.7	Prealarm delay time (for intervention mode).....	58
17.3.1.8	EOL for zones 5–6.....	58
17.3.2	Zones.....	58
17.3.2.1	Zone properties.....	59
17.3.3	Outputs.....	60
17.3.3.1	Selecting an output.....	60
17.3.3.1.1	Alarm relay.....	61
17.3.3.1.2	Fault relay.....	61
17.3.3.1.3	Signaling installation.....	62
17.3.4	Inputs.....	63
17.3.4.1	Input properties.....	63
17.3.5	Serial port.....	64
17.3.5.1	Baud rate.....	65
17.3.5.2	Number of InfoBUS devices.....	65
17.3.6	Code.....	65
17.3.6.1	Changing the operator code.....	66
17.3.6.2	Changing the engineer code.....	66
17.3.6.3	Auto exit.....	66
17.4	Logical combinations.....	67
17.4.1	Description.....	67
17.4.2	Setting combination parameters.....	67
17.5	Default parameters.....	68
17.6	System-specific parameterization.....	68

1 Important notes



Warning! Hazardous voltage! Installation by person with electrotechnical expertise only.

Only qualified electricians may open the panel and/or work on the device. Before opening the device, ensure that the mains voltage is switched off and that it cannot be switched back on!

The system may be installed **only if it is isolated from its power sources**. The installation must be checked before switching on the power.

The panel housing must be earthed when operational. Make sure that the earth is connected to the corresponding PE connection.

The primary switch controller on the ZTB06-2 Central Processing Module is protected by a metal housing cover. Do not remove this cover! The components beneath it carry voltages that could be fatal.

Ensure that both the panel and all peripheral devices are suitable for the prevailing ambient conditions and are operated only within the specified technical data.

Fire detection systems must be planned and installed by specialist personnel trained by ABB or persons authorized by ABB. Applicable standards, guidelines, regulations and ABB specifications must be observed.

In order to keep fire detection systems in good working order, they must be regularly serviced in accordance with the applicable standards. Servicing includes periodic inspection and maintenance. Refer to the standards DIN 14675 and VDE 0833, Part 1 and Part 2, for details.
Carry out required repairs without delay. In the event of any structural changes, adapt the fire detection system accordingly.

For supplementary information on systems and alarm technology, please refer to the “Engineering Instructions, Interfaces” brochure.

2 Terms

Some of the more commonly encountered terms relating to the BZK4E are listed and explained in more detail below:

Disable (switch off)

Disabling a fire detection system places parts or all of the system out of operation until it is switched on again.

Silence (Reset)

Silencing an active device such as a signaling installation changes it back to inactive condition without permanently disabling it. An installation that has been silenced can be automatically reactivated by a new event – in this case another alarm.

Signaling installation

A device (e.g. a siren) connected to the fire detection system and used for alerting people who are affected or endangered. On the control panel it is described as '**Signaling**', which refers to the monitored output that controls such devices.

Signaling installation with "Buzzer off" intervention option

Extended operating features on a signaling installation. On a signaling installation that has an intervention option, pressing the '**Buzzer Off**' key to silence the panel's internal buzzer can be used to delay the alarm until another is triggered in another manual call point (MCP) detector zone.

Alarm buffering

Alarm triggering is automatically delayed after a detector has responded, so as to establish whether the fire characteristic remains present for longer (e.g. longer than 30 seconds).

Automatic detector zone

A detector zone to which only automatic fire detectors (e.g. optical or thermal smoke detectors) are connected. Alarms from automatic detector zones do not necessarily have to actuate a signaling installation; in conjunction with appropriate mechanisms they can be delayed or prevented.

Automatic detector zone with alarm buffering

As above but with delayed alarm triggering. After a zone detector has triggered, the first step resets the zone and thus also the detector. If another alarm is received from that detector zone within 30 seconds, the system switches to alarm condition.

Fire detector, automatic

A detector that constantly or frequently checks for the presence of one or more fire characteristics. Automatic fire detectors are distinguished by the characteristics that they check, such as smoke, heat, and flames.

Fire detector, non-automatic

Detectors intended for people to trigger by hand (e.g. MCPs).

Push-button detector zone (MCP or MCP detector zone)

A detector zone to which only manually-operated detectors are connected (new manual fire alarms/MCPs).

Threshold alarm technology

Conventional alarm technology whereby alarms are triggered on the fire alarm control panel based on the principal of an increase in current.

Detector zone

A group of fire detectors which, when triggered, sends a collective alarm to the fire alarm control panel. With threshold alarm technology, the detectors in a detector zone have their own line route.

Parameterization

To specify or change the system-specific parameters of the fire alarm control panel on commissioning or following expansion. Operators cannot change parameters.

Fault detector zones

Alarms from fault detector zones activate the system's collective fault display and the fault relay on the mains power board. They do not activate an alarm output.

Daytime operation

In daytime operation the BZK4E Fire Alarm Control Panel can delay activation of the signaling installation in the event of a fire alarm. The zones in which the signaling installation is to be delayed/not delayed in daytime operation can be set when commissioning the system.

The system switches to this mode via an additional switching device (e.g. a key switch or external time switch) connected to both of the system's switching inputs.

Two-zone dependency

This is a measure intended to improve the prevention of false alarms. The installation concerned (in this case only the signaling installation) is only triggered by a response from a detector in each of two inter-dependent zones. However, the system does switch to alarm condition on a response from the first zone. The BZK4E Fire Alarm Control Panel also allows more than two zones to be assigned to a single "zone dependency".

3 Scope of delivery

The basic BZK4E Fire Alarm Control Panel consists of the following components:

- Housing, comprising a wall-mounted section and a cover. The wall-mounted part contains the ZTB06-2 Central Processing Module including the power supply; the ABB06-2 Display and Control Module – which is protected by a front foil – is installed in the cover that fits over the wall-mounted part.
- Supplied materials including marker strips, fastenings, battery cable, spare fuses, and end-of-line (EOL) resistors.
- Product manual.
- Operating manual.



Figure 3.1

Components such as standby batteries or add-ons required as a function of system requirements must be ordered separately, are delivered separately from the system, and need to be installed on site.

4 Expansion options

The system can be equipped with the following modules or components:

- **ZEB2-1** Zone Expansion Module for two additional threshold alarm detector zones
- **SUB 58/2** Plug-in converter board for converting the open collector (OC) outputs on the central processing module to screw terminals
- **FBK 0.3** 10-pole flat cable for connecting OC outputs on the central processing module to SUB 58/2
- **SAK 7** 7.2 Ah battery as standby power supply for fire detection system; **two batteries required, connected in series** (wiring material included in supplied materials pack!)

There is also another slot for optional expansion with one of the following assemblies:

- **RL58-1** 8-fold Relay, relay load capacity 60 V DC/1 A, for converting the ST1 OC outputs on the central processing module to floating contacts. Connection to central processing module via flat cable (relay card attached).
- **RL 58-2** 4-fold Relay, relay load capacity 230 V DC/3 A, for converting the ST1 OC outputs on the central processing module to floating contacts. Connection to central processing module via flat cable (relay card attached).
- **SZ 58/2** Siren Expansion Module with two monitored 0.5 A siren outputs, allowing you to convert the existing siren output to two monitored siren circuits.

5 General description

The BZK4E Fire Alarm Control Panel is a compact system with four threshold alarm technology detector zones and the option to add another two. Its function is to detect and process alarms from the automatic detectors and manual call points (MCPs) in its zones, and to carry out signaling and control tasks taking into account all the appropriate criteria. It carries the CE marking and is compliant with the following standards:

- DIN EN 54-1, DIN EN 54-2, DIN EN 54-4

It therefore meets the device requirements of VDE 0833-2 in accordance with EN 54 standards and can be used in fire detection systems without fire service signaling systems which are compliant with DIN 14675.

In the supplied state the panel is equipped and parameterized to operate with four zones. Using a ZEB2-1 Zone Expansion Module this can be extended to six as shown in the diagram below.

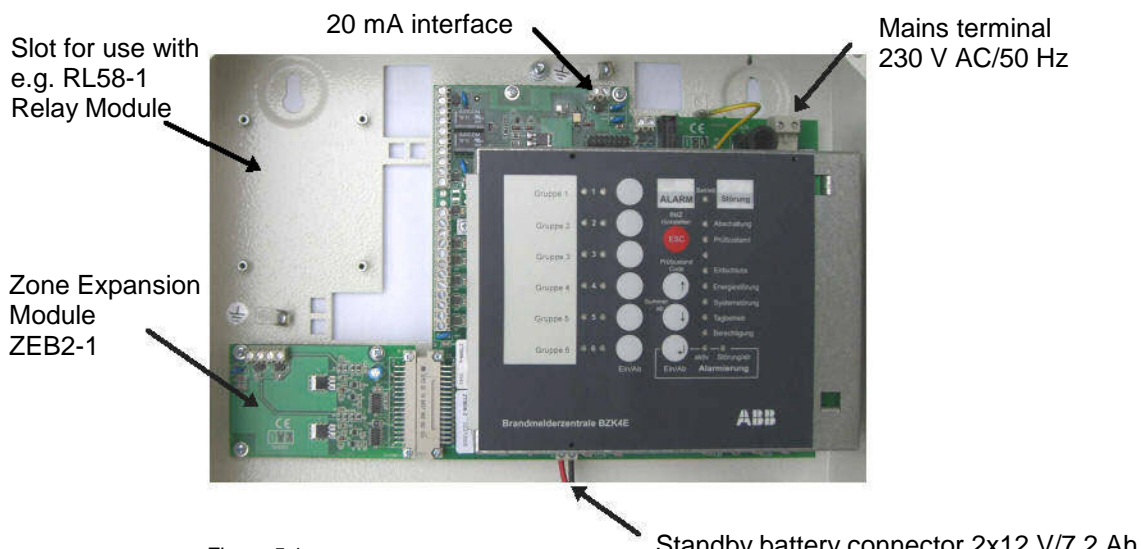


Figure 5.1
Central processing module with spaces for mounting optional modules

The zones can be parameterized with various properties for fire detection or fault detection. In terms of alarm and control functionality the system has a monitored siren output, floating changeover contacts for alarms and faults, and eight OC outputs with collective and individual zone alarms. The basic system also has two user-programmable switch inputs. Each detector zone has two status indicator LEDs (red for an alarm, yellow for a fault/disablement). Displays are individually labeled using the marker strips which can be inserted behind the front foil. Using either of the control inputs, the fire alarm control panel can be switched to daytime operation for delayed activation of the signaling installation. Intelligent signal devices (e.g. the SG58-2) can be connected via a 20 mA interface (InfoBUS). Connecting a Fire Department control panel or signaling installation is not feasible.

The system is protected from unauthorized access by three authorization levels for operation and parameterization. Two of these require a numerical code. As an option, system operator authorization can also be controlled via an additional key switch installed in one of the switch inputs. Mains power for the system is supplied by a switched supply with a 60 VA rating which provides sufficient energy for the peripheral devices connected to it. The high-efficiency switching power supply guarantees low power consumption, low heat generation and therefore high reliability. Connecting two standby batteries ensures that in the event of a mains failure, all the fire detection system's functions are maintained for an extended period. The standby batteries undergo temperature-controlled charging from the mains, and in the event of a mains failure they are effectively protected against total discharge. The panel housing is supplied ready for the installation of both standby batteries.

Sophisticated switching measures for silencing interference from voltage spikes or radio-frequency fields mean that under normal conditions the system is suitable for use in an unshielded cable network.

5.1 CE marking

Fire alarm control panels for use in fire detection and alarm systems for buildings (or in short, "fire alarm control panels") must have the CE marking which designates them for use within the EU. The CE mark is the manufacturer's confirmation that the system complies with the relevant EC Directives, which is a prerequisite for bringing products into service within the European Economic Area, in particular,

- conformity with the general low-voltage and EMC directives and standards, and
- compliance with European standards EN 54-2 (fire alarm control panels) and EN 54-4 (power supplies).

Standards EN 54-2 and EN 54-4 for the use of fire alarm control panels within the EU is also governed by Construction Products Directive 89/106/EEC. Mandatory applicability of these standards is shown in the table below:

Standard	Version	Mandatory application as of:
EN 54-2 Fire alarm control panels	EN 54-2:1997	08/01/2009
	EN 54-2:A1/2006	08/01/2009
EN 54-4 Power supplies	EN 54-4:2002	08/01/2009
	EN 54-4/A2:2006	08/01/2009

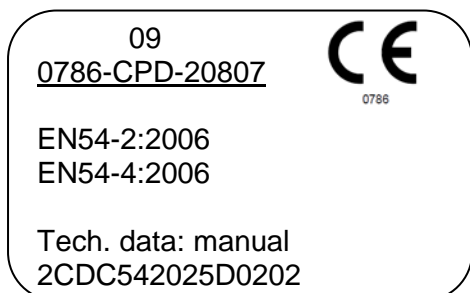
Proof of compliance with these standards must be confirmed by a recognized testing, supervisory and certification body. Alongside other in-house production controls for example, the CE marking is a prerequisite in order for fire alarm control panels to be brought into service for their intended purpose within the European Union and European Free Trade Area.

If users employ fire alarm control panel functions which do not comply with the aforementioned standards (see this product manual for the relevant information),

- these panels cannot be verified as compliant with standards EN 54-2 and EN 54-4, and
- such panels cannot be deployed within the EU as "Fire alarm control panels for use in fire detection and alarm systems for buildings".

If this is the case, the installer of the fire detection system must remove the relevant markings, including the type-approval number provided by the test agency, from both the panel and its associated paperwork.

The panel's compliance with the abovementioned legislation, standards and directives is denoted by additional marking below the nameplate:



5.2 Standby batteries

According to one of the requirements in EN 54 Part 4 it must be possible to use the panel to establish the quality of the batteries connected to it. This is feasible by comparing the internal resistance of the battery with a predefined setpoint. For details, refer to Chapter 7, Standby batteries.

6 Technical data

6.1 General

Housings

Mounting	Surface-mounted on wall
Material (wall-mounted housing)	1 mm powder-coated steel sheet
Material (housing cover)	Polystyrol
Color	RAL 9002 Gray white
Protection class	IP30
Protection class	I
Dimensions (W x H x D)	330 x 330 x 90 mm
Weight without batteries	Approx. 3 kg
Ambient temperature	-5 °C to +50 °C
Relative humidity	95 % (non-condensing)
Atmospheric pressure	Atmosphere up to 2,000 m
Standards	Panels in accordance with DIN EN 54 Parts 2 and 4

Information pursuant to the German Construction Products Act



09

 0786 – CPD – 20807

 EN 54-2: 1997 + A1: 2006
 EN 54-4: 1997 + A2: 2006

6.2 ZTB06-2 Central Processing Module

Connection type	Screw terminals, max. 1.5 mm ² (1 wire per terminal)
Dimensions W x H x D	200 x 190 x 65 mm
Weight	Approx. 850 g

6.2.1 Power supply

Primary line	
Mains voltage	230 V AC +10/-15 %, 50 Hz
Load	75 VA
Max current consumption	0.33 A
Fuse	Si1 – 0.5 AT
Secondary line	
Nominal output Voltage	Typically 28 V DC
Output peak current	Max. 2.2 A
	Current limitation = Max. total current
Panel current consumption in the event of a mains failure	Typically 86 mA (without add-on modules)
Max. power loss	12 Watts
Standby batteries	
Charging end-voltage	See table below (factory-set and sealed)

Temperature	Voltage
10 °C	28.3 V
15 °C	27.95 V
20 °C	27.6 V
25 °C	27.3 V
30 °C	27 V

Charge current	Max. 2.5 A voltage-limited
Battery fuse	Si2 - 4 AT
Connectable capacity	Max. 7.2 Ah internal, max. 45 Ah(total) in additional housing (Terminals 1 and 2, see Figure 11.5)
Connection	Detection time approx. 90 seconds under normal operating conditions
Mains or battery failure	10 seconds after a system restart

6.2.2 Inputs

Zones 1–4	(Terminals 21–28, see Figure 11.5)
Voltage	Typically 24 V DC
Current without detector	Typically 3.7 mA
EOL resistor	5.6 kΩ
Max. no. of automatic detectors	32 (restricted by technology and standards)
Max. no. of MCPs	10 (restricted by standards)
Line resistance	Max. 50 Ω per conductor
Triggering criteria	
Short circuit	< 120 Ω
Alarm	< 2.3 kΩ
Open circuit	> 7.5 kΩ
Control inputs 1 and 2	(Terminals 17–20, see Figure 11.5)
Activation	Actuation with negative
Activated	<= 3 V DC
Not activated	>= 12 V DC
Pulse time in pulse operation	Min. 1 sec.

6.2.3 Outputs

Internal loads	(Terminals 3 and 4, see Figure 11.5)
Voltage	Typically 28 V DC (subject to battery charging voltage set)
Fuse	Si4 – 0.8 AF
Connection for external loads	(Terminals 5 and 6, see Figure 11.5)
Voltage	Typically 28 V DC (subject to battery charging voltage set)
Fuse	Si3 – 0.8 AF
Siren output	(Terminals 13 and 14, see Figure 11.5)
Signal voltage	Typically 27–28 V DC (activated output)
Monitoring voltage	Typically -1.2 V DC (inactivated output)
Current-limited continuous load	1000 mA, short circuit proof
Collective alarm	(Terminals 7–9, see Figure 11.5)
Signal	Collective alarm according to control panel display
Contact type	Changeover contact, floating
Contact load capacity	60 V / 1 A / 30 W
Collective fault	(Terminals 10–12, see Figure 11.5)
Signal	Collective fault according to control panel display
Contact type	Changeover contact, floating
Contact load capacity	60 V / 1 A / 30 W
OC outputs 1–8	(Pin strip ST1, see Figure 11.5)
Output type	OC (switching operation to system negative)
Current carrying capacity	35 mA per output
Connection type	Flat cable connector suitable for flat cable with Relay Modules RL58-1 and RL58-2. Not intended for direct actuation of external devices!
20 mA interface	(Terminals 29 and 30, see Figure 11.5)
Serial port/InfoBUS for connecting	Signal device SG58/2, control panels and, in future, EIB interfaces
Baud rate	1200, 2400 baud
Number of devices	1–8

6.3 ZEB2-1 Zone Expansion Module

Function	Expands panel by 2 threshold alarm zones
Connection type	Screw terminals, max. 1.5 mm ² (1 wire per terminal)
Dimensions L x W x H	103 x 58 x 15 mm
Weight	Approx. 34 g
Current consumption	Typically 14 mA (EOL resistor 5K6)

For zone data, see central processing module zones (Chapter 6.2.2)

6.4 RL58-1 Relay Module

Function	Expands panel by 8 floating contacts
Connection type	Screw terminals, max. 1.5 mm ² (1 wire per terminal)
Dimensions L x W x H	85 x 65 x 37 mm
Weight	Approx. 130 g
Current consumption	Typically 22 mA (activated circuit)
Control current	Typically 1.2 mA per input
Switching capacity per contact	60 V/1 A/30 W

6.5 RL58-2 Relay Module

Function	Expands panel by 4 floating contacts Cascadable for 8 floating contacts
Connection type	Screw terminals, max. 1.5 mm ² (1 wire per terminal)
Dimensions L x W x H	98 x 74 x 28 mm
Weight	Approx. 120 g
Current consumption	Typically 22 mA (activated circuit)
Control current	Typically 1.2 mA per input
Switching capacity per contact	30 V DC/3 A or 230 V AC/5 A

7 Standby batteries

Pursuant to EN 54 Part 4 the fire alarm control panel must display an energy fault if the internal resistance of the batteries becomes too high as the result of a mains failure, leaving insufficient system voltage available for external loads. The control panel indicator in this eventuality is 'Energy fault' and as shown in Chapter 15.3.1, error code 91 can be read out.

To ensure that the data and measurement results are correct under these circumstances, an internal resistance threshold must be set during commissioning (see chapter on Commissioning). If in the course of regular cyclical monitoring the panel establishes that this value has been exceeded, this triggers the fault display described above.

7.1 Significance of standby power supply internal resistance

In the event of a mains failure, the 24 V devices connected to the fire alarm control panel must be supplied by the standby batteries. The actual voltage supplied at the panel connection terminals for the 24 V loads is

$$U = U_{\text{Batt}} - I \cdot R_i$$

U_{Batt} Standby battery voltage (2 x 12 V in series)

I The current that the batteries need to supply in the event of a mains failure

R_i Internal resistance of standby power supply

The designated internal resistance is the sum of all the individual electrical resistances in the battery circuit (internal resistance of standby batteries, contact resistance or plug or terminal connectors, resistance of battery cable, resistance of panel battery fuse, etc.).

The internal resistance of the standby batteries is largely a factor of their size (i.e. capacity) and age. Increased contact resistance caused by corrosion on plugs or terminals can be contained by careful attention to maintenance.

In the event of a mains failure the voltage of the 24 V loads connected and the maximum standby battery current when the system is active (e.g. in the event of an alarm) must not fall to such a level that those loads no longer function as specified or the batteries fall below the stipulated deep discharge value (21 V). Typical internal resistance values for a new 24 V standby battery from the factory (consisting of two 12 V batteries in series) are:

7.5 Ah < 300 mΩ

20 Ah < 200 mΩ

45 Ah < 100 mΩ

Alongside the internal resistance of the standby batteries, all the other resistances in the load/discharge circuit must be taken into account. Examples are

- the resistance of copper wire with a 1 mm² cross-section at almost 20 mΩ per meter,
- the contact resistance of a high-performance 2.5 mm² terminal at approx. 3 mΩ or
- the resistance of an upstream fuse with a rating of T4A including bracket, at approx. 25 mΩ.

Overall internal resistance increases over time, largely due to the batteries ageing. Increased contact resistance caused by corrosion on plugs or terminals can be contained by careful attention to maintenance.

7.2 Determining the maximum current

When calculating the maximum current, base the calculations on the operating scenario requiring the highest possible current from the batteries in the event of a mains failure. As a rule this will be the system condition when a fire alarm is triggered.

"Maximum current" does not refer to the maximum value that the mains device can supply but rather, your application's highest current flow at 24 V! Assuming too high a current value (e.g. 2 A when the maximum current consumption from the standby batteries is only 1 A) will result in the 'Energy fault' display being triggered prematurely when there is still enough current (i.e. 1 A) in the battery to supply your requirements without falling below the lower voltage limit.

The BZK4E has two maximum-current threshold options:

- < 1.0 A / internal resistance max. 1500 mΩ
- 1.0 ... 2.3 A / internal resistance max. 700 mΩ.

Chapter 17.3.1.2 describes how to set the thresholds. An internal resistance threshold is assigned to each of these ranges. Once the actual internal resistance reaches these thresholds as a result of corrosion etc., the control panel will indicate an '**Energy fault**', even if no current is being drawn from the standby batteries at the time. If in the course of this operating scenario current is drawn from the standby batteries at the upper threshold, the power supply will drop, but it will remain sufficient to guarantee that the connected devices continue functioning fully.

Important! Selecting the "no measurement" setting in Chapter 17.3.1.2 does not meet the requirements of EN 54 Part 4, which in turn means that the CE marking on the panel is no longer valid.

7.3 Reading out the internal resistance

For the purposes of fault resolution or maintenance it is possible to read out the whole internal resistance for the standby power supply. To do this, proceed as follows:

- Press and hold the '**Test Condition**' (Prüfstand/Code (↑)) key. The '**Daytime operation**' (Tagbetrieb) LED will flash.
- Now press the '**Reset**' (BMZ rückstellen) (ESC) key. The '**Energy fault**' (Energiestörung) LED will illuminate.

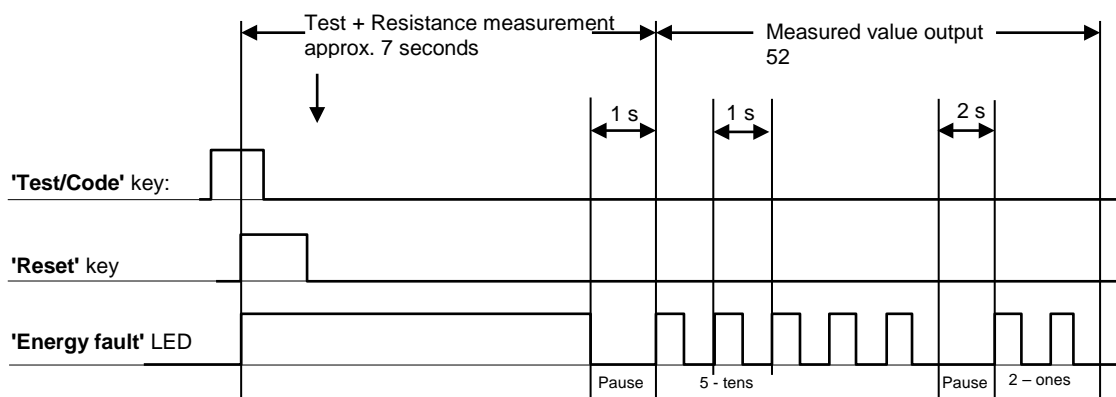
The test cycle includes general tests (power, battery-load, etc. and takes around 1 second), measuring the resistance of the charging/discharging circuit including the internal resistance of the battery (runs for around 6 seconds), and then displaying the measured value output on the '**Energy fault**' display as a pulse telegram, as a percentage (1 ... 99 %) of the factory-set threshold described in Chapter 17.3.1.2. The time sequence of the test cycle is shown in the diagram below.

The test cycle cannot be interrupted.

Resistance measurement will only run if the preceding battery load test has completed successfully and there is mains power present.

If the '**Energy fault**' indicator starts flashing as a result of the measured value output, this means that the charging/discharging circuit (standby batteries, battery lines, fuse etc.) resistance threshold has been exceeded. If so, the power supply is no longer standards-compliant.

Sequence diagram of readout procedure:



The digit 0 in measured value output is represented by 10 pulses. Leading 0s are dropped.

8 Design layout

The panel consists of a base housing which fastens to the wall at three points (Figure 8.1) and a cover. The base houses the central processing module including the power supply, operating keypad and all the required connection terminals and pin strips. The mains power connector is below the power supply on the central processing module.

On the left-hand side of the panel there are mounting pins for an add-on module such as the RL58-1 Relay Module. The bottom area of the housing is designed for the battery.

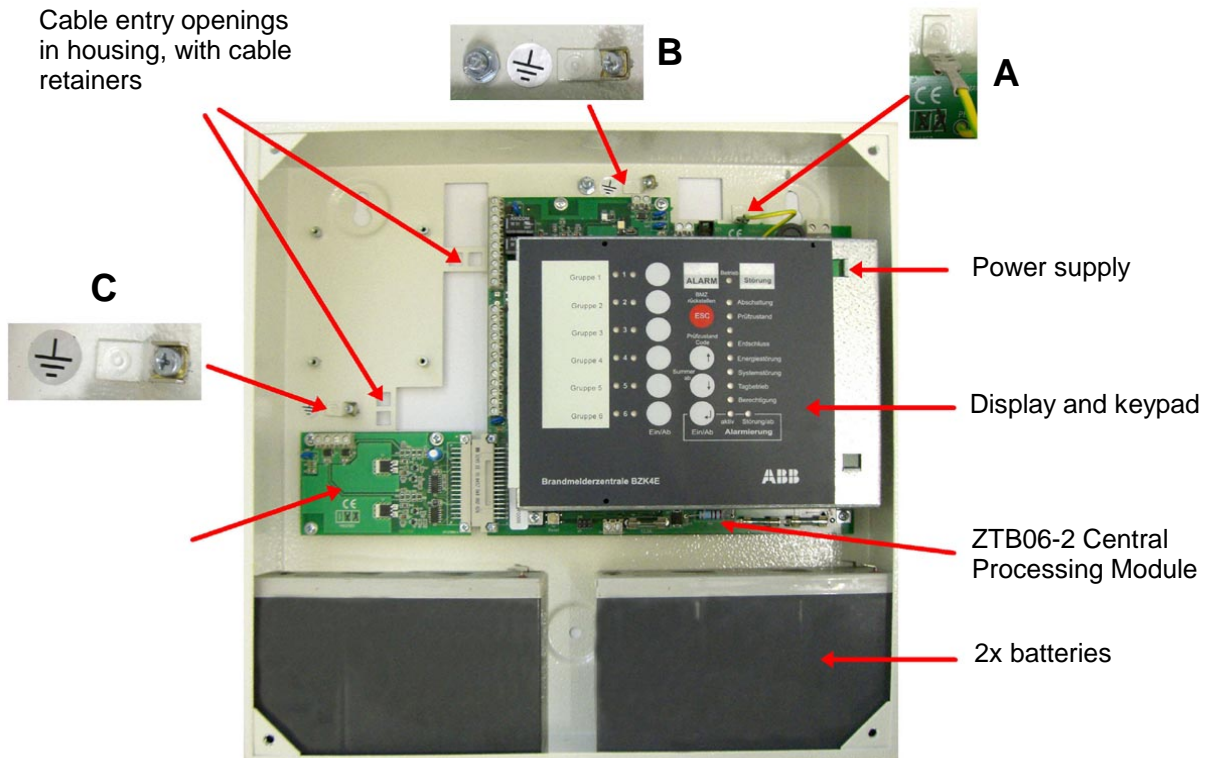


Figure 8.1

The picture also shows cabling details. **A** is a push-on connector for the electrical connection to the housing and central processing module. **B** is the earthing screw for equalizing potential on the housing and for the earth. **C** is intended for attaching cable shields. Cable retainers are included in the supplied materials pack.

The cable entry may be surface-mounted or flush-mounted (see Figure 8.1).

8.1 Marker strips

Marker strips are provided for labeling zone LEDs individually on the display and control module, by removing the housing cover and inserting the strips sideways behind the viewing window of the front foil. Sheets of pre-printed strips are supplied with the panel for this purpose.

So that strips can be changed easily, leave around a 10-20 mm overhang outside the window. **Do not use anything sharp or pointed to remove a strip!**

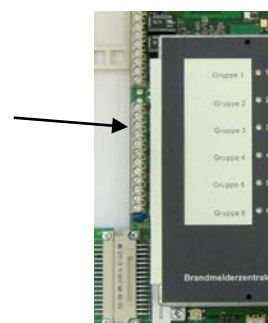


Figure 8.2

9 Installing the panel and fitting optional modules

Do not, under any circumstances, transport the fire alarm control panel with the standby batteries installed. To prevent transport damage caused by batteries coming loose (even on short journeys), make absolutely sure that you remove them from the housing.

9.1 Schematic diagram of housing

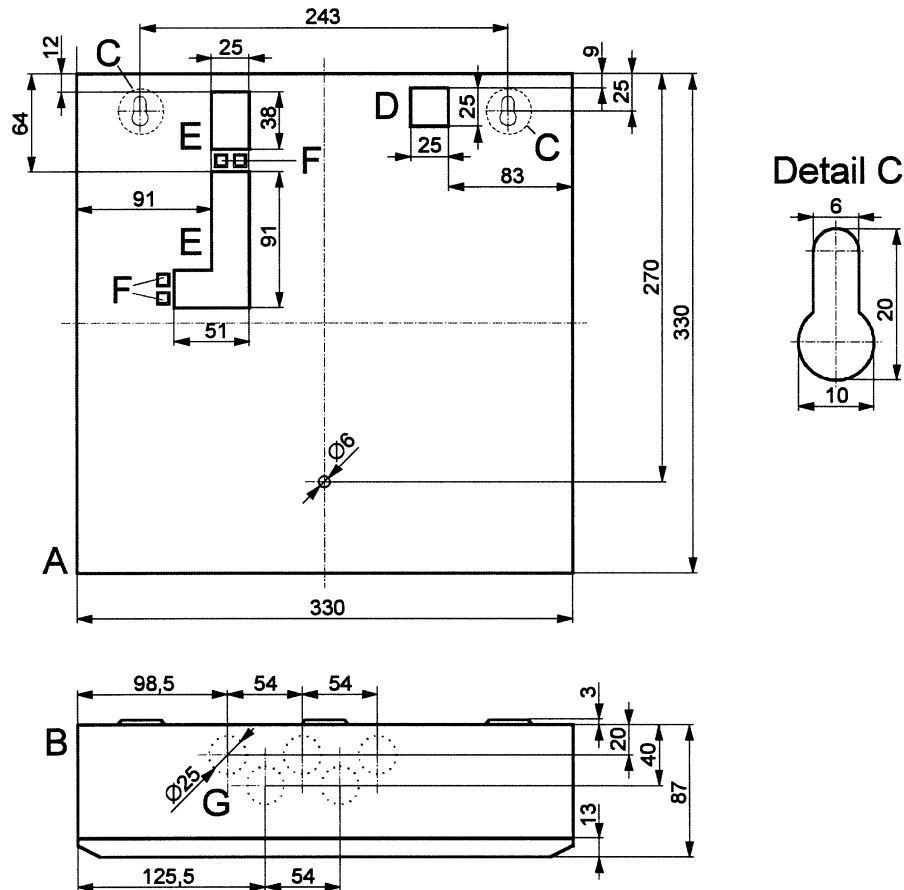


Figure 9.1

- A Front view without installed components, shown here without the cover for a clearer view
- B View of panel housing from above
- C Top attachment points
- D Cable entry for mains power cable
- E Cable entry for low-voltage lines (e.g. zones)
- F Apertures for securing installed cables with retainers
- G Cable entry for surface mounting
There are up to five punch-out openings available for surface-mount cable entry, for use with 20 mm self-sealing grommets.

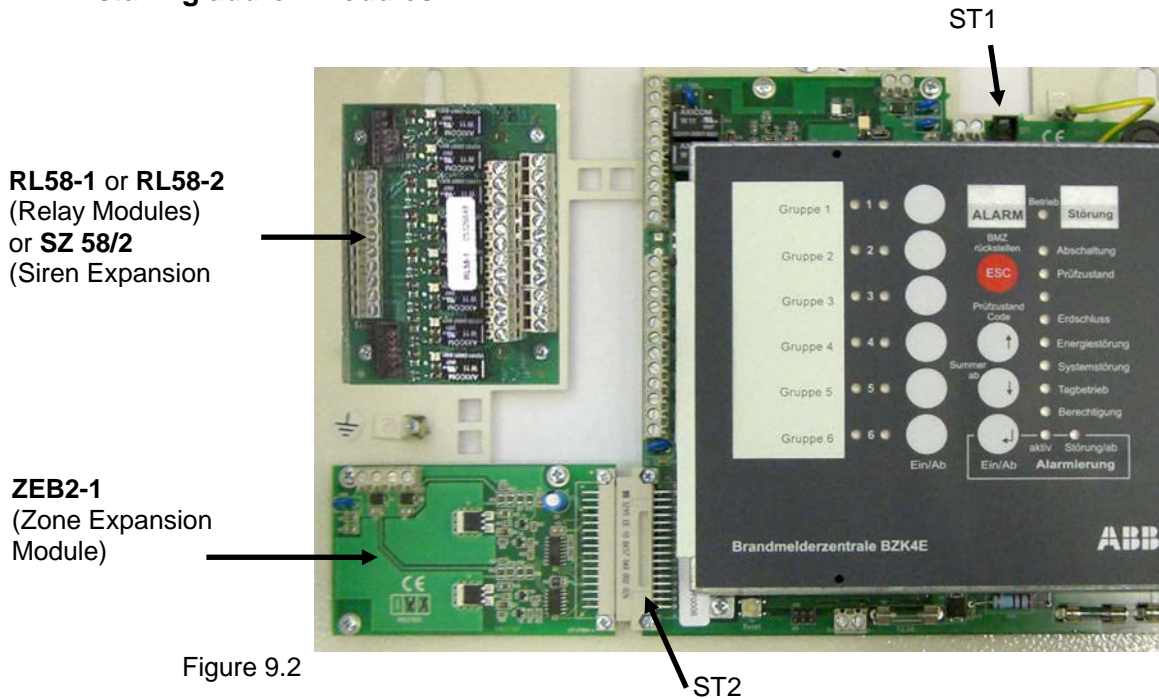
9.2 Mounting the panel

Mount the panel at a height where the keypad and displays can be used and read with ease. All the required fittings (screws and wall anchors) are supplied with the panel.

To mount the panel, proceed as follows:

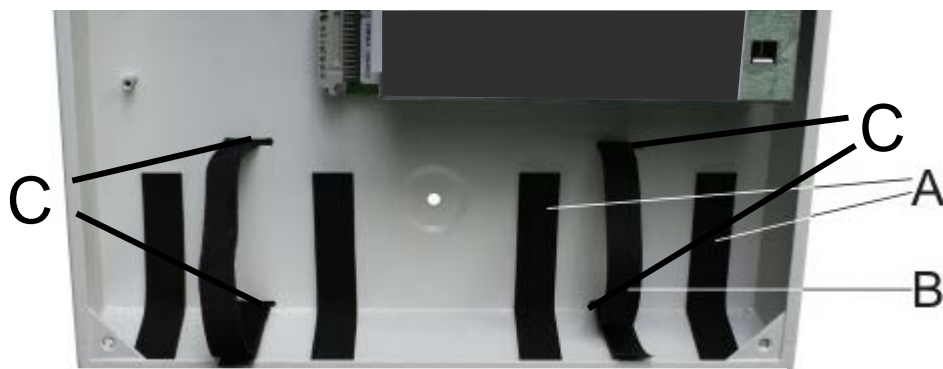
- Mark the three housing's three attachment points on the wall, drill holes to take 8 mm wall anchors, insert the anchors and temporarily screw in the top two mounting screws.
- Hang the panel on the two screws and pull the flush-mounted cable through the cable entry aperture on the back of the housing.
Make sure that the mains power cable is properly separated from the low-voltage lines.
- Screw on the panel using the bottom mounting screw. Use spacers to compensate for any unevenness in the wall and then tighten the two upper screws. When tightening the screws be careful not to pinch any cables and make sure that the panel is not being warped by uneven spots on the wall. Then route the surface-mounted cable through the aperture on the top of the housing.

9.3 Installing add-on modules



9.3.1 Installing the standby batteries

To ensure that the batteries stay in place, use the adhesive foam strips and Velcro fasteners supplied.



- A Adhesive foam strips
- B Velcro fasteners
- C Apertures in rear and bottom walls of housing

Apply the adhesive foam strips to the back and bottom of the housing as shown and pull the Velcro fasteners through the apertures. With the batteries in the bottom of the housing, fasten the Velcro over them to secure them.

9.3.2 ZEB2-1 Zone Expansion Module

Insert the ZEB2-1 Zone Expansion Module into the ST2 connector on the ZTB06-2 Central Processing Module and secure it on the panel housing using the screws supplied.

9.3.3 RL58-1/RL58-2 Relay Modules or other add-ons

The fire alarm control panel has an installation slot for an add-on module (RL58-1 or RL58-2 Relay Module, or another add-on). Using the four screws provided, screw this into the pins on the back wall of the panel housing.

9.3.4 Where to install the fire alarm control panel

Install the fire alarm control panel in accordance with applicable standards so that it is in a suitable place where it is easy to access, the displays are easy to read and where it is unlikely to be damaged. It should be installed in dry, well-lit spaces. If the area has safety lighting, the room where the panel is installed must also have continuous lighting.

The fire alarm control panel and its components must be installed in such a way that it is always easy to access. The controls and visual displays must be no more than 0.5 m lower or 1.8 m higher than the surface on which the operator will be standing.

The installation point must be a low fire risk and must be monitored by the fire detection system.

10 Switch-on

10.1 General switch-on

Later we will look at how to switch on the various individual panel modules but this chapter provides a brief description and illustration of how to switch on the three key components – the detectors, sirens and strobes.

10.1.1 Threshold detector module switch-on principle

With a zone voltage of 20 V DC, for the most part, the current flowing through the detector zones' EOL resistor is 4 mA when the system is in normal condition. In the event of an alarm, the alarm contact shown in the diagram below closes and switches the alarm resistor soldered into each detector base so that it is parallel to the EOL resistor. The panel recognizes the resulting increase in current as an alarm message.

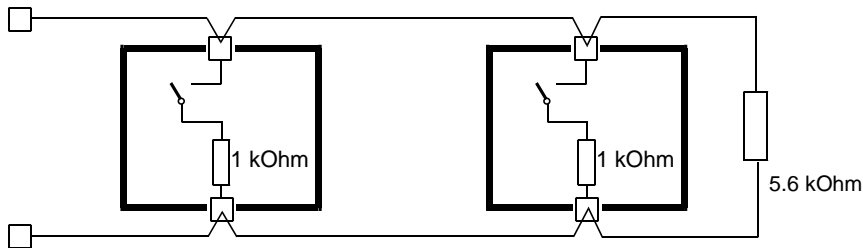


Figure 10.1

10.1.2 Siren switch-on principle

In normal condition, the BZK4E's siren output – terminals 13(+) and 14(-) are monitored with a negative voltage of around -1.2 V DC. The diodes shown in the diagram below thus prevent any current from flowing through the sirens on standby, with the result that all the quiescent current flows through the cable EOL resistor. This ensures that any break will always be detected regardless of where it is and irrespective of the type and number of sirens connected. In the event of an alarm, the system switches approx. 28 V DC to the + terminal, so that the diodes are conducting forwards. When this is the case, line monitoring stops.

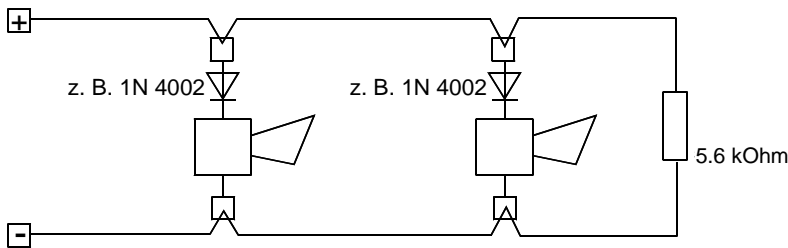


Figure 10.2

10.1.3 Strobe switch-on principle

As a rule, strobe lighting is actuated by the collective alarm relay contact and is not monitored.

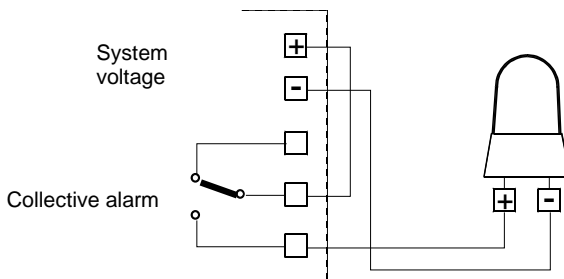


Figure 10.3

11 Detector switch-on

11.1.1 Manual fire alarms/MCPs

11.1.1.1 Connecting manual fire alarms/MCPs

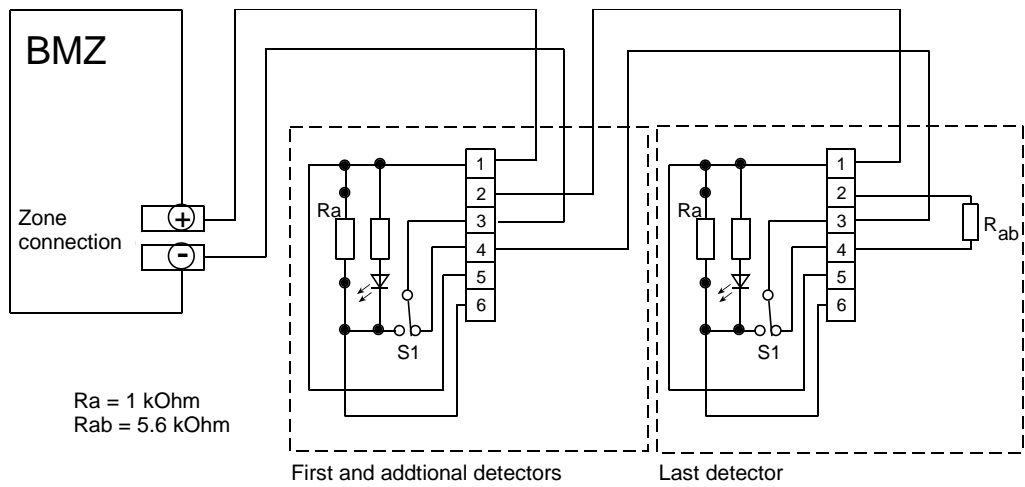


Figure 11.1

11.1.1.2 Connecting MHD4/KL-MHDH4/KL Manual Fire Alarms/MCPs

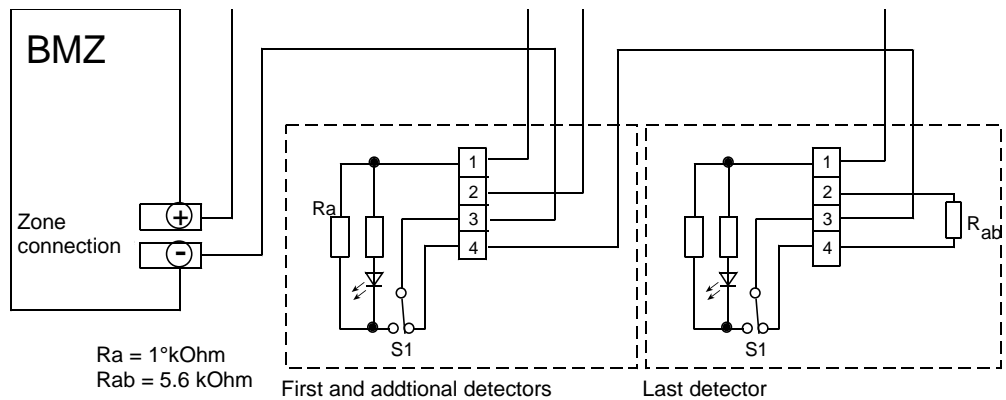


Figure 11.2

11.1.2 Detector series 300

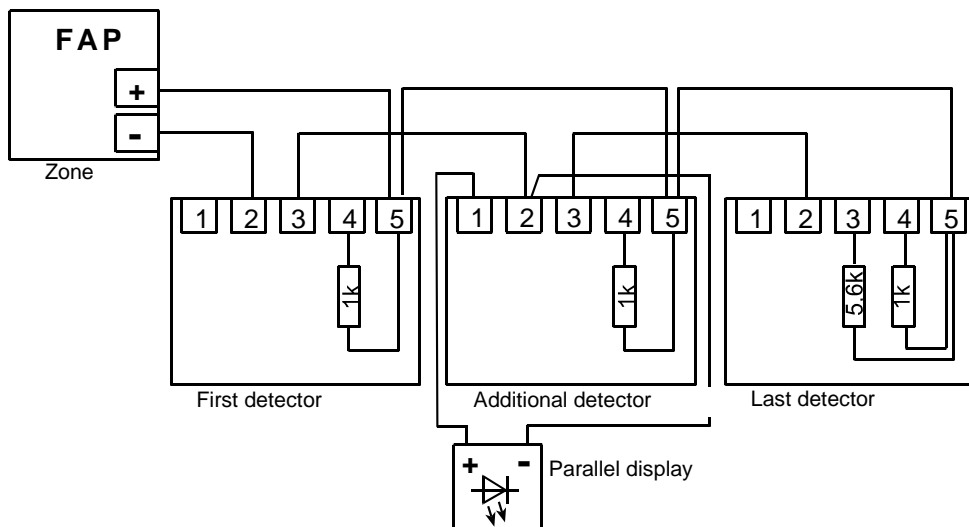


Figure 11.3

11.1.3 Detector series FC650

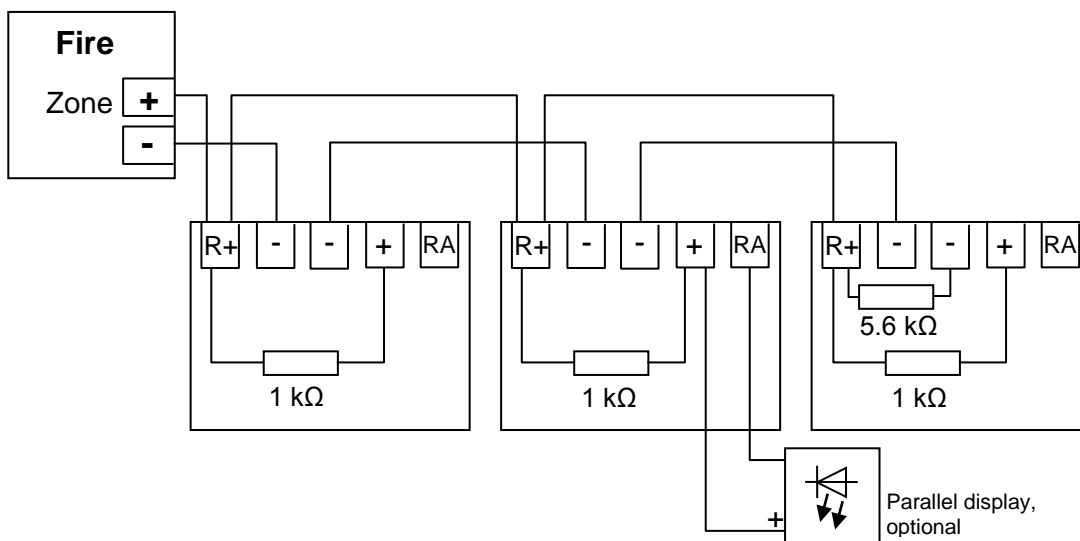


Figure 11.4

11.2 ZTB06-2 Central Processing Module

Along with the processor, the ZTB06-2 Central Processing Module which handles overall signal processing for the panel also includes the power supply connectors, connectors for monitored detector outputs, the panel's auxiliary (OC) outputs and the relay outputs for alarms and faults. It also accommodates the four zone positions for the threshold alarm detector zones (zone positions 1 ... 4).

11.2.1 Switching on the power supply, standby batteries and external loads

Mains voltage must be supplied over a mains circuit specifically fused and designated for the panel. Loads which are not part of the system must not be connected to this circuit, which should also be equipped with an easily accessible isolation device (e.g. a suitable circuit-breaker).

The connector and cable for connecting a battery set to the ZTB06-2 Central Processing Module are provided in the supplied materials pack. Connect the red cable to the positive connector and the black cable to the negative. When connecting the batteries, make sure that you keep the polarity consistent (red = +, black = -). Mixing up the polarity will cause substantial damage to the panel!

There are two fused circuits for supplying power to additional active loads such as relay modules or signaling installations. We recommend that you connect the circuits as follows:

- Terminals 3(+) and 4(-): circuits that remain inside the panel (e.g. for relay modules)
- Terminals 5(+) and 6(-): circuits routed out of the panel (e.g. for external controls or to supply special detectors).

This prevents the internal control circuits from being impacted by a short circuit on any of the external circuits.

If any of fuses Si1, Si2, Si3 and Si4 fail, the panel detects this and evaluates it as a fault.

Note: If the battery charger detects that the battery charge has dropped below 18 V, (deep discharge or defective battery), the charger automatically switches off for safety reasons.

11.2.2 Connection diagram, position of terminals and fuses

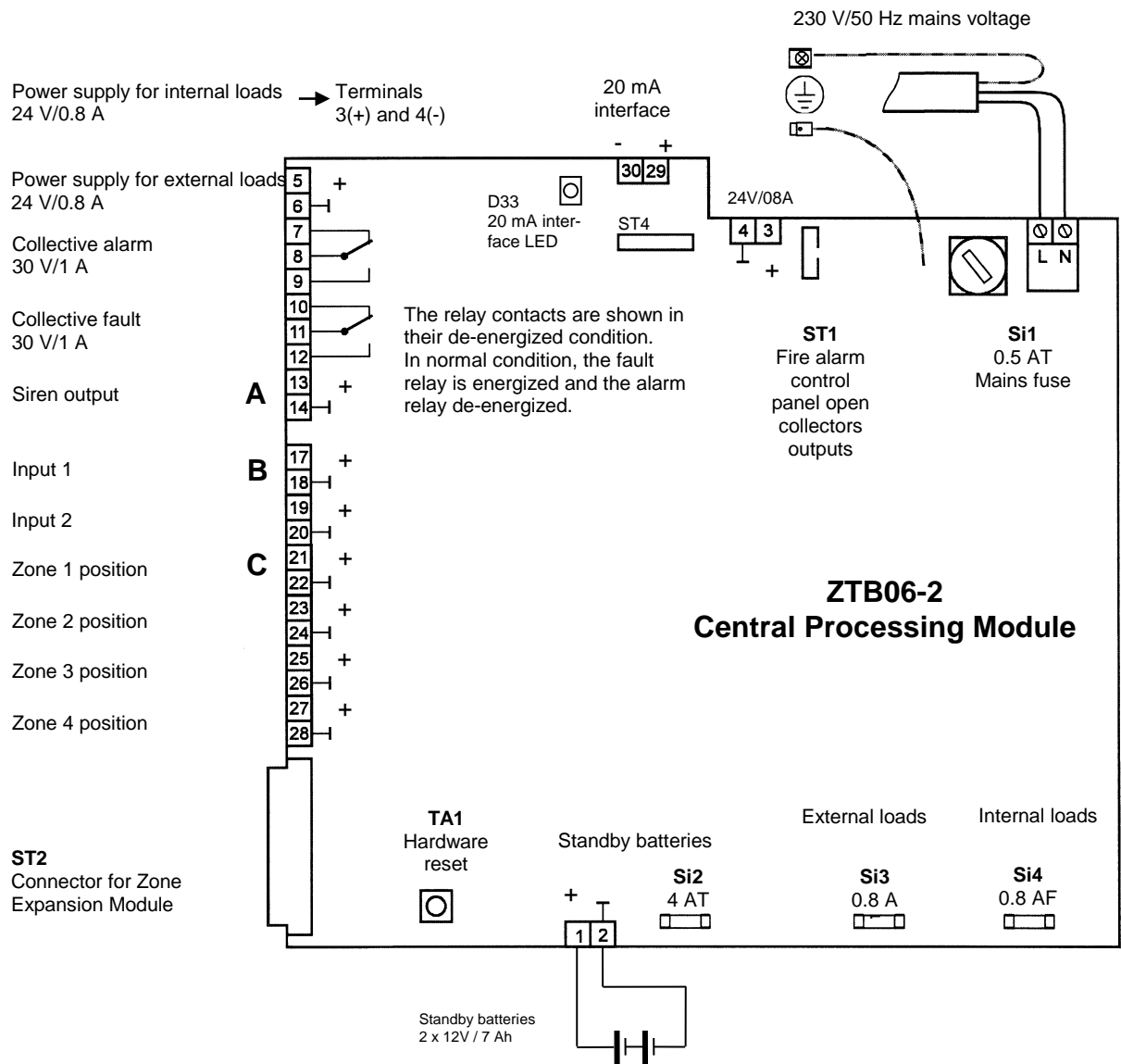
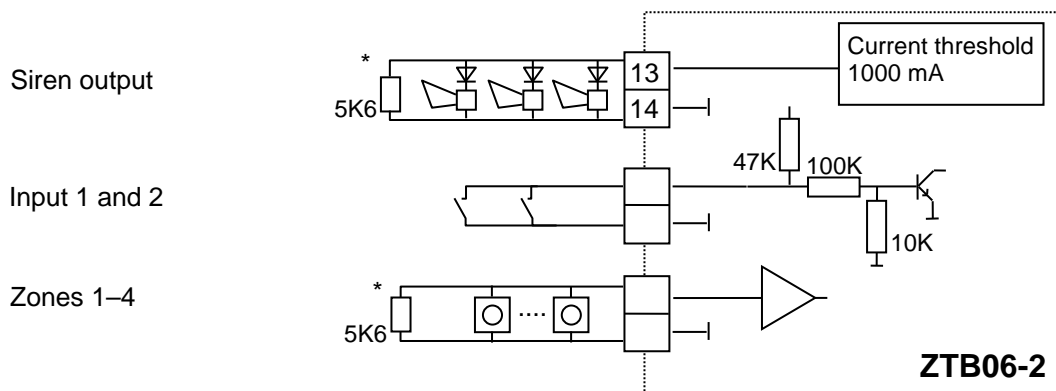


Figure 11.5

Details of A, B and C:



* Connect a 5.6 kΩ resistor to the end of the line.

If there are no sirens or detector zones connected, the terminals must be terminated with 5.6 kΩ. The diodes marked (1N4001 etc.) are required if there is more than one siren connected and the sirens have no diode (MS1 has a diode). Under the default settings, inputs 1 and 2 have no function.

11.2.3 Description of inputs and outputs (default setting)

Terminals	Function	Remark
1,2	Battery connector	Connection of 2 12 V batteries in series; max. 40 Ah
3,4	24 V DC	Connection for 24 V / 0.8 A external loads
5,6	24 V DC	Connection for 24 V / 0.8 A external loads
7,8,9	Collective alarm 30V DC/1 A	Alarm relay – active if one or more zones are in alarm condition (programmable output).
10,11,12	Buzzer fault 30V DC/1 A	Fault relay – active if a panel function is malfunctioning, e.g. battery failure, a short circuit or break on a zone etc. (programmable output).
13,14	Siren output	Line-monitored output for connecting signaling installations; line to be terminated with 5.6 kΩ. Load capacity 1 A.
15,16	Input 1	Switched input which can be assigned various functions; activated by applying 0 V.
17,18	Input 2	Switched input which can be assigned various functions; activated by applying 0 V.
21,22	Zone 1	Connection for automatic or non-automatic fire detectors; line to be terminated with 5.6 kΩ. Zone alarm processing can be specified via panel programming.
23,24	Zone 2	Connection for automatic or non-automatic fire detectors; line to be terminated with 5.6 kΩ. Zone alarm processing can be specified via panel programming.
25,26	Zone 3	Connection for automatic or non-automatic fire detectors; line to be terminated with 5.6 kΩ. Zone alarm processing can be specified via panel programming.
27,28	Zone 4	Connection for automatic or non-automatic fire detectors; line to be terminated with 5.6 kΩ. Zone alarm processing can be specified via panel programming.
29,30	20 mA interface	InfoBUS connection, e.g. for FAT900-1 or PTU288-1

11.3 ZEB2-1 Zone Expansion Module

The ZEB2-1 Zone Expansion Module evaluates and connects two threshold alarm detector zones for connection to conventional automatic and manual detectors. Installing the module (see also Chapt9.3.2er) expands the number of zones from four to six.

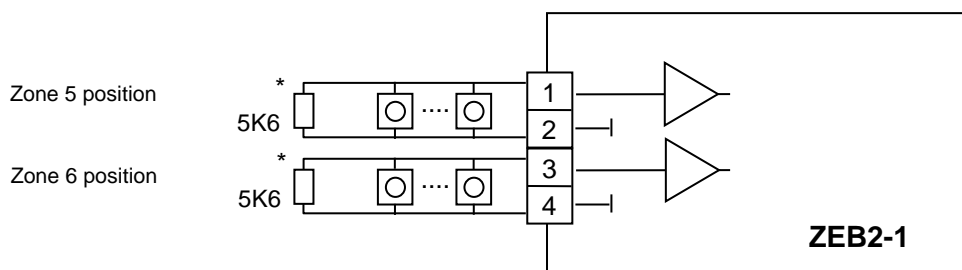


Figure 11.6

* Connect a 5.6 kΩ resistor to the end of the line

11.4 Relay module RL58-1 or RL58-2

The ZTB06-2 Central Processing Module has eight OC outputs on the ST1 10-pole flat cable connector, for connecting Relay Modules RL58-1 or RL58-2 or devices with equivalent input switches. Up to 20 outputs from these relay modules can be switched to each OC output. See technical documentation for relay modules.

11.5 RL58-1

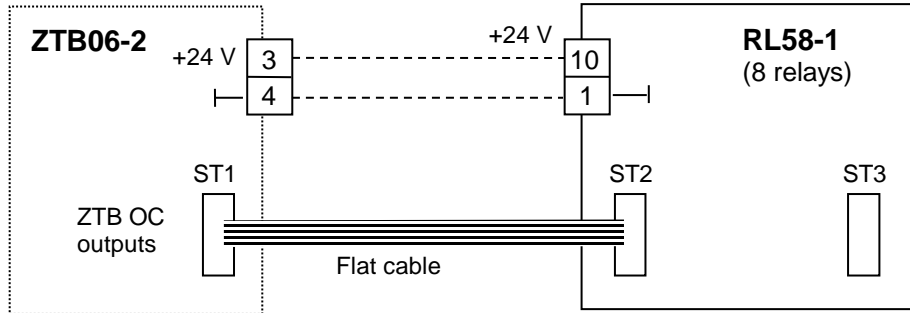


Figure 11.7

Caution! The power supply only needs to be separately wired if there is more than one add-on module connected to the OC outputs.

Assignment of signals to relay numbers (zones 5+6 only with ZEB2-1):

Rel. 1	Rel. 2	Rel. 3	Rel. 4	Rel. 5	Rel. 6	Rel. 7	Rel. 8
Alarm condition Zone 1	Alarm condition Zone 2	Alarm condition Zone 3	Alarm condition Zone 4	Alarm condition Zone 5	Alarm condition Zone 6	Panel fault condition	Panel disablement condition

11.6 RL58-2

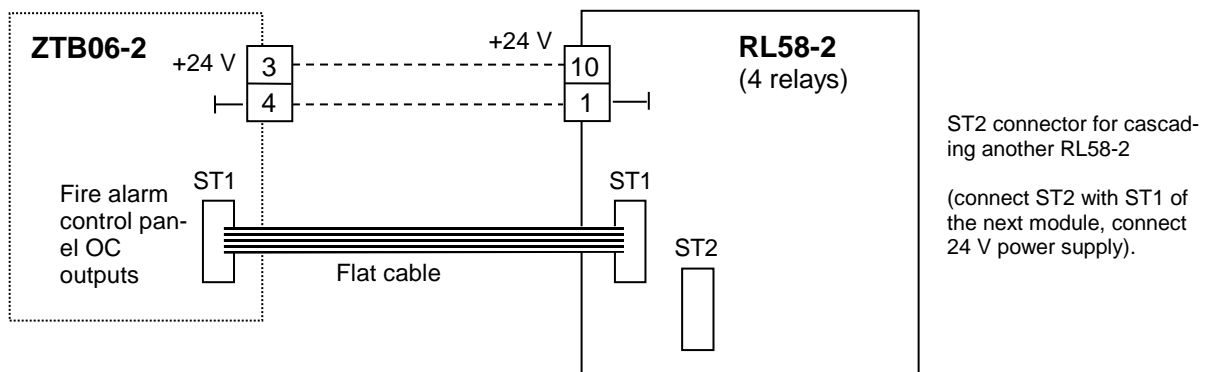


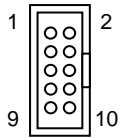
Figure 11.8

Caution! The power supply only needs to be separately wired if there is more than one add-on module connected to the OC outputs!

Assignment of signals to relay numbers (zones 5+6 only with ZEB2-1):

Rel. 1	Rel. 2	Rel. 3	Rel. 4	Rel. 1 (on module 2)	Rel. 2 (on module 2)	Rel. 3 (on module 2)	Rel. 4 (on module 2)
Alarm condition Zone 1	Alarm condition Zone 2	Alarm condition Zone 3	Alarm condition Zone 4	Alarm condition Zone 5	Alarm condition Zone 6	Panel fault condition	Panel disablement condition

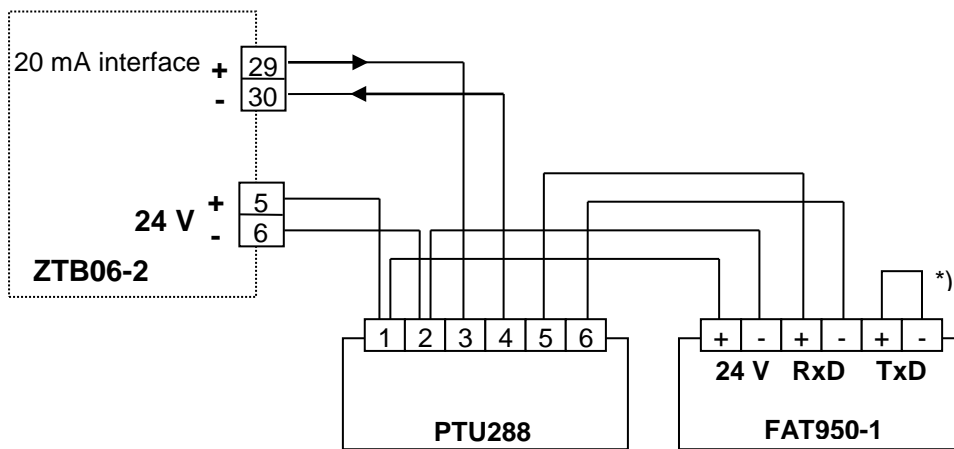
ST1 pole assignment:



ST1	Signal
1	- (mass)
2-7	Zone 1-6 alarm condition
8	Panel fault condition
9	Panel disablement condition
10	+ 24 V

11.7 Connection for 20 mA interface (InfoBUS)

The ZTB06-2 Central Processing Module (Figure 11.5) houses the 20 mA interface for connecting display and signaling installations such as the SG 58-1 and PTU 512. Up to eight devices can be connected. The number of devices must be parameterized at the engineer level. The SMD D33 LED (Figure 11.5) provides information on the condition of the 20 mA interface. If the LED illuminates then the current loop is closed; if it flashes then data is also being transmitted.



* It is imperative that the last bus device has a shorting bar.

12 Start-up

12.1 Getting started

Once the panel has been mounted on the wall, the necessary add-on modules as mentioned in the previous chapter have been installed and the peripheral devices such as detectors, sirens, strobe lights and so on are installed, cabled, and wired into the panel, you should find the following commissioning checklist helpful for final checks on the panel:

ZTB06-2 Central Processing Module

- Are the earth and the potential equalization connected to the back wall of the housing?
- Is there an earth connection between the module and the back wall of the housing?
- Is the power supply cover tightly screwed on? (There are high-voltage components underneath it.)
- Are all the module fastening screws tight? This must be the case in order to fully protect the panel from shocks.
- Is the power supply for external devices (terminals 5 and 6) correctly connected?
- Is the monitored siren output correctly wired and do terminals 13 and 14 terminate with a resistance of 5.6kΩ if there is no device connected to the output?
- Are the alarm and fault relay contacts correctly connected?
- Is the flat cable for the auxiliary output on ST1 plugged in if required?
- Are the standby batteries charged?

Threshold alarm zones:

(Zones 1 ... 4 on the ZTB06-2 and 5 ... 6 on the ZEB2-1)

- Are the zones correctly connected?
- Is there an EOL resistor on the last detector in each zone?
- Are all detectors in normal condition?
- Are all unused zones terminated with an EOL resistor or parameterized as "not defined"?

Other add-on modules:

- Are the modules correctly inserted and connected?

Also make sure that all the fastening screws for the installed modules are tight. This is particularly critical for ensuring the effectiveness of the EMC measures which affect all the modules.

Important!

To reliably prevent unwanted alarms or controls from being triggered during commissioning, signaling installations and controls need to be disabled (e.g. by disconnecting the lines).

Monitored outputs must be terminated with replacement resistors throughout commissioning.

When commissioning is complete, make sure that all the installations that were put out of service are brought back into operation.

12.2 Connecting the supply voltage

- Once all the work described above has been completed, the mains power cable may be plugged in and the power switched on.
- You will hear a short signal from the built-in buzzer and the panel will begin initializing. The initialization phase lasts for a few seconds.
- The ☀ 'Power' indicator illuminates.
- Around 10 seconds later, the fault reporting will flag up an ☀ 'Energy fault' as there are no batteries connected at this point.
- Connect the charged standby batteries, making sure that the polarity is correct. The power supply fault showing on the panel should disappear within 10 seconds.

- Possible additional fault reports: **Signaling fault:** The terminal 13 or 14 siren output is open/connect an EOL resistor. **Detector zones fault:** One or more zone outputs are open/connect an EOL resistor. (see Figure 11.5 and Figure 11.6)
- The fire alarm control panel's power supply is current-limited, therefore you must follow this sequence: switch on the mains voltage, then connect the standby batteries. If the fire alarm control panel is incorrectly cabled in any way, current limiting will limit the impact of any short circuits. In contrast, the standby batteries can deliver a very high current in the event of a short circuit, and while the fuses will quickly respond to this, it can still cause significant damage in the meantime.

12.3 Initial operating steps

In the supplied state, with the standard four zones, the monitored siren output and the two floating contacts for alarms and faults, the panel is ready for operation in terms of function and reporting and requires no further intervention.

If the panel's internal buzzer is sounding, you can silence it by pressing the '**Buzzer off**' key.

If the panel is in alarm condition, reset the siren output as per Chapter 14.5.1 and the alarm condition as per Chapter 14.2.

If internal parameters on the panel need changing, follow the instructions in Chapter 17, Parameterization.

12.4 Checking power failure buffering time

The following formula is used to determine battery capacity during the project phase:

$$C = I_1 \times t_1 + I_2 \times t_2 \quad \text{capacity in Ah}$$

Where:

t ₁	is the buffering time in hours (4, 30 or 72) Usually 72
t ₂	is the duration of the alarm in hours = 0.5 hrs
I ₁	is the total current consumption of the panel in the event of a power failure, in Amps
I ₂	is the panel's total current consumption in the event of an alarm, in Amps

The panel's total quiescent current can be determined using the individual component currents in the technical data in Chapter 6.

For mains failure buffering times of < 24 h, add a **factor of 1.25** as a safety margin:

$$C = \text{calculated capacity} \times \text{safety margin}$$

At this point, check that the capacity determined using the method described above is correct, as follows:

- The installed standby power batteries must be charged to the point where their voltage does not fall below 24 V during the measuring procedure described below.
- Attach an amp meter to the battery connection cable. Set the system to standby.
- Now switch on the panel's mains power and wait until a mains fault appears on the display.
- Measure the battery current being supplied to the whole system in fault condition. That measurement is the equivalent of I₁ in the above formula.

- Trigger the alarm and measure the current in alarm condition (with the visual and acoustic signaling installations and any other alarm resources activated). This measurement is the equivalent of I_2 in the above formula.

If the results of these measurements vary significantly from the calculated values, you need to investigate why the current consumption is so high, as any system cabling errors absolutely must be rectified.

12.5 Setting the standby power supply internal resistance threshold

Chapter 7 gave a detailed description of the importance of setting the internal resistance threshold for the standby batteries. And in Chapter 12.4 in order to set that threshold you determined the highest anticipated current required.

Please set the appropriate internal resistance following the procedure in Chapter 17.3.1.2.

12.6 Default parameters

Global parameters:

Mains fault	Displayed immediately after detecting a mains failure
Battery fault	Internal resistance < 700 mΩ
Earth fault	Evaluated
EOL resistor	5.6 kΩ
Intervention	Disabled

Zones:

Zones 1...4	MCP detector zones
-------------	--------------------

Inputs:

Inputs 1 and 2	Not defined
----------------	-------------

Outputs:

Alarm relay	Alarm condition
Fault relay	Fault condition
Signaling installation	Delayed activation by all detector zones, continuous contact, no two-zone dependency, no OR combination. Can be reset at authorization level 1 (no code entry required)

20 mA interface:

Baud rate	1200 baud
Number of devices	None

If a ZEB2-1 Zone Expansion Module is used to add another two detector zones to the panel, the panel automatically makes the following settings:

Zones:

Zones 5 ... 6	MCP detector zones
---------------	--------------------

The factory settings on the BZK4E panel mean that it leaves the factory entirely ready for operation. In standard applications it does not require any further parameterization. If you do need to change any parameters, please see Chapter 17, Parameterization.

13 Operating and display elements

The BZK4E Fire Alarm Control Panel is operated using the sturdy, clearly organized membrane (foil) keypad, which has integrated LEDs for visual displays. The panel has a loud, integrated buzzer for audible alerts.

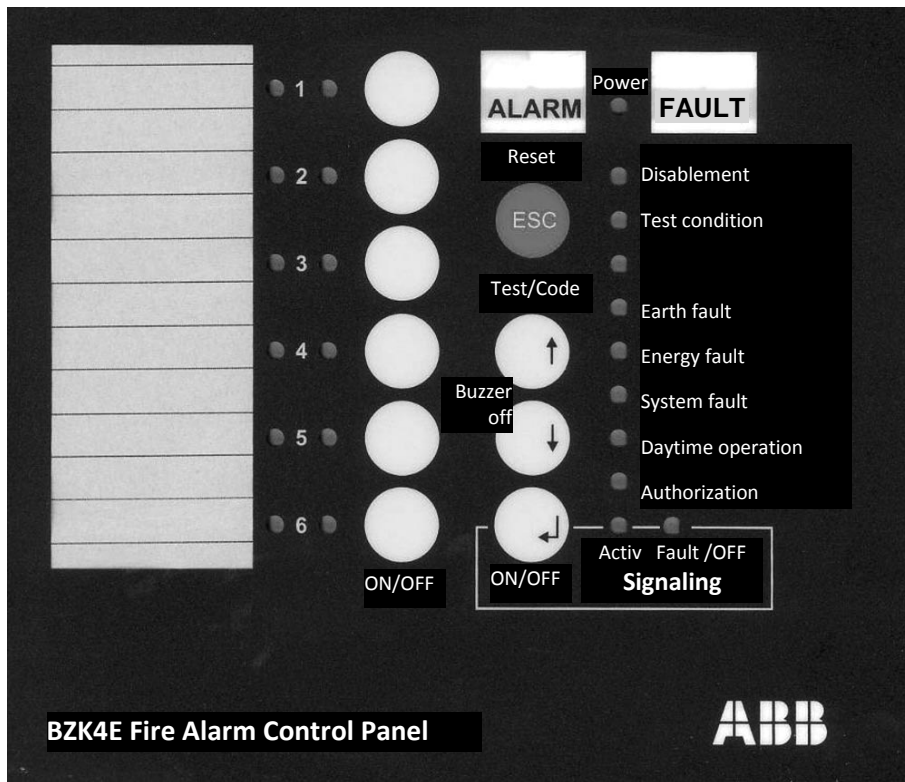


Figure 13.1

13.1 Display elements

☀ 'Power' LED (green):

- The ☀ 'Power' LED shows that the panel is being supplied with power from the mains and/or standby batteries.
If the ☀ 'Power' LED does not illuminate, there is a total power failure (of both mains and battery power).

ALARM display field:

- This indicates fire alarm condition. Every message evaluated as a fire alarm from the panel's fire detectors activates and illuminates this field, which stays illuminated until all alarms have been reset.

FAULT display field:

- This indicates fault condition. Any fault detected by the panel or any message evaluated as a fault alarm by the panel's fault detector zones activates this field, which continues flashing until all faults are eliminated.

☀ 'Disablement' LED (yellow):

- This illuminates if one or more system components (e.g. detector zones) or functions (signaling installation) have been disabled.

☀ 'Test condition' LED (yellow):

- This illuminates if one or more detector zones are in test condition (one-man walk test).

☀ **'Earth fault' LED (yellow):**

- This flashes if the system detects an earth fault.

☀ **'Energy fault' LED (yellow):**

- This flashes if there is a fault in the energy supply (mains supply or batteries), an earth fault, a defective Si3 or Si4 fuse, or a fault on the 20 mA interface. See Chapter 15.3.1, Fault codes for exact details.

☀ **'System fault' LED (yellow):**

- This flashes if the central processor is erroring
- It illuminates if the display and keypad processor is erroring.

☀ **'Daytime operation' LED (yellow):**

- This illuminates if the fire alarm control panel has been switched to daytime operation.
- It flashes during code entry.

☀ **'Authorization' LED (green):**

- This illuminates after inputting the numerical code for authorization level 2 (i.e. panel operation is enabled).
- This illuminates after inputting the numerical code for authorization level 3 (i.e. panel parameterization is enabled).

13.2 Signaling display area

☀ **'Activ' LED (red):**

- This illuminates when the signaling installation is activated.

☀ **'Fault/OFF' LED (yellow):**

- This flashes if the signaling installation line breaks or short circuits.
- It illuminates when the signaling installation is disabled.

13.3 Zone LED display area

The zone display field has six red and six yellow LEDs which are used in pairs for displaying the condition of individual zones. These displays are individually labeled using insertable marker strips (see Chapter 8.1).

Left-hand ☀ **'Zones' LED (red):**

- This illuminates if an alarm or alarm test is triggered in a fire detector zone.
- It flashes to indicate in which zone the fire alarm first occurred.

Right-hand ☀ **'Zones' LED (yellow):**

- This illuminates if a fire detector zone is in test condition or disabled.
- It flashes if there is a fault on a fire detector zone (a break or short circuit on the zone line, or removal of a detector).

13.4 Audible indicators

The panel has a built-in buzzer to provide an acoustic warning that there is a fire alarm (via an intermittent signal), fault alarm (continuous signal) and other more exceptional conditions. A short buzzing sound indicates invalid input.

The buzzer also serves as a reminder, as it is actuated briefly at 15 minute intervals if there is a fire alarm, fault alarm or fault report which requires attention.

To silence the buzzer, press the **'Buzzer Off'** key. If it starts again, this indicates a new event.

13.5 Operating controls

'ON/OFF (Zones)' keys:

- These keys switch the respective zones on and off. (Authorization level 2 required.)
- At authorization level 1, keys 1–4 are used as numerical keys for inputting the code.

'Reset (ESC)' key:

- This key collectively resets all fire alarms, saved fault alarms, alarm outputs and so on (authorization level 2 required).

'Test/Code (↑)' key:

- This key switches the zones and signaling installation to test condition. (Authorization level 2 required.)
- At authorization level 1 it is used to start and end code entry.

'Buzzer off (↓)' key:

- Pressing this key turns off the panel's internal buzzer.
 - It also has an auxiliary function which triggers a display test.
 - On signaling installations with intervention option, the alarm system (sirens) is included in the test.
- Note: no access authorization required.

'ON/OFF (↵)' (Signaling) key:

- This key silences the signaling installation (e.g. the sirens). In the event of another alarm or if the alarm system is actuated again, the installation reactivates if the alarm event is still present, and can be silenced again in the same way (under the default settings this requires no code entry).

14 Operation

The panel includes a number of function keys required by the applicable standards. These are listed in the previous chapter and described in more detail in the next.

14.1 Authorization (access code entry)

In line with the applicable standards, there are three authorization levels for operating and parameterizing the panel:

14.1.1 Authorization level 1 (no proof of authorization)

Level 1 operating authorization is limited to silencing the integrated buzzer and, subject to the parameter settings, the signaling installation, plus code entry if required. You cannot make any permanent condition changes at this authorization level (e.g. disabling a detector zone).

14.1.2 Authorization level 2 (operator rights – 'Authorization' LED illuminates)

At authorization level 2, the operator can use all the available options for full panel operation, but cannot change any system-specific parameters.

To switch from authorization level 1 to 2, enter the four-digit operator code into the panel as follows:

14.1.2.1 Entering the operator code

- Press the 'Test/Code' key; the ☀ 'Daytime operation' LED flashes.
- Input the four-digit code using the zone keys.
- Press the 'Test/Code' key again to confirm.
- If the code is correct, the ☀ 'Daytime operation' LED changes back to its pre-code condition and the green ☀ 'Authorization' LED illuminates to indicate that the fire alarm control panel is at authorization level 2.

If you enter an incorrect code, the buzzer will sound briefly and ☀ 'Daytime operation' will continue flashing. You may now re-enter the code. There is no limit on incorrect attempts.

Note:

The operator code is always a combination of the numbers 1, 2, 3 and 4. For example, to enter the code "4221" press the zone 4 key, then zone 2, zone 2 again, and zone 1.

(The default code is "1111" – please change this!)

Important:

To change back from level 2 to level 1, press and hold the 'Code' key for at least three seconds.

If no operations have been undertaken in the last 10 minutes the panel will automatically switch back to authorization level 1.

Alongside the code input method described above, you can also access and exit level 2 via a key switch (see Parameterization).

The current authorization level cannot be identified by the switch key position, because

- code entry also provides access to and exit from authorization level 2, and
- authorization level 2 also terminates automatically when the applicable inactivity period has elapsed as described above.

The selected operator code, or changes to it, may only be set at engineer level. The numerical code cannot be read out.

14.1.3 Authorization level 3 (engineer rights – 'Authorization' LED flashes)

Alongside the operations allowed at level 2, level 3 also permits the user to set parameters for system-specific data (see Chapt17r, Parameterization).

14.1.3.1 Engineer code entry

- Press the 'Test/Code' key; the ☀ 'Daytime operation' LED flashes.
- Input the five-digit code using the zone keys.
- Press the 'Test/Code' key again to confirm.
- If the code is correct, the ☀ 'Daytime operation' LED changes back to its pre-code condition and the green ☀ 'Authorization' LED flashes to indicate that the fire alarm control panel is at authorization level 3.

14.2 Reset (operator code required)




The 'Reset (ESC)' key collectively resets all fire alarms, fault alarms, faults, activated signaling installations, and the alarm and fault relays displayed on the BZK4E Fire Alarm Control Panel. The key does not reset the system fault display, nor does it reactivate system components which are either disabled or in test condition!

Resetting the fire alarm control panel requires authorization level 2.

Obviously, unless you rectify the trigger source before resetting the panel, the system will retrigger after reset.

14.3 Silencing the internal buzzer (no authorization required)

 The '**Buzzer Off**' key silences the fire alarm control panel's internal buzzer. The buzzer will start again if the system detects another fire or fault.


If the signaling installation intervention parameters on the fire alarm control panel are set to silence the buzzer by pressing the '**Buzzer Off**' key, pressing this key will silence/suppress not only the buzzer but also **the signaling installation!** The signaling installation will only reactivate when triggered by another MCP detector zone.

Authorization level 1 is sufficient for silencing the buzzer or initiating the indicator test (no proof of authorization).

If a fault is reported, the buzzer will automatically stop after 15 minutes without the '**Buzzer Off**' key being pressed.

The buzzer also serves as a reminder: once silenced, it will reactivate briefly at 15 minute intervals if there is a fire alarm, fault alarm or fault report which requires attention.

14.4 Display test

 Pressing the '**Buzzer Off**' key when the buzzer is not sounding launches the '**Display test**' function, which actuates the buzzer, all displays and all LEDs for approximately five seconds.

14.5 Operating the signaling installation



Figure 14.1

14.5.1 Silencing/reactivating the signaling installation

 If an alarm is triggered, the '**ON/OFF (Signaling)**' key silences the activated signaling installation.

If a fire alarm in a detector zone linked with the signaling installation is triggered (the default setting is that all zones are linked to the installation), this activates the signaling installation either immediately or with a delay, depending on the parameter settings and whether the panel is in daytime or nighttime mode. The ☀ '**Activ**' LED illuminates when the signaling installation activates.

If two-zone dependency has been set in the parameters to improve the prevention of false alarms, the signaling installation will only activate if at least two of the detector zones concerned are in alarm condition. To reset activated two-zone dependency zones, take the detector zones concerned out of alarm condition, e.g. by disabling them (see Chapter 14.8.1).

When the panel is in daytime operation, the yellow ☀ '**Daytime operation**' LED illuminates (see Chapter 15.2 Fire alarm condition).

Once the activated signaling installation has been silenced, the relevant red ☀ '**Activ**' LED goes out. Provided the panel is still in fire alarm condition, and subject to parameter settings, the installation can be reactivated by pressing the key again.

If the signaling installation is set to delayed activation in daytime operation, you can switch the installation on or off during the delay time (see Chapter 14.5.2). The installation can only be silenced/reactivated once the delay time has elapsed (i.e. after activation).

If the signaling installation that has been disabled receives another alarm message, then provided the parameters for this panel function specify it, the installation reactivates and can be disabled again in the same way.

Subject to panel parameter settings, silencing or reactivating a signaling installation using the 'ON/OFF (Signaling)' key requires either authorization level 1 (default) or 2.

14.5.2 Switching the signaling installation on and off



Pressing the '**ON/OFF (Signaling)**' key switches the **inactivated** signaling installation off and on alternately. If the yellow ☀ '**Fault/OFF**' LED and the yellow ☀ '**Disablement**' status indicator are illuminated, this indicates that the installation is in the "OFF" condition.

If the signaling installation is in test condition (activation test), pressing the '**ON/OFF (Signaling)**' key will switch the installation off and thus end the activation test.

If the signaling installation is set to delayed activation in daytime operation, you can also disable the installation during the delay time. The installation can only be silenced/reactivated once the delay time has elapsed (see Chapter 14.5.1).

Note:

A signaling installation that has been switched off cannot raise the alarm! It will not switch back on automatically if a new alarm occurs.

Note the distinction between silencing/suppressing a system component, e.g. the signaling installation (this only applies to the current event – a new event will reactivate it) and disabling it (a permanent condition which only terminates when you switch the installation back on).

Switching the signaling installation on and off requires authorization level 2.

14.5.3 Testing the signaling installation



If the signaling installation is in fault condition, you can switch it into test condition and thus activate it by pressing first the '**Test/Code**' key and then the '**ON/OFF (Signaling)**' key. If the red ☀ '**Activ**' LED and the yellow ☀ '**Test Condition**' status indicator are illuminated, this indicates that the installation is in test condition.



To switch the installation out of test condition, switch it to "OFF" by pressing the '**ON/OFF (Signaling)**' key.

Identifying test status:

If one or more of the yellow zone indicator LEDs, the ☀ '**Test Condition**' status indicator and the ☀ '**Activ**' LED on the signaling installation all illuminate at once, you will not be able to tell immediately whether it is the signaling installation or a detector zone that has been switched to test condition. You can establish the current status of the signaling installation by pressing the '**Test/Code**' and '**ON/OFF (Signaling)**' keys together. If the ☀ '**Test Condition**' status indicator changes from continuous to flashing, this means that the installation is in test condition.

Important:

Activating the signaling installation for test purposes triggers a real activation. Before the test, make sure that people in the building are forewarned. Testing the signaling installation requires authorization level 2.

14.6 Intervention

If the signaling installation parameters are set to allow intervention, the installation will not activate immediately if there is a fire alarm. Instead, the system will start the "Prealarm" delay time if there is an alarm from one automatic detector zone, or the "Alarm" delay time if the alarm comes from two automatic detector zones or an MCP detector zone.

Pressing the '**Buzzer Off**' key during the "Alarm" or "Prealarm" delay time interrupts the delay without activating the installation. From this point on, the installation can no longer be activated by alarms from automatic fire detector zones. After interrupting the installation in this way it can only be activated if an MCP detector zone is triggered in addition to the automatic detector zone which has already been triggered.

Having pressed the '**Buzzer Off**' key, you must immediately obtain information about the on-site risk and take the required action. If the situation requires you to activate the signaling installations, you need to actuate an MCP in a detector zone that is not currently in alarm condition.

If you did not press the '**Buzzer Off**' key during the "Alarm" or "Prealarm" delay time, the signaling installation will activate.

If any fire detector zones trigger further alarms during the "Prealarm" or "Alarm" delay, the respective delay will run its course unaffected.

If the signaling installation is set to delayed activation in daytime operation (see Chapter 14.7r), this delay time will only start once the "Alarm" or "Prealarm" delay has elapsed.

To reset signaling installation intervention switching to its original condition, terminate fire alarm condition (e.g. by pressing the '**Reset (ESC)**' key).

14.7 Daytime/nighttime operation

If a corresponding control input has been parameterized for switching between daytime and nighttime mode, you can switch between the two manually using one of the external switching devices connected to the input (e.g. a key switch) or automatically using a connected time switch.

When the panel is in daytime operation, the yellow ☀ '**Daytime operation**' status indicator illuminates.

In **daytime operation**, a fire alarm from a detector zone triggers delayed activation of the signaling installation.

In **nighttime operation**, activation of the signaling installation by a fire alarm is never delayed.

You can also use daytime/nighttime operation with the signaling installation intervention option (See Chapter 14.6). You can set the delay time for the signaling installation independently of those set for the intervention option.

14.8 Operating the zones

During commissioning, zones may be parameterized for either fire detection or fault detection (the default setting is fire). Zone types differ primarily in terms of alarm type and reset (see also Chapter 15.2, Fire alarm condition and Chapter 15.3, Fault detection condition).

14.8.1 Switching detector zones on and off



Pressing one of the **'Zone'** keys (the keys to the right of the detector zone LEDs) switches the respective zone and therefore the detectors connected to it on and off alternately.

If the zone is in "OFF" or "TEST" condition, pressing the zone key will switch it on; from the "ON" or "Alarm" condition, pressing the zone key will switch it off. If a zone is switched off, its corresponding yellow zone indicator and the yellow ☀ **'Disablement'** status indicator both have a steady light.

When you switch on a zone, the panel spends six seconds checking whether there is an alarm criterion in that area. If there is (because e.g. an MCP was not reset after an alarm), the switch-on is rescinded, the buzzer emits several short warning tones and the yellow zone indicator stays on.

Switching a detector zone on or off requires authorization level 2 (see Chapter 14.1.2.1).

Notes:

- Zones which are disabled or in test condition report no alarms and activate no outputs if an event occurs.
- When a detector zone which is in two-zone or multi-zone dependency is disabled or switched to test condition, it automatically becomes independent.
- If a parameterized two-zone or multi-zone dependency can no longer be met because too many of the zones concerned have been disabled or set to test condition, the installation that this dependency is intended to activate will not activate in the event of a fire alarm.

14.8.2 Switching detector zones to test condition



To switch a zone into test condition, first press the **'Test/Code'** key and then the **'ON/OFF'** key for the zone concerned.

With a detector zone in test condition you can function test the installed fire or fault detectors without activating the signaling installation or fire control systems. If a zone is disabled or in test condition, the (yellow) ☀ **'Zones'** LED on the right and the yellow ☀ **'Test Condition'** status indicator illuminate.

To terminate test condition, switch the detector zone back on (i.e. press the corresponding zone key).

Note: Zones which are in test condition report no alarms and activate no fire control systems if an event occurs. See also the notes in Chapter 14.8.1.

Identifying test condition:

If several zone LEDs and **both** status indicators ☀ **'Disablement'** and ☀ **'Test Condition'** illuminate at the same time, you will not be able to tell immediately which zones are disabled and which are in test condition. However, you can find out by simply querying the status of each zone by pressing the **'Test/Code'** and **'ON/OFF'** keys together for the zone concerned. Either the ☀ **'Disablement'** or ☀ **'Test Condition'** indicators will change from a steady light to a flashing light while you are pressing both keys, indicating the current status of the selected zone.

Testing detector zones requires authorization level 2.

15 Functional description

The clearest way to describe the functions and responses of the fire alarm control panel is by its operating conditions, where there is a differentiation between

- **Normal condition** (no events present)
- **Fire alarm condition** (at least one fire detector alarm is on)
- **Fault condition** (there is a fault on at least one panel function, an error in the cable network or one of the detectors in a fault detector zone is in alarm condition)
- **Disablement condition** (at least one panel function or system component is disabled)
- **Test condition** (at least one system component is in test mode (e.g. a zone is undergoing a one-man walk test) and therefore not functioning)

These terms are also those generally used in applicable standards.

With the exception of normal condition, all other conditions can occur simultaneously. For example, a panel could display fire alarm condition on the basis of a zone alarm, while at the same time a mains failure and a disabled detector zone could display fault condition and disablement condition respectively.

The current operating conditions are indicated via the LEDs on the panel's display and control component.

An operation condition specific to the BZK4E Fire Alarm Control Panel is daytime operation, whereby parameters can be set so that any alarm or just alarms from automatic detector zones trigger(s) delayed activation of the signaling installation. In nighttime operation, activation of the signaling installation is instantaneous.

15.1 Normal condition

By definition, there are no events present on the fire alarm control panel when it is in normal condition. This is the normal condition for any panel and it should only change condition exceptionally and temporarily.

In normal condition the following LEDs on the panel may illuminate:

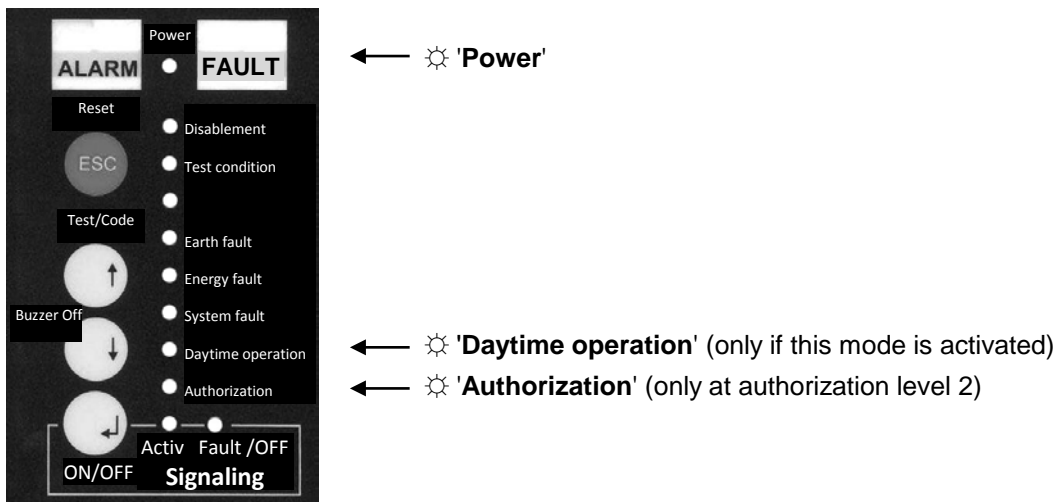



Figure 15.1

15.2 Fire alarm condition

The fire alarm control panel is in fire alarm condition if it has classified alarms events transmitted by one or more detectors as fire alarms, and has initiated the appropriate action.

Fire alarm condition is indicated on the panel as follows:

- The red **ALARM** indicator field illuminates.
- The red LEDs of the triggered detector zone(s) illuminate in the zone display field. A flashing LED indicates the zone which was the source of the first alarm . If this zone is disabled, the LED will flash on the zone that triggered next, and so on.
- The internal buzzer sounds intermittently.
- The red  'Activ' LED for the signaling installation illuminates unless the installation is disabled (or if in intervention mode, once the prealarm delay time has elapsed).

Notes:

- If the signaling installation has been parameterized for delayed activation, then in daytime operation the corresponding detector zones will not activate the panel until the delay has elapsed.
- If a signaling installation's parameters have been set to two-zone or multi-zone dependency, it will only activate if at least two of the combined detector zones are in alarm condition.
- Fire alarms are stored on the panel even when the cause of the alarm is gone. The procedure for resetting a fire alarm is described in Chapter 15.2.5.

Fire alarm condition requires or permits the following operations:

15.2.1 Silencing the buzzer



To reset the buzzer on the panel, press the '**Buzzer off**' key.

In the event of another alarm, the buzzer reactivates and can be silenced in the same way.

15.2.2 Dealing with intervention

If the signaling installation intervention parameters are set to silence the buzzer by pressing the '**Buzzer Off**' key, doing so will silence/suppress not only the buzzer but also **the signaling installation!**

The signaling installation will not reactivate until triggered by another MCP detector zone (see Chapter 14.6).

15.2.3 Silencing the signaling installations




Pressing the '**Signaling**' key silences the activated signaling installation (see Chap14.5.1ter). Subject to parameter settings, the installation that has been silenced can be reactivated by another alarm or by pressing this key again.


15.2.4 Terminating a zone alarm

To reset a detector zone alarm, disable the relevant zone (see Chapter 14.8.1). This also resets all the outputs which were subject to that alarm.

15.2.5 Resetting fire alarm condition

 To terminate fire alarm condition, disable **all** the detector zones concerned. (Do not forget to turn them back on!)

Note: When you switch on individual zones, the panel spends six seconds checking whether there is an alarm criterion in that area. If there is (because e.g. an automatic fire detector has not been reset), the switch-on will be rescinded and the yellow zone LED will stay illuminated.

 To collectively reset all indicators and all existing fire alarms, press the '**Reset**' key.

When you use the '**Reset**' key, the system does not check whether the onsite alarm condition still exists. If the fire characteristic that caused the alarm has not been sufficiently reduced (e.g. by thoroughly ventilating a smoke-filled room where there are smoke detectors) or if an MCP has not been mechanically reset, then the alarm will retrigger after you reset the panel.

15.3 Fault condition

Events that lead to fault condition (pursuant to EN 54, "Fault condition") can either be a fault report triggering in a detector zone (e.g. monitoring weight loss or pressure loss in the agents used in extinguishing systems) or equally, a functional fault on the panel itself, such as cabling faults (e.g. a wire break, short circuit or earth fault) between individual system components, or a power supply fault. The panel processes both fault categories in the same way.

Fault condition is indicated on the panel as follows:

- The yellow **FAULT** indicator field flashes.
- The individual indicator for the faulty system component flashes, and the left-hand LED for the fault detector zone to which the triggered fault detector is connected illuminates.
- The internal buzzer sounds continuously.
To silence the buzzer, press the '**Buzzer Off**' key. In the event of another fault report, the buzzer re-activates and can be silenced in the same way.
- If a fault occurs in a **fire alarm detector zone**, the right-hand (yellow) LED for the relevant zone flashes.
- If a fault occurs in the signaling installation or if there is a line break or short circuit in the line to the signaling installation, the yellow '**Fault/OFF**' LED next to the '**Signaling**' key flashes.
- If a **fault** occurs in the **power supply**, the yellow '**Energy fault**' LED flashes.
- In the event of an **earth fault** (caused for example by faulty cable insulation) the yellow '**Earth fault**' and '**Energy fault**' LEDs will flash.
- If there is a **system fault**, the yellow '**System fault**' status LED illuminates or flashes.
- If there is a fault in the **20mA interface**, the '**Energy fault**' LED flashes.

Notes:

- To obtain more exact information on the type of fault concerned (e.g. to see details of whether the power supply fault is being caused by a mains failure, battery fault, fuse, the 20 mA interface, etc.), read out the fault codes (see Chapter 15.3.1).
- If a fault occurs in a detector zone which is in two-zone or three-zone dependency, it will be taken out of the combination until the fault is fixed. A zone with a fault cannot be guaranteed to trigger an alarm.
- If a parameterized two-zone or three-zone dependency can no longer be met because too many of the zones concerned are faulty, the installation that this dependency is intended to activate will not activate in the event of a fire alarm.
- Subject to parameter settings, fault messages relayed to the panel from fault detectors can be latching (when the fault is eliminated the panel indicator goes out) or non-latching (the indicator stays on until the message stored, e.g. as a result of disabling the fault detector zone, is reset).
- With the exception of system faults, faults identified by the panel itself (e.g. mains failure, line failure) are almost always latching.

15.3.1 Fault code

Faults detected by the panel are indicated by the **FAULT** LED flashing, and also by individual indicators which are assigned to the components concerned. In a lot of cases these individual indicators are just reporting a collective alarm for the system component concerned (e.g. the **'Energy fault'** message may refer to a mains failure, a standby battery fault, a blown fuse, or a fault on the 20 mA interface). You can read out the detail via the panel as two-digit (fault) codes.



The panel needs to be at authorization level 1. You can also read out fault codes when the panel is in fire alarm condition:

- Press and hold the **'Buzzer Off'** key for at least three seconds to obtain the fault codes display. The eight LEDs for zones 1–4 will display the first (oldest) fault. As regards the codes, the left-hand (red) LEDs represent the 10s and the right-hand (yellow) LEDs represent the 1s. The respective numbers are made up of the zone numbers for the illuminated LEDs. There is an overview of potential faults on the next page.
- Briefly pressing the **'Buzzer Off'** key will scroll you through the current faults in the order in which they occurred. Once you reach the last (i.e. most recent) fault, pressing the key again will return you to a display of the first (i.e. longest-standing) fault.

The fault code display terminates automatically eight seconds after you last press the **'Buzzer Off'** key.

The 10s and 1s in the fault codes are displayed via the detector zone 1–4 indicators as follows:

Zone indicator	Numerical value									
	0	1	2	3	4	5	6	7	8	9
Zone 1	○	●	○	○	○	●	○	○	●	○
Zone 2	○	○	●	○	○	○	●	○	○	●
Zone 3	○	○	○	●	○	○	○	●	●	●
Zone 4	○	○	○	○	●	●	●	●	●	●

The left-hand (red) zone 1–4 LEDs represent the 10s and the right-hand (yellow) LEDs represent the 1s.

○ LED not illuminated.

● LED illuminated.

The table below summarizes the most important fault codes along with their corresponding fault types and the potential impact on the panel's functionality. **The 'FAULT' display field will flash in all fault scenarios.**

Table 15-1

Code	Visual display on keypad	Fault type	Effects – what action should you take?
01	'System fault' is flashing	ABB06-2 Display and Control Module is not responding	ABB06-2 Display and Control Module is partly or completely interrupted This means that panel is either operating with limited functionality, or not operating at all, and will provide no indication in the event of an alarm
03	'Energy fault' is flashing	Fault on 20 mA interface	Data transmission to devices on the 20 mA interface is interrupted. For example, some programmed devices are not connected.
05	'System fault' is flashing	The hardware or software versions for the ZTB06 and ABB06 are incompatible.	The panel is either operating with limited functionality, or not operating at all, and will not evaluate any alarms if they occur.
10	The right-hand LED in the 'Signaling' field is flashing	Fault in signaling installation or line	This means that in the event of an alarm, the people affected will receive no warning. Check the signaling installation.
12	-	An unsupported add-on has been connected to the panel	The add-on cannot be used with the panel's current firmware.
21 ... 26	Right-hand zone LED flashing	Short circuit on zone 1 ... 6 line	The system is no longer guaranteed to forward alarms to the panel from the detectors concerned. Check the faulty area of the installation.
31 ... 36	Right-hand zone LED flashing	Line break in zone 1 ... 6 line	The system is no longer guaranteed to forward alarms to the panel from the detectors concerned. Check the faulty area of the installation.
60	'Energy fault' is flashing	Mains failure	The fire detection system is only being supplied by the panel's standby batteries at this point and once the buffer time has elapsed, the whole system will have no power at all. Check the mains connection and upstream devices.
61	'Energy fault' is flashing	Fault on standby batteries or charger	The fire detection system is only being powered by the mains at this point and in the event of a mains failure, the whole system will have no power at all. Check the batteries.
62 63	'Energy fault' is flashing	Fault on fuse Si3 Fault on fuse Si4	The devices powered by this circuit are not working. Fix the cause of the fault (e.g. short circuit) and replace the fuse.
64	'Earth fault' and 'Energy fault' are flashing	Earth fault	A short has been detected between the protective earth (housing) and the system's conducting components. Using a process of elimination, locate and fix the relevant connection.
80	'System fault' is flashing	Checksum error in parameter memory (EEPROM)	An error has been detected in the panel's semiconductor memory. This means that full panel functionality cannot be guaranteed. Contact the manufacturer.
81	'System fault' is flashing	Checksum error in system memory (EEPROM)	An error has been detected in the panel's semiconductor memory. This means that full panel functionality cannot be guaranteed. Contact the manufacturer.

Code	Visual display on keypad	Fault type	Effects – what action should you take?
82	'System fault' is flashing	Checksum error in system memory (RAM)	An error has been detected in the panel's semi-conductor memory. The panel will automatically restart. If the fault persists after restart, contact the manufacturer.
83	'System fault' is flashing	Checksum error in parameter memory (RAM)	An error has been detected in the panel's semi-conductor memory. The panel will automatically restart. If the fault persists after restart, contact the manufacturer.
84	'System fault' is flashing	Checksum error in firmware	An error has been detected in the panel's semi-conductor memory. The panel will automatically restart. If the fault persists after restart, contact the manufacturer.
85	'System fault' is flashing	Re-initialization after checksum error in parameter memory (EEPROM)	An error has been detected in the panel's semi-conductor memory. This means that full panel functionality cannot be guaranteed. Contact the manufacturer.
86	'System fault' is flashing	Re-initialization after checksum error in system memory (EEPROM)	An error has been detected in the panel's semi-conductor memory. This means that full panel functionality cannot be guaranteed. Contact the manufacturer.
90	'Energy fault' is flashing	The standby battery voltage is too low when under load	No batteries, faulty batteries or only one battery is connected.
91	'Energy fault' is flashing	The internal resistance of the standby batteries and/or the resistance on the battery line is higher than permitted	Change the batteries and/or repair the line.
92	'Energy fault' is flashing	The resistance tester is faulty	The cyclical test on the batteries can no longer be run properly.
93	'Energy fault' is flashing	The mains charging circuit is faulty	The mains can no longer provide a charge.

Those codes which are not included in the table above concern information which will be of interest primarily to maintenance and fault engineers. If such a code is displayed, repair the fault immediately as the functionality of the panel and/or the whole system may be compromised.

15.4 Disablement condition

The system goes into disablement condition if system components such as detector zones and/or signaling installations have been deliberately taken out of service.

Disablement condition is indicated on the panel as follows:

- The yellow ☀ 'Disablement' LED illuminates.
- The yellow LEDs for all disabled zones will illuminate in the zone indicator field.
- **Disabling the signaling installation** illuminates the yellow ☀ 'Fault/OFF' LED in the 'Signaling' field.



To switch a disabled detector zone (see Chapter 14.8.1) or signaling installation (see Chapter 14.5.2) back on, press the corresponding 'Zones' key or the 'Signaling' key again.

Note: When a detector zone which is in two-zone or multi-zone dependency is disabled or switched to test condition, it automatically becomes independent. If a parameterized two-zone or multi-zone dependency can no longer be met because too many of the zones concerned have been disabled or set to test condition, the signaling installation that this dependency is intended to activate will not do so in the event of a fire alarm.

15.5 Test Condition

If one or more zones or signaling installations have been switched to test condition then the fire alarm control panel is in test condition. This allows you to function test fire and fault detectors following maintenance without causing a fire alarm condition or fault condition on the panel. Only the red LEDs in the zone indicator field and the indicators on the detectors themselves indicate the "Alarm" test. The "Alarm" test resets itself automatically after eight seconds and thus makes it easy to carry out a one-man walk test. It also allows the signaling installation to be function tested without necessarily having to trigger a fire alarm.

If the yellow '**Test/Code**' indicator is illuminated, this indicates that the installation is in test condition.

- If a **detector zone is in test condition**, the right-hand (yellow) LED for the relevant zone also illuminates.
- If the **signaling installation is in test condition**, the red LED in the '**Signaling**' field illuminates to indicate that the installation has been activated.

To terminate test condition, switch the zones back on using the corresponding zone keys (see also Chapter 14.8.2), and for the signaling installation, disable and then re-enable it (see also Chapter 14.5.3).

Notes:

- In the event of an alarm, zones that have been switched to test condition will not report it, so only do this for test purposes!
- Test activating the signaling installation test triggers a real activation. Before the test activation, make sure that people in the building are forewarned.

16 Function tests

16.1 Function testing the fire alarm control panel

Make sure that the ☼ '**Power**' LED is illuminated.

In normal condition, only the ☼ '**Power**' and sometimes the yellow ☼ '**Daytime operation**' or green ☼ '**Authorization**' LEDs can illuminate.

Make sure that no faults are being reported on the panel. You can see whether it is in fault condition by checking if the **FAULT** display field is flashing.

Make sure that no system components have been permanently disabled and that there are no detector zones in test condition.

Press the '**Buzzer Off**' key to run an indicator test on the panel. This checks the visual display and the internal buzzer.

Despite the complex charging control used for the standby batteries, the service life of maintenance-free batteries in security systems does have its limits. Take note of the battery manufacturer's information on the usage period of the batteries used in the panel. Make sure that expired batteries are replaced in a timely manner as part of regular system maintenance.

16.2 Function testing the detectors

Suitable testing devices for function testing automatic fire detectors are available as an option.

To run a function test, proceed as follows:

Switch the zones that cover those detectors you want to test into test condition (see Chapter 15.5). Using the testing device provided for this purpose, trigger each of the detectors that are in test condition, one after the other. Make sure that you only trigger detectors in the zones that you have switched to test condition!

The indicator light on the detector will tell you if it is working properly. A detector in test condition will automatically switch out of alarm condition after eight seconds (one-man walk test). Refer to the relevant product documentation for information on how to function test special detectors such as smoke extraction systems.

Once you have completed testing, terminate test condition immediately.

16.3 Function testing the signaling installation

The easiest way to test the signaling installation (e.g. sirens) is to activate it (see Chapter 14.5.3).

Activating the signaling installation for test purposes triggers a real activation. Before activation, make sure that people in the building are forewarned.

17 Parameterization

17.1 General notes on parameterization

By setting parameters, you are specifying **changes or additions to the factory settings** for the panel's system-specific functions. All parameter settings are made using the panel's display and control component.

- Setting panel parameters requires authorization level 3. This in turn requires entry of a five-digit engineer code (see Chapter 17.2.1). You are allowed five consecutive attempts to enter the correct code. If it is entered incorrectly five times, the panel will lock engineer code entry for 10 minutes for security reasons.
- In the supplied state the engineer code is set to "22222". For security reasons it is essential that the engineer changes this default code before quitting the parameterization menu for the first time.
- While parameters are being set, the whole fire alarm control panel is out of service! In this state the panel can neither receive, display nor forward alarm and/or fault messages. During this time, the functionality of the LEDs on the panel relates to parameterization only.
- At authorization level 3 the '**Reset**', '**Test/Code**', '**Buzzer Off**' and '**Signaling ON/OFF**' keys have a different function (i.e. parameterization) than when the panel is in normal condition (see Chapter 17.2.2).
- Initially, all the parameters entered are saved in a temporary memory. When the user exits authorization level 3, the content of this memory is applied to the panel's non-volatile memory and thus takes effect.

When you have finished setting parameters, log the panel configuration in the parameterization report (see Chapter 17.6).

To ensure that parameterization goes smoothly, read the next section, 17.2, carefully.

17.2 Operating the panel at authorization level 3 (parameterization level)

17.2.1 Accessing and quitting parameterization

In order to enter parameters for system-specific data, the panel must be set to authorization level 3. To switch from level 1 (no authorization) to level 3, proceed as follows:

- To start code entry, briefly press the '**Test/Code**' key. The ☀ '**Daytime operation**' LED will start flashing and you then have 10 seconds in which to start entering the engineer code.
- Enter the five-digit engineer code for the panel ("**22222**" for commissioning) using keys 1–4 to the right of the zone LEDs. The respective zone key number is the number you are entering, and the buzzer sounds briefly to confirm each entry.
- The engineer code must be a combination of the numbers 1, 2, 3, and 4. For example, to enter an engineer code of "34421", press **zone keys 3, 4, 4, 2 and 1** one after the other.
- To complete engineer code entry, press the '**Test/Code**' key. If you have entered the code successfully, the green '**Authorization**' LED will flash.

As mentioned above, accessing authorization level 3 disables the panel's monitoring function. All current alarms and alarm outputs are reset, and the fault relay drops out while parameters are being set (fault condition).

- To switch back to authorization level 1 when you have finished setting parameters, press the '**ESC**' key repeatedly until the green '**Authorization**' LED goes out.
- The first time you carry out any parameterization, the system will only allow you to quit level 3 if you have changed the engineer code first!
- The parameter changes will only take effect once you quit level 3.
- Authorization level 3 is time-monitored: if no operations have been undertaken in the last 10 minutes the panel will automatically switch back to level 1. Any unconfirmed changes to parameter settings will be lost at that point, and any that have been confirmed will be applied to the panel's non-volatile memory when the panel restarts, at which point they will take effect. An audible warning will sound one minute before the system is due to quit level 3 automatically.
- If there is an alarm criterion present after you quit level 3, the alarm will trigger immediately.

17.2.2 Key functions

The keys used for parameterizing the BZK4E Fire Alarm Control Panel are **Zone keys 1–4** to the right of the zone LEDs, '**Reset**' (special function '**ESC**'), '**Test/Code**' (special function '↑'), '**Buzzer Off**' (special function '↓') and '**ON/OFF Signaling**' (special function '↵'). Note that the special functions on these keys only apply when the system is at authorization level 3 and being parameterized.

Reset (ESC) key:



- **ESC** function.
- Quits level 3 without applying any of the settings made.
- To switch to the next level down:
Values → Submenu → Main menu → Quit level 3.

Test/Code/ ↑ key:



- '↑' function.
- Selects the previous menus
- Reduces a value by one step.

Buzzer Off/ ↓ key:



- '↓' function.
- Selects the next menus
- Increases a value by one step.

ON/OFF Signaling/ ↵ key:



- ↵ (Input/ENTER) function.
- Confirms input and applies the current setting.
- Access to next level down: Main menu → Submenu → Values

'Zones ON/OFF keys 1 ... 4 (5, 6)':

- Adds or removes a detector zone from a combination (The number of zone keys available for use when setting parameters is subject to the number of zones available and therefore to the BZK4E's configuration).

17.2.3 Menu overview

To help with your understanding of parameter setting, Figure 17.1 shows an overview template of the main menus and associated submenus.

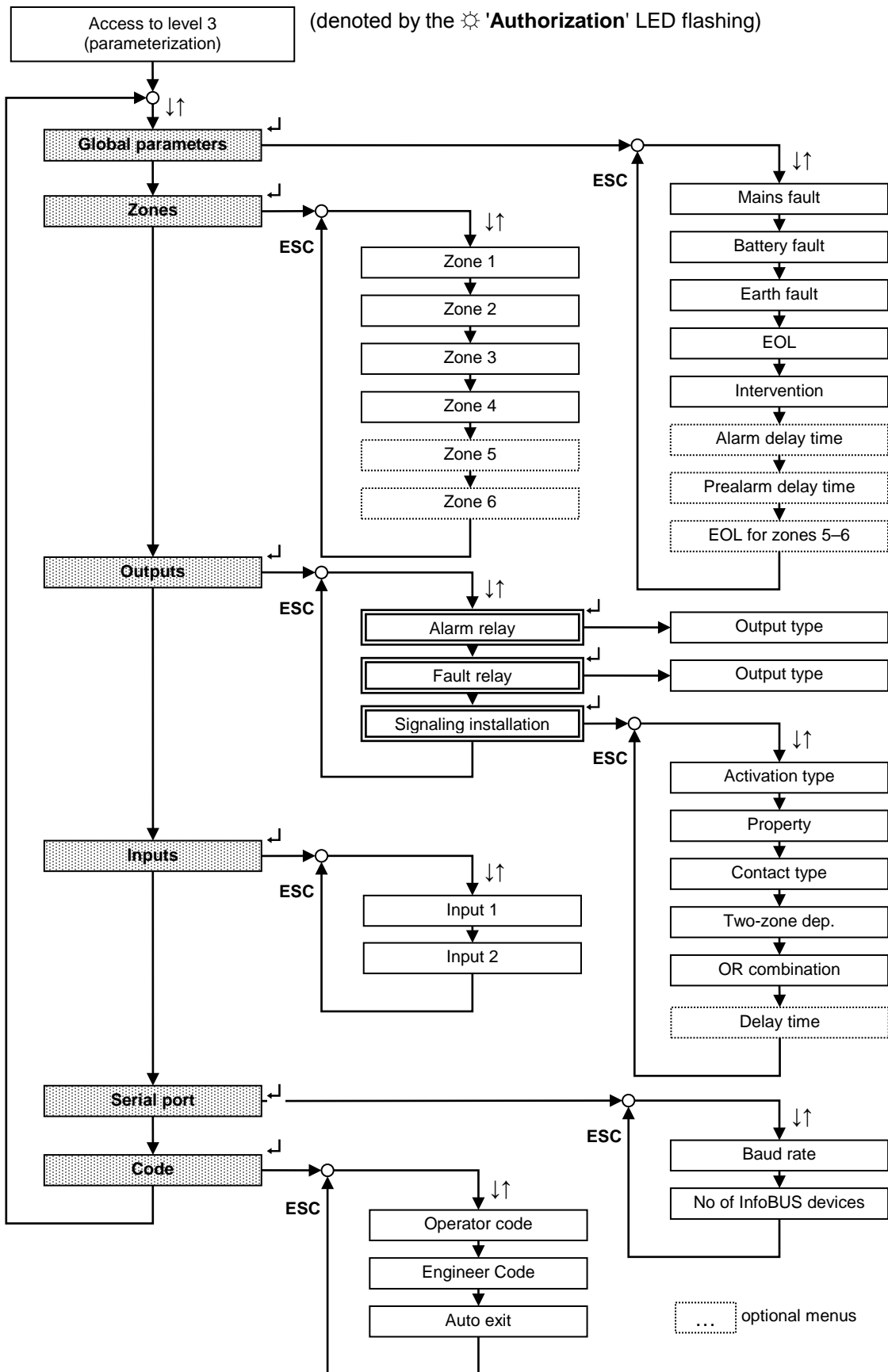
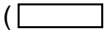


Figure 17.1

The final parameterization step (not shown here) after a menu shown in Figure 17.1 as a plain rectangle () is to enter a value (e.g. an engineer code), or select a function (e.g. a detector zone type) or a yes/no decision (e.g. evaluate mains failure, yes or no). You will also see from the illustration that there are two submenu levels when setting output parameters: the first specifies which output to parameterize, and the second is the standard parameter setting sequence. Also, for example when setting detector zone parameters, a submenu can appear as a result of simply selecting the zone itself.

17.2.4 User interface

At authorization level 3, the six LEDs below the 'Power' LED (disablement, test condition, energy, etc.) represent the six main menus for parameter setting (see Figure 17.2 for what the LEDs mean, and see also Figure 17.1 for the menus). The red zone LEDs indicate the submenus and the yellow zone LEDs indicate the associated values to enter.

This means that having used the six main menu LEDs to select and confirm which main menus you require, you can continue by using the red zone LEDs to select and confirm which submenus you require, and then enter a value or yes/no decision, which will be shown by the yellow zone LEDs (see Chapter 17.2.5 for how to proceed).

As already mentioned, the only exception is that when parameterizing outputs (main menu 3) there are two submenu levels instead of one. Once you have selected the required output (submenu level 1) and confirmed, zone LED 5 illuminates to indicate that the panel is now in submenu level 2. Once you have selected and confirmed the required function or property in submenu level 2, you can enter values or yes/no decisions as usual.

The detailed procedure for individual menus is referenced in the menu description.

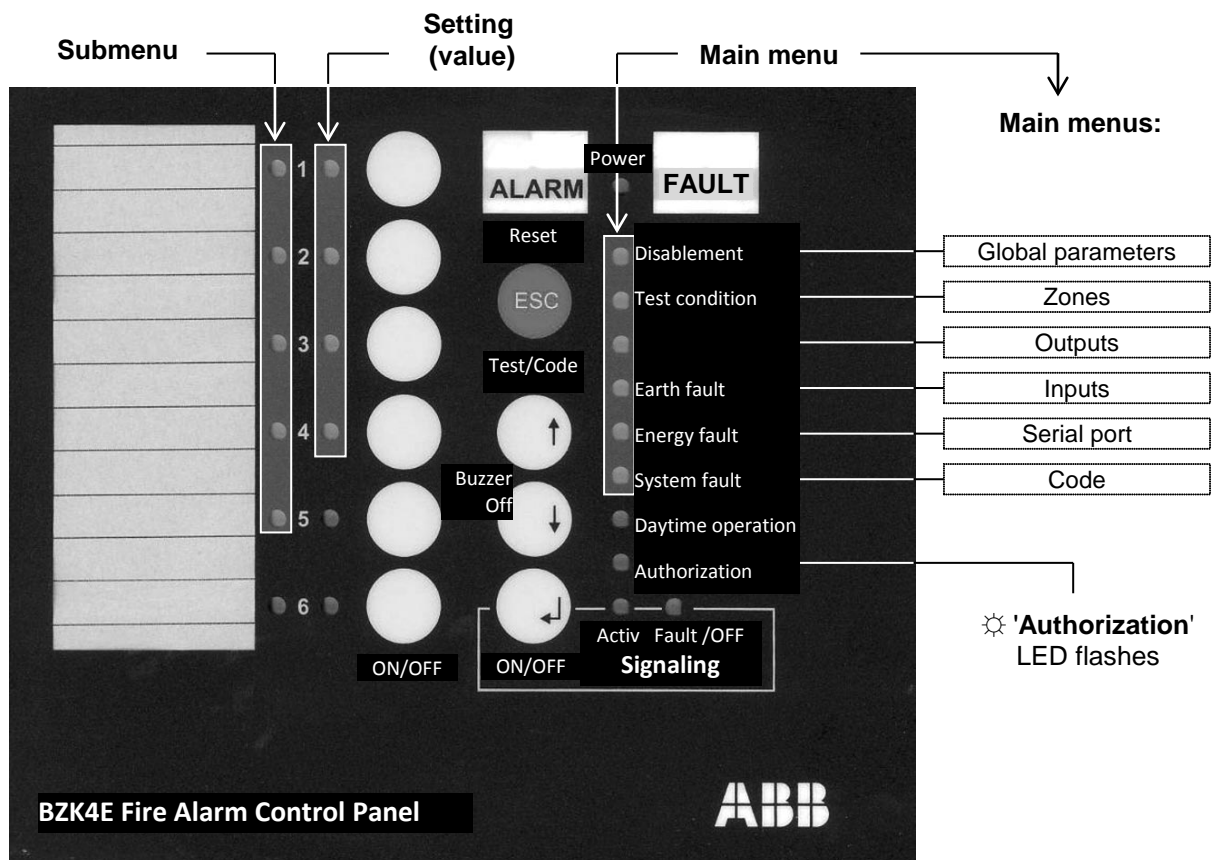


Figure 17.2

17.2.5 Basic procedure

The following overview describes the basic parameterization procedure. A flashing LED indicates a value or menu option which has not yet been selected. A steady light on an LED indicates a confirmed value or menu. The configured assignment of LEDs to main menus is shown in Figure 17.2 above.

- Entering the engineer code (see Chapter 17.2.1)
 - ☀ 'Authorization' LED flashes.
 - 'Disablement' LED flashes for first main menus [**Global parameters**].
- Scroll through the main menu using the '↓↑' keys.
 - The LED assigned to the relevant main menu will flash.
- Select a main menu using the '↵' key.
 - The associated main menu LED will change to a steady light.
 - The first submenu option will be indicated by a flashing light (red zone LED).
 - Along with this, the yellow (right-hand) LED corresponding with that submenu illuminates to indicate its current value.
- Scroll through the submenu using the '↓↑' keys.
 - The associated submenu LED (red zone LED) will flash.
- Select a submenu using the '↵' key.
 - The red (left-hand) zone LED changes from flashing to a steady light.

Caution! At this point you need to be aware of the difference in the procedure for setting output parameters (in all other cases, the process continues after selection):

When setting output parameters, this is the point at which you need to choose which output you require, and apply it with the '↵' key. Zone LED 5 will illuminate to confirm your selection. You are now at submenu level 2 and at this stage you can select a submenu with the '↓↑' keys and confirm it with the '↵' key.

- The current value or submenu selection is shown by the yellow (right-hand) zone LED illuminating.
- Use the '↓↑' keys to scroll to your required value or selection.
 - Values which are selected but unconfirmed are indicated by a flashing LED.
 - If you quit using the 'ESC' key, the original value will be retained.
- Confirming the values you selected:
 - Confirming with the '↵' key applies the value you have set.
 - Confirmed new or saved values are indicated by a steady light on the yellow zone LEDs.
 - When you confirm using the '↵' key, the program automatically returns to the submenu level so that you can confirm the same submenu or select another using the '↓↑' keys. This stage is identifiable by the fact that the red submenu LED goes back to flashing.
- Quitting parameterization and applying the values:
 - You may need to press the 'ESC' key once or several times to return to the main menu, depending which menu level you are currently in. If you press the 'ESC' key in the main menu, you will hear a short warning tone to let you know that pressing it again will quit level 3 and apply the settings concerned.

17.2.6 Parameterization example

By way of illustrating the parameterization process, the whole process for setting up detector zone 3 as an automatic zone is shown below:

☀ = LED flashing ● = LED illuminated ○ = LED is off

zone LEDs	Main menu LEDs	Explanation
● 1 ○ ○ 2 ● ○ 3 ○ ○ 4 ○ ○		When you enter authorization level 3 (see Chapter 17.2.1) you will see the following : The 'Global parameters' main menu LED flashes. The 'Authorization' LED flashes. (The zone LEDs shown here do not signify anything.)
		With the '↓↑' keys you can scroll through the main menu. Press the '↓' key once to select the 'Zones' main menu
● 1 ○ ○ 2 ● ○ 3 ○ ○ 4 ○ ○		The 'Zones' main menu LED flashes to confirm your selection. (The zone LEDs shown here do not signify anything.)
		Press the '↓' key once to enter the 'Zones' main menu
☀ 1 ○ ○ 2 ● ○ 3 ○ ○ 4 ○ ○		The LED for the selected main menu provides confirmation by changing to a steady light. The red zone LED for the first submenu (in this case zone 1) flashes. The yellow zone LEDs indicate the zone type (in this case, manual).
		Use the '↓↑' keys to scroll through the submenu (in this case, the choice of zones). Select detector zone 3 by pressing the '↓' key (twice)
○ 1 ○ ○ 2 ● ☀ 3 ○ ○ 4 ○ ○	No change has been made here!	LED 3 is flashing to indicate the selection (in this case, zone 3).

Continued overleaf

zone LEDs	Main menu LEDs	Declaration					
		Pressing the '↓' key takes you to the parameter settings for zone 3.					
<ul style="list-style-type: none"> ○ 1 ○ ○ 2 ● ● 3 ○ ○ 4 ○ ○ 	No change has been made here!	The red zone LED for zone 3 changes to a steady light. As before, the yellow zone LED shows a steady light to indicate which zone type is currently set.					
		You can scroll through the list of zone types using the '↓↑' keys. Select "automatic detector zone" by pressing the '↓' key twice.					
<ul style="list-style-type: none"> ○ 1 ○ ○ 2 ○ ● 3 ○ ○ 4 ☀ ○ 	No change has been made here!	The corresponding LED flashes to indicate this.					
		Pressing the '↓↑' key applies the selection.					
<ul style="list-style-type: none"> ○ 1 ○ ○ 2 ○ ● 3 ○ ○ 4 ● ○ 	No change has been made here!	The LED has a steady light, indicating that the selection has been applied to the temporary memory. Parameterization is now complete. The panel then immediately returns to the next level up without any need to press the 'ESC' key.					
<ul style="list-style-type: none"> ○ 1 ○ ○ 2 ○ ☀ 3 ○ ○ 4 ● ○ 	No change has been made here!	In this case, that is the submenu level for zone selection. At this point you could scroll using the '↓↑' keys and select another zone.					
		Pressing the 'ESC' key again returns you to the main menu which you can scroll through using the '↓↑' keys.					
<ul style="list-style-type: none"> ○ 1 ○ ○ 2 ○ ● 3 ○ ○ 4 ● ○ 	<div style="border: 1px solid black; padding: 5px;"> <ul style="list-style-type: none"> ○ Disablement → ☀ Test Condition → ○ → ○ Earth fault → ○ Energy fault → ○ System fault → ○ Daytime operation → ☀ Authorization → </div> <div style="margin-left: 20px;"> <table border="1" style="border-collapse: collapse; width: 150px;"> <tr><td>Global parameters</td></tr> <tr style="background-color: #cccccc;"><td>Zones</td></tr> <tr><td>Outputs</td></tr> <tr><td>Inputs</td></tr> <tr><td>Serial port</td></tr> </table> </div>	Global parameters	Zones	Outputs	Inputs	Serial port	The 'Zones' main menu LED is flashing on this menu as it did before we entered the menu to confirm our selection. By pressing the 'ESC' key again at this point you will quit level 3 and exit parameterization!
Global parameters							
Zones							
Outputs							
Inputs							
Serial port							

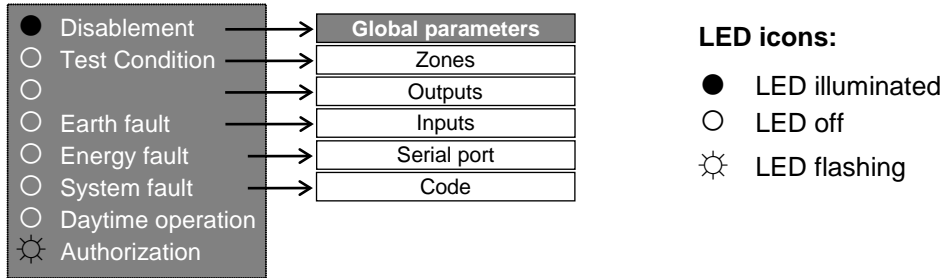
17.3 Description of menus

The individual menus are described in detail below, using the same graphics as the parameterization example and the menu overview.

Here is what the graphics mean:

- The first graphic for each main menu shows the main menu indicator after the menu has been confirmed using the '↵' key (during selection, i.e. before applying the selection with '↵' the assigned LED would be flashing):

"Global parameters" menu example:

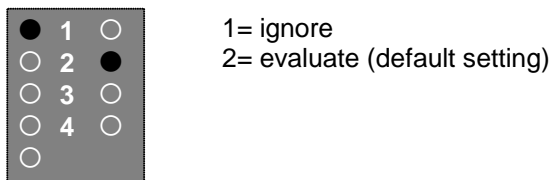


- The second graphic shows the **main menus** and **submenus** in a flow diagram. Here, the key symbols mean:

'↵' Confirm a menu/Enter menu, Apply values
 '↓↑' Scroll through menus, Select values
 'ESC' Quit menus, Exit parameterization

- The third graphic shows the status of the red zone LEDs (far left-hand LEDs) after the selection has been applied using the '↵' key (prior to this it would be flashing). The yellow zone LEDs show the current status of a selection, value or yes/no decision. These only flash if the selection has been changed using the '↓↑' keys but not yet applied.

"Mains fault" submenu example:



17.3.1 Global parameters

This parameter sets whether and how power supply faults and other global parameters are evaluated.

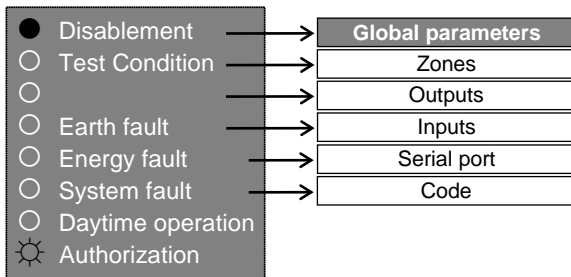
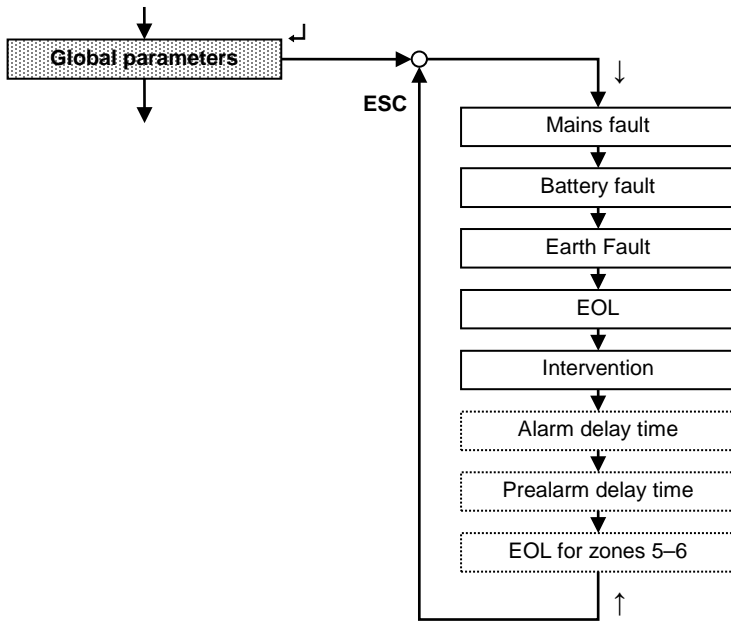


Figure 17.3



17.3.1.1 Mains fault

In this submenu you can select whether a mains fault should be ignored or evaluated by the panel.

<input checked="" type="radio"/>	1	<input type="radio"/>
<input type="radio"/>	2	<input checked="" type="radio"/>
<input type="radio"/>	3	<input type="radio"/>
<input type="radio"/>	4	<input type="radio"/>
<input type="radio"/>		<input type="radio"/>

1= ignore
2= evaluate (default setting)

17.3.1.2 Battery fault

In this submenu you can select whether a standby battery fault should be displayed or ignored by the panel.

<input type="radio"/>	1	<input type="radio"/>	↔	1	2	3	4
<input checked="" type="radio"/>	2	<input checked="" type="radio"/>	↔	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	3	<input type="radio"/>	↔	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	4	<input type="radio"/>	↔	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

1= ignore (not compliant with EN 54)
2= respond at $R_i \geq 700 \text{ m}\Omega$ (default setting)
3= respond at $R_i \geq 1500 \text{ m}\Omega$
4= respond if battery defective (not compliant with EN 54)

Note:

If mains fault evaluation is silenced and then the standby battery (or its fuse) also fails, or vice versa, the entire fire detection system will completely shut down without any visual or audible warning.

17.3.1.3 Earth fault

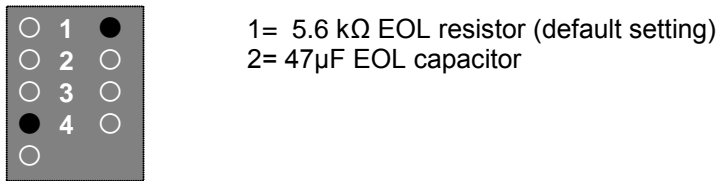
In this submenu you can select whether an earth fault should be displayed on the panel or not.

<input type="radio"/>	1	<input type="radio"/>
<input type="radio"/>	2	<input checked="" type="radio"/>
<input checked="" type="radio"/>	3	<input type="radio"/>
<input type="radio"/>	4	<input type="radio"/>
<input type="radio"/>		<input type="radio"/>

1= ignore
2= evaluate (default setting)

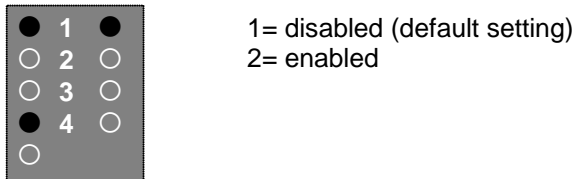
17.3.1.4 End-of-line for zones 1–4

In this submenu you can collectively specify the type of EOL device for all four zone positions on the ZTB06-02 Central Processing Module.



17.3.1.5 Intervention

This submenu enables the '**Buzzer Off**' key intervention option.



If intervention is enabled, you will be able use the '**Buzzer Off**' key to start an investigation period during the "Alarm" or "Prealarm" delay time on the signaling installation when the system is in fire alarm condition. This investigation period is not limited by the panel itself. It can only be terminated

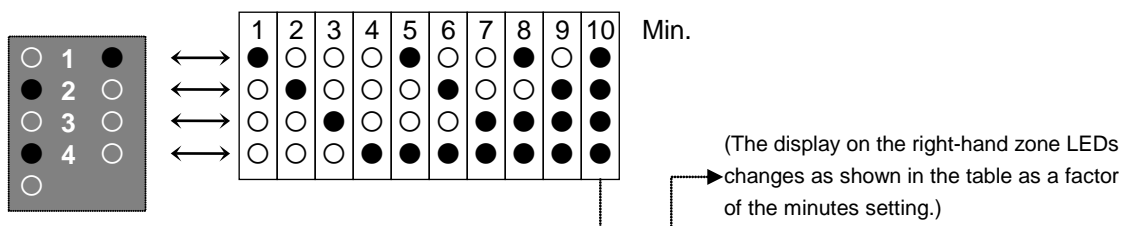
- by an alarm from another MCP detector zone activating the signaling installation and starting the evacuation alarm, or
- by terminating fire alarm condition.

17.3.1.6 Alarm delay time (for intervention mode)

This submenu is only available if intervention has been enabled via the '**Buzzer Off**' key.

If the alarm message is received from at least one MCP detector zone or at least two automatic detector zones, this results in 'alarm condition' within the meaning of the intervention option.

The alarm delay time is indicated by the right-hand zone LEDs in accordance with the table below; the default setting is 1 minute.

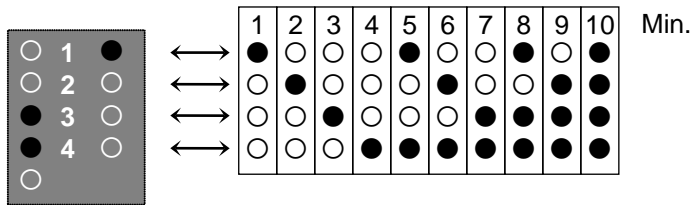


17.3.1.7 Prealarm delay time (for intervention mode)

This submenu is only available if intervention has been enabled via the 'Buzzer Off' key.

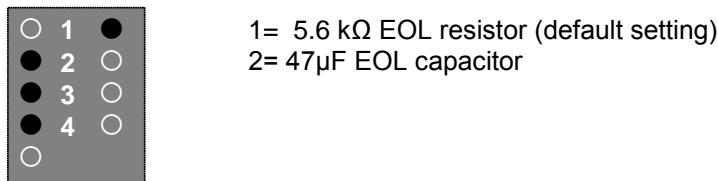
If the alarm message is received from an automatic detector zone, this results in 'prealarm condition' within the meaning of the intervention option.

The prealarm delay time is indicated by the right-hand zone LEDs in accordance with the table below; the default setting is 1 minute.



17.3.1.8 EOL for zones 5–6

This submenu is only available if the ZEB2-1 Zone Expansion Module is installed.



17.3.2 Zones

This main menu is used for specifying the functions, and therefore the properties, of the zones.

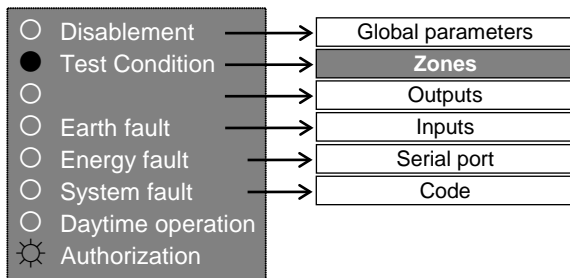
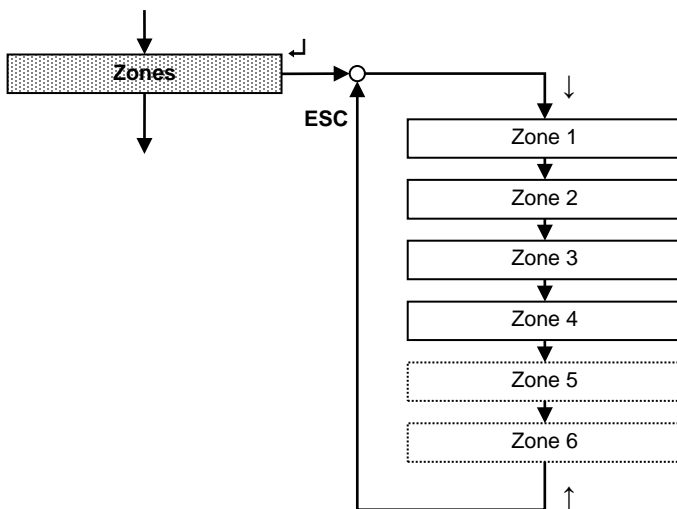


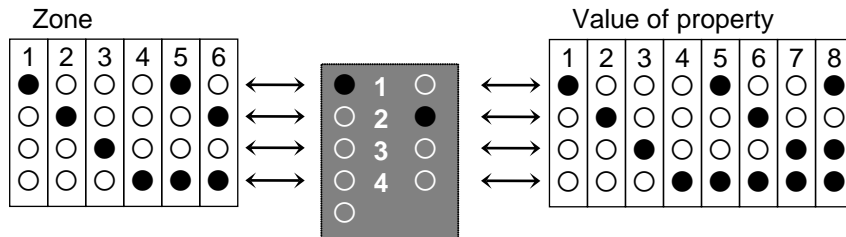
Figure 17.4



Zones 5 and 6 are only displayed if the optional ZEB2-1 Zone Expansion Module is installed.

17.3.2.1 Zone properties

The overview below shows how the zone numbers are displayed via the red (left-hand) zone LEDs and the zone properties by the yellow (right-hand) zone LEDs:

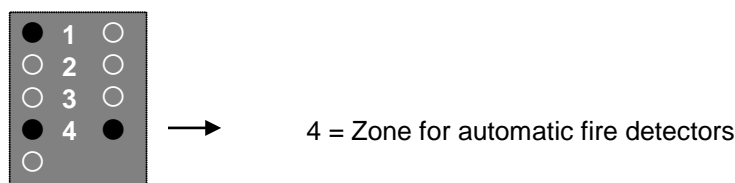


The table below shows which values are assigned to which properties:

Value	Property
1	Zone not defined.
2	MCP detector zone (default setting). The alarms used must have a resistor with a range of 470Ω–1kΩ.
3	Zone for MCPs without alarm resistor. Alarms without a resistor (the panel evaluates a short circuit as an alarm) or those with a resistor with up to 1 kΩ may be used on the line.
4	Zone for automatic fire detectors.
5	Zone for MCPs and automatic fire detectors.
6	Zone for automatic fire detectors with alarm buffering.
7	Zone for non-latching fault detectors. Once the cause of the alarm trigger is eliminated, the zone stays on fault alert until the alarm is reset.
8	Zone for latching fault detectors. Once the cause of the alarm trigger has been eliminated the zone resets itself to normal condition.

Once a zone's parameters have been entered and then confirmed using the '↵' key, you can select the next zone and set the parameters in the same way. If this is what you wish to do, do not press the 'ESC' key after applying the parameters.

Example: Zone 5 parameterized as a zone for automatic fire detectors:



17.3.3 Outputs

This menu is used for specifying the required parameters for the functions and properties on both of the ZTB06-2 relays and on the signaling installation.

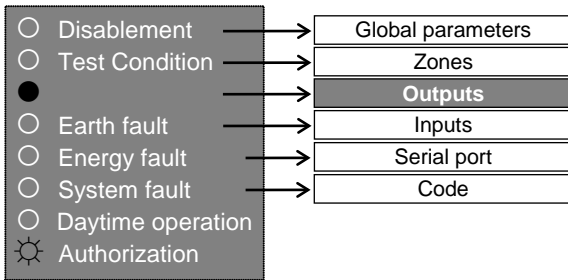
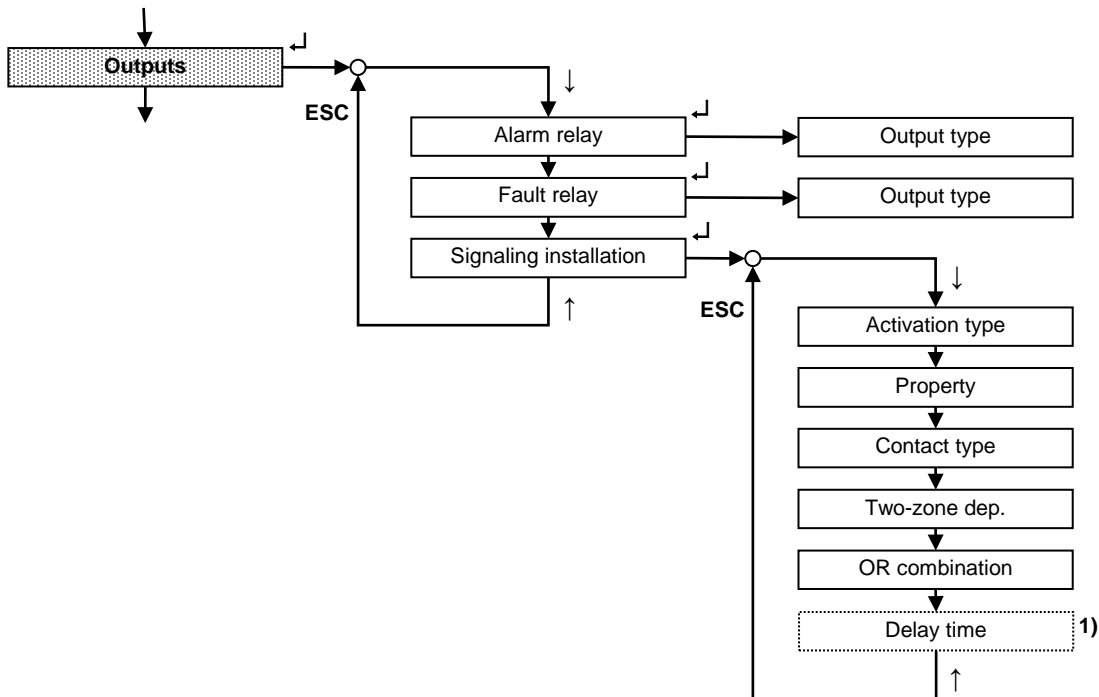


Figure 17.5



1) This submenu is only available if the signaling installation activation type is set to "Delay activation of automatic fire detector zones in daytime operation" or "Delay activation of all fire detector zones in daytime operation".

Only the output type can be changed on the alarm and fault relays.

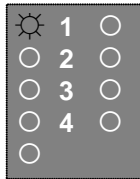
The following functions can be specified for the signaling installation:

- Activation type: which alarms activate the signaling installation immediately or with a delay
- Signaling installation property: whether silencing of the alarm system depends on authorization level and whether it will be activated by subsequent alarms.
- Signaling installation contact type: continuous or cyclical.
- Combinations: which zones can activate the outputs
- Signaling installation delay time

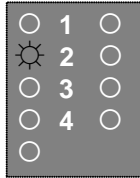
17.3.3.1 Selecting an output

Once you confirm the "Outputs" menu, the menu control will jump to the output selection submenu level. Using the '↑↓' keys, this is where you select the required output (which will then be displayed on the left-hand zone LEDs).

Output selection display:



Alarm relay, terminals 7–9 on the ZTB06-2



Fault relay, terminals 10–12 on the ZTB06-2



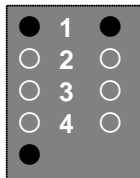
Signaling installation, terminals 13 and 14 on the ZTB06-2

To confirm the output selection, press the '↓' key. **The zone 5 LED will then illuminate to indicate that an output has been selected and that you are now in the submenu for setting the parameters of the output functions and properties.**

Here, use the '↑↓' keys to select the required submenu for the selected output and confirm with the '↓' key. **(Caution: This value will remain at 1 on the alarm and fault relays because they only have one submenu).** So the menu control will now jump to the settings for the values described below.

17.3.3.1.1 Alarm relay

This submenu is used for setting the output type on the alarm relay.

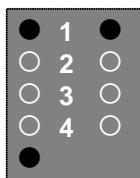


1= Alarm condition (default setting)
2= Reset ¹⁾

Setting the relay output type to "Alarm condition" de-energizes the relay in normal condition (terminals 7 and 8 are connected) and energizes it in the event of an alarm (terminals 8 and 9 are connected).

17.3.3.1.2 Fault relay

This submenu is used for setting the output type on the fault relay.



1= Fault condition (default setting)
2= Reset ¹⁾

Setting the relay output type to "Fault condition" energizes the relay in normal condition (terminals 11 and 12 are connected) and de-energizes it in the event of a fault (terminals 10 and 11 are connected).

¹⁾ If the 'Reset' key is pressed on the fire alarm control panel, this activates the output and energizes the relay for eight seconds from when the key is pressed.

17.3.3.1.3 Signaling installation

This submenu is used for specifying the parameters of the signaling installation (SI).

17.3.3.1.3.1 Activation type

<input checked="" type="radio"/>	1	<input checked="" type="radio"/>
<input type="radio"/>	2	<input type="radio"/>
<input type="radio"/>	3	<input type="radio"/>
<input type="radio"/>	4	<input type="radio"/>
<input checked="" type="radio"/>		<input type="radio"/>

- 1= All zones activate the SI immediately (default setting)
- 2= Automatic fire detector zones activate the SI with a delay in daytime operation
- 3= All fire detector zones activate the SI with a delay in daytime operation
- 4= All zones to pulse mode immediately
- 5= No function – avoid this setting!

17.3.3.1.3.2 Property

<input type="radio"/>	1	<input type="radio"/>
<input checked="" type="radio"/>	2	<input type="radio"/>
<input type="radio"/>	3	<input type="radio"/>
<input type="radio"/>	4	<input checked="" type="radio"/>
<input checked="" type="radio"/>		<input type="radio"/>

- 1= SI cannot be silenced and will not be reactivated by subsequent alarms
- 2= SI can be silenced and will not be reactivated by subsequent alarms
- 3= SI cannot be silenced and will be reactivated by subsequent alarms
- 4= SI can be silenced and will be reactivated by subsequent alarms (default setting)

("cannot be silenced", "can be silenced" refers to silencing at authorization level 1, i.e. without special authorization)

17.3.3.1.3.3 Contact type

<input type="radio"/>	1	<input checked="" type="radio"/>
<input type="radio"/>	2	<input type="radio"/>
<input checked="" type="radio"/>	3	<input type="radio"/>
<input type="radio"/>	4	<input type="radio"/>
<input checked="" type="radio"/>		<input type="radio"/>

- 1= Continuous contact (default setting)
- 2= Cyclical contact (5 mins on, 1 sec off, etc.)

17.3.3.1.3.4 Two-zone dependency combination

<input type="radio"/>	1	<input type="radio"/>
<input type="radio"/>	2	<input type="radio"/>
<input type="radio"/>	3	<input type="radio"/>
<input checked="" type="radio"/>	4	<input type="radio"/>
<input checked="" type="radio"/>		<input type="radio"/>

- No zone (default setting)
- (To select the zones you wish to add to this combination, press the corresponding zone keys. See also Chapter 17.4.)

17.3.3.1.3.5 OR combination

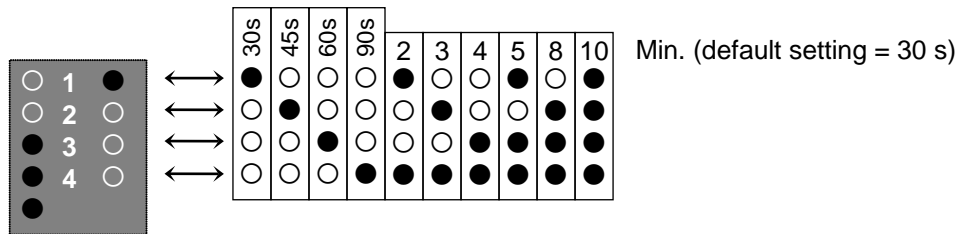
<input checked="" type="radio"/>	1	<input type="radio"/>
<input type="radio"/>	2	<input type="radio"/>
<input type="radio"/>	3	<input type="radio"/>
<input checked="" type="radio"/>	4	<input type="radio"/>
<input checked="" type="radio"/>		<input type="radio"/>

- No zone (default setting)
- (To select the zones you wish to add to this combination, press the corresponding zone keys. See also Chapter 17.4.)

17.3.3.1.3.6 Delay time/pulse time

This submenu is only available with the following activation type settings:

- Automatic fire detector zones activate the SI with a delay in daytime operation
- or
- All fire detector zones activate the SI with a delay in daytime operation
- or
- All zones to pulse mode immediately (time range 3–10 minutes)



17.3.4 Inputs

This menu is used for specifying the required parameters for the functions and properties on both of the inputs on the ZTB06-2.

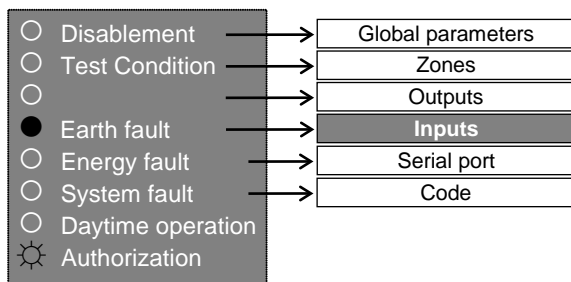
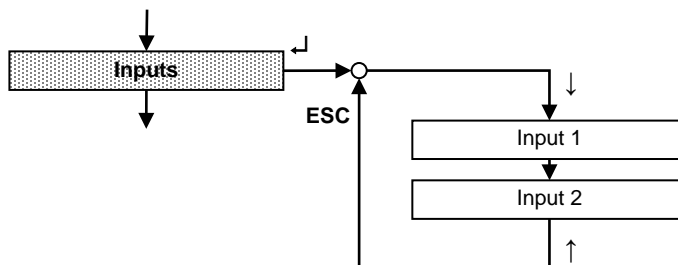
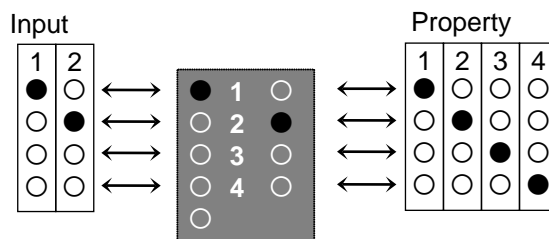


Figure 17.6



17.3.4.1 Input properties

The overview below shows how the input numbers are displayed via the red (left-hand) zone LEDs and the input properties by the yellow (right-hand) zone LEDs:



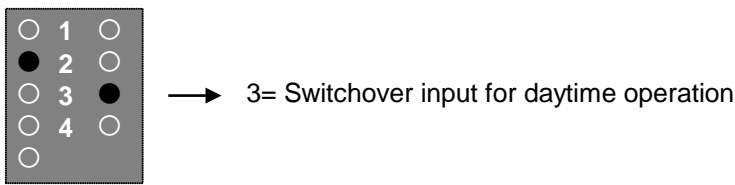
The input is active when earth is applied (i.e. the contact between terminals 17 and 18 and/or terminals 19 and 20 is closed). It is inactive when there is no potential applied.

The table below shows how the properties are assigned to the values you need to enter:

Value	Property
1	Input not defined (default setting).
2	Class change. If the input is active, the signaling installation (SI) connected to the panel is activated for as long as there is an input signal (used e.g. for interval signals).
3	Daytime operation. As regards daytime/nighttime condition, daytime operation activates the SI with a delay. Condition switchover is via the input contact closing (i.e. when earth is applied). If both inputs are set to this input type, the fire alarm control panel will remain in daytime operation as long as one of the two inputs is closed. Current status is indicated by the yellow ' Daytime operation ' status LED: if the LED is illuminated, the panel is in daytime operation.
4	Key authorization. If the input is active the system switches to authorization level 2. There is a contact connected to this input (e.g. a key switch) which can be used for switching to level 2 in parallel with entering the operator code. Each pulse switches the panel between levels 1 and 2, irrespective of whether you press the ' Test/Code ' key or activate an appropriately parameterized input.

Once an input's parameters have been entered and confirmed, you can select the next input and set the parameters in the same way. You do not need to press the '**ESC**' key.

Example: Input 2 as a switchover input for daytime operation:



17.3.5 Serial port

This menu is used for setting parameters on the ZTB06-2 Central Processing Module's 20 mA interface (terminals 29 and 30).

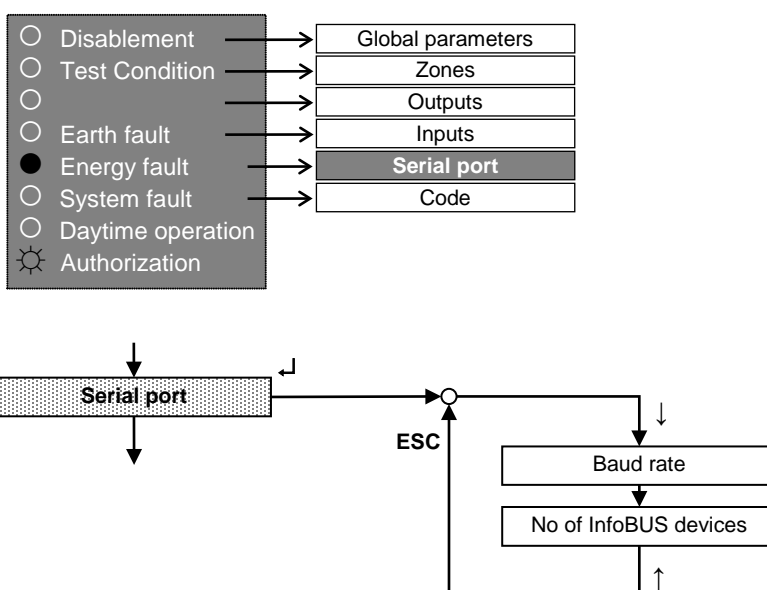
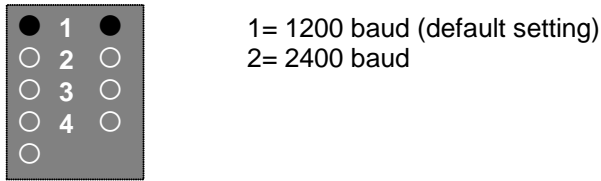


Figure 17.7

17.3.5.1 Baud rate

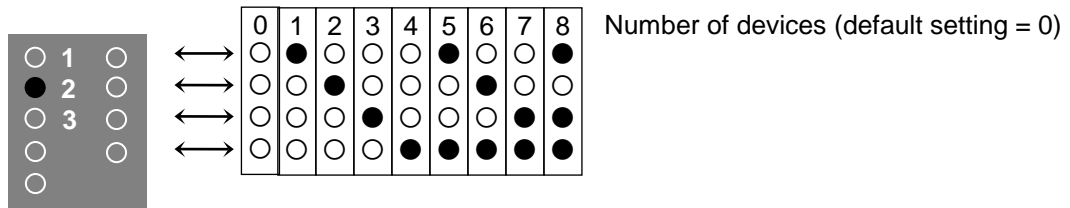
This submenu is used for setting the baud rate on the 20 mA interface.



17.3.5.2 Number of InfoBUS devices

This submenu is used for setting the number of InfoBUS devices.

Note: If you set this parameter when there is no InfoBUS connected, the panel's **Energy fault** LED will illuminate to indicate a fault.



17.3.6 Code

This menu is used for changing the operator and engineer codes and can also be used to set a timespan for automatically quitting authorization level 2.

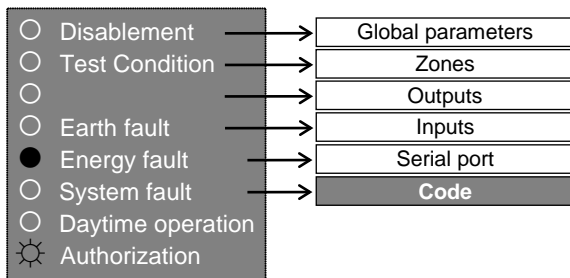
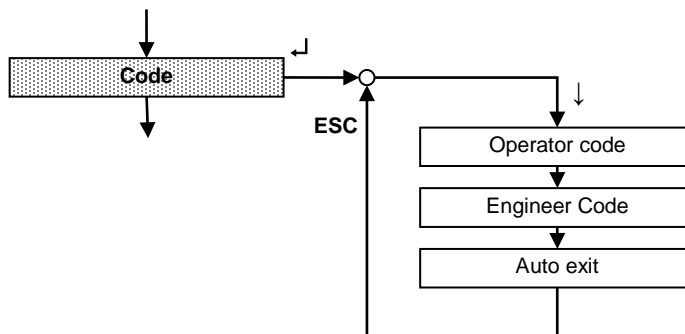
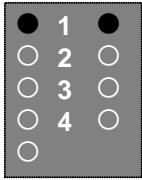


Figure 17.3



17.3.6.1 Changing the operator code

The operator code must be a four-digit code using any combination of the numbers 1, 2, 3 and 4. To enter the code, use zone keys 1 ... 4 and complete the operation by pressing the '↵' key. When you confirm, the panel will automatically jump to the next submenu. Re-enter the new code as confirmation and complete your input by pressing the '↵' key.

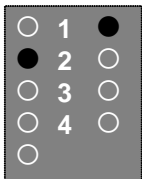


1= Enter new operator code
2= Confirm new operator code

The default setting for the operator code is "1111".

17.3.6.2 Changing the engineer code

The engineer code must be a five-digit code using any combination of the numbers 1, 2, 3 and 4. First, enter the current engineer code. Complete the operation by pressing the '↵' key. When you confirm, the panel will automatically jump to the next submenu. At this point, enter the new engineer code using zone keys 1 ... 4. Complete the entry by pressing the '↵' key. The code must then be reentered for confirmation.



1= Enter current engineer code
2= Enter new engineer code
3= Conform new engineer code

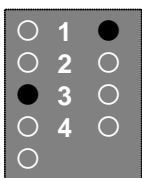
The default engineer code on delivery is "22222". The first time that you access authorization level 3, you need to change the code before quitting this level. The default code is locked after initial use and cannot be used again. You cannot quit the Code menu if the code is still "22222".

Note:

It is not possible to read out an engineer code from the panel. If you lose the engineer code that you saved on the panel, you will need the manufacturer to help you access level 3 again.

17.3.6.3 Auto exit

This submenu is used for setting Auto exit from authorization level 2.



1= No Auto exit allowed (default setting)
2= Auto exit allowed

Under the default settings, the system will automatically quit level 2 if no keys have been pressed for the last 10 minutes. If the parameter is set to "Auto exit allowed", the system will quit after 5 minutes of inactivity.

17.4 Logical combinations

Alarms from fire detector zones will always activate the signaling installation. Using combinations, you can specify which logical combinations of alarms in those zones will activate it.

17.4.1 Description

Combinations can only be made from zones parameterized for MCPs, automatic fire detectors or automatic fire detectors with data buffering.

The options for setting up combinations are:

- "Two-zone dependency" of individually input fire detector zones for the signaling installation. If at least two of the detector zones concerned are in alarm condition, this meets the combination condition. Use this type of combination if you need higher reliability in terms of preventing false alarms.
- "OR" combination of individually input fire detector zones for the signaling installation. If at least one of the detector zones concerned is in alarm condition, this meets the combination condition.

In turn, the combinations themselves are subject to OR combinations for actuating the signaling installation.

By entering combinations you can limit general activation of the signaling installation as follows:

- If you apply an OR combination but without two-zone dependency, only those alarms in the OR combination will activate the installation. Alarms outside of the combination will not.
- If you apply a two-zone dependency but no OR combination, then the installation will be activated when the two-zone dependency conditions are met as well as by an alarm from detector zones outside of that dependency.
- If you apply two-zone dependency and an OR combination together, the installation will be activated when two-zone dependency conditions are met and also by alarms in the OR combination. Alarms in detector zones outside of the combination will not activate the installation in this scenario.

17.4.2 Setting combination parameters

Two-zone dependency:

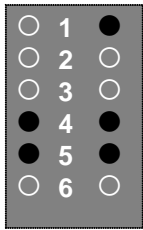
- A two-zone dependency must include at least two fire detector zones but can include them all. Setting the parameters for two-zone dependency is straightforward with the help of the zone keys in the Signaling installation/Two-zone dependency submenu (see Chapter 17.3.3.1.3.4, page 62).

OR combination:

- You must assign at least one fire detector zone to an OR combination but you can assign any number up to and including all of them. Setting parameters for the OR combination follows the procedure described above, using the zone keys in the Signaling installation/OR combination submenu (see Chapter 17.3.3.1.3.5, page 62).

Pressing a zone key

- adds the zone concerned to the combination (if it is not already included),
- or removes the zone concerned from the combination (if it is currently included).
- To apply, press the '↵' key



Example:
Zones 1, 4 and 5 are included in the combination.
(Default setting: no combination)

If you accidentally press a fault zone key the buzzer will sound a brief warning and the yellow zone LED will not illuminate.

If you assign no fire detector zones, this cancels the combination.

Finally, confirm your settings with the '↵' key.

17.5 Default parameters

Global parameters	
Mains fault	evaluated
Battery fault	$R_i \geq 500 \text{ m}\Omega$
Earth fault	evaluated
EOL	5.6 k Ω EOL resistor
Intervention	disabled
Zones	
Zones	MCP detector zones
Outputs	
Alarm relay/Output type	alarm condition
Fault relay/Output type	fault condition
Signaling installation/Activation type	all zones immediately
Signaling installation/Property	can be silenced, can be reactivated
Signaling installation/Contact type	continuous contact
Signaling installation/Combination	none
Inputs	
Inputs 1 ... 2	not defined
Serial port	
Baud rate	1200 baud
Number of InfoBUS devices	0
Code	
Auto exit	not allowed

If you remove the ZEB2-1 Zone Expansion Module from the parameter settings and then add it again, the settings for zones 5 and 6 will be reset to the default.

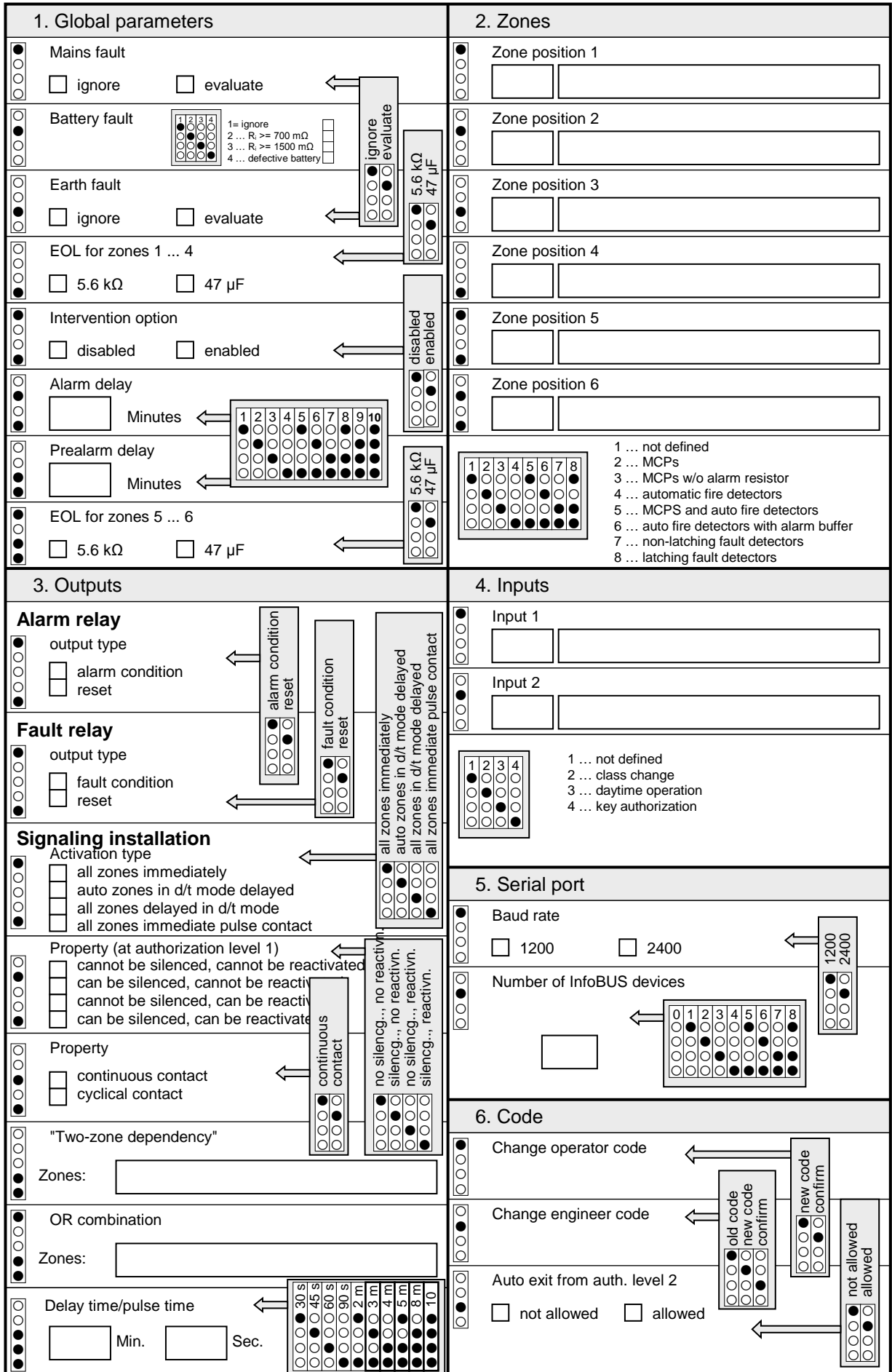
17.6 System-specific parameterization

The parameterization menus are summarized in short form below.

The series of LEDs to the left (in the left-hand margin) of each menu represent the red zone LEDs, which is the menu level shown after selecting and confirming a main menu such as "Global parameters".

There are a few exceptions as regards the "Outputs" menu. Here the LED series on the far left represents the display status after selecting one of the three outputs (the alarm relay, fault relay or signaling installation) after the previous main menu, "Outputs", has already been selected and confirmed. You can see that the required output has already been selected by the fact that the zone 5 LED is illuminated. The reason for this exception is that, unlike all the other main menus, the "Outputs" parameterization menu had to be divided into four levels.

Figure 16.9 Parameterization overview



Contact

ABB STOTZ-KONTAKT GmbH

Eppelheimer Straße 82

69123 Heidelberg, Germany

Phone: +49 (0)6221 701 607

Fax: +49 (0)6221 701 724

E-Mail: knx.marketing@de.abb.com

Further Information and Local Contacts:

www.abb.com/knx

Note:

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail.

ABB AG does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents - in whole or in parts - is forbidden without prior written consent of ABB AG.

Copyright© 2016 ABB
All rights reserved