

Fire Detection Control Panel Series BC216

User Manual Part A

Description
Operating Instructions

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Contents

1	Introduction	7
1.1	Symbols and type fonts	8
1.2	Important hints for the user and the installer	8
1.2.1	What to do in case of a fire alarm	9
1.2.2	What to do in case of a fault	9
1.3	Standards, CE-labeling, approvals	10
1.4	Warranty	11
1.5	Special terms	11
2	Fire detection control panel Series BC216	15
2.1	Typical construction of a fire detection system with control panel BC216-1	15
2.2	Typical construction of a fire detection system with network control panel BCnet216	16
2.3	Features of the fire detection control panel Series BC216	17
2.3.1	Fire detection control panel BC216-1 (stand-alone)	17
2.3.2	Fire detection control panel BCnet216 (network control panel)	19
2.4	Peripheral devices for the fire detection control panel Series BC216	19
2.4.1	Detectors	19
2.4.2	Acoustic and optic alarming devices	20
2.4.3	Transmitting devices	20
2.4.4	Actuations	21
2.4.5	Information devices for the fire brigade	21
2.4.6	Information systems	21
3	Displaying and operating elements	22
3.1	Info field	23
3.2	'Info'-button	24
3.3	Menu buttons	24
3.4	Numeric keys	24
3.5	'Element'-button	24
3.6	Reset-buttons	25
3.7	Light-emitting diodes displays	25
3.8	TRANSM. DEVICE 1 - field	25
3.9	ALARM. DEVICE 1 - field	26
3.10	Optional LED-display field	27
3.11	Acoustic signal	27
3.12	Protocol printer	27
4	Basic operation of the fire detection control panels Series BC216	29
4.1	Operating authorization	29
4.2	Operations using single buttons	31
4.2.1	Resetting the fire detection control panel	31
4.2.2	Silencing the internal buzzer / display test	31
4.2.3	Silencing the primary alarming device	31
4.2.4	Alarm delay procedure of the primary transmitting device	32
4.3	Operations using the menu	33
4.3.1	Menu-quick-operation	33
4.3.2	Exiting the menu	34
4.4	Overview of the display- and operation menus	34
4.5	Entering and exiting authorization level 2	36
4.6	Entering and exiting authorization level 3	36
4.7	Description of the menu points	37

4.7.1	Displaying fire alarms - menu point [Alarms]	37
4.7.2	Displaying activated actuations - menu point [Activated actuations]	38
4.7.3	Displaying technical messages - menu point [Technical messages]	38
4.7.4	Displaying fault messages - menu point [Faults]	38
4.7.5	Displaying disablements - menu point [Disablements]	38
4.7.6	Displaying test conditions - menu point [Test conditions]	39
4.7.7	Displaying and operating detector zones - menu point [Zone:]	39
4.7.7.1	Operating whole detector zones	39
4.7.7.2	Operating single elements of detector zones	40
4.7.8	Displaying and operating actuations - menu point [Actuations:]	41
4.7.8.1	Operating actuations	41
4.7.8.2	Operating single elements of actuations	42
4.7.9	Displaying and operating transmitting devices - menu point [Transmit. device:]	42
4.7.10	Displaying and operating alarming devices - menu point [Alarming device:]	43
4.7.11	Menu point [Event memory]	43
4.7.12	Menu point [System]	44
4.7.12.1	Read-out of the event counter - submenu point [Event counter]	44
4.7.12.2	Testing the optic and acoustic displays and the buzzer - submenu point [Display test]	44
4.7.12.3	Setting the contrast - submenu point [LCD contrast]	44
4.7.12.4	Correcting the clock time - submenu point [Clock time correction]	45
4.7.12.5	Setting the clock time - submenu point [Clock time setting]	45
4.7.12.6	Setting the date - submenu point [Date setting]	45
4.7.12.7	Switching to summertime - submenu point [Winter/summertime]	45
4.7.12.8	Switching to standard time - submenu point [Summer/wintertime]	45
4.7.12.9	Displaying the installed componentries - submenu point [Componentries]	46
4.7.12.10	Printing - submenu point [Print-out]	46
4.7.12.11	Repeating a print-out - submenu point [Repeat print-out]	47
4.7.12.12	Abort measured value print-out - submenu point [Stop measurement print-out:]	47
4.7.12.13	Modifying the numeric code for the user - submenu point [Change user code]	47
4.7.12.14	Changing the numeric code by the installer - submenu point [Change installer code]	47
4.7.13	Menu points [Authorization code:], [Exit authorization?]	47
4.8	Operating the control panel by using the fire brigade control unit	48
5	Operating conditions of fire detection control panels Series BC216	49
5.1	Normal condition	50
5.2	Fire alarm condition	50
5.2.1	The first operations on the control panel in fire alarm condition	52
5.2.2	Resetting the alarming devices	54
5.2.3	Resetting an alarm of a detector zone	54
5.2.4	Terminating the fire alarm condition	54
5.2.5	Fire alarm condition - special case: alarm in an interdependence of two detectors	55
5.3	Activation condition of actuations	55
5.3.1	Activating an actuation in a two-zone dependency	56
5.4	Message condition for technical messages	56
5.4.1	Resetting a technical message	57
5.4.2	Special technical messages	57
5.5	Fault-message condition	58
5.6	Disablement condition	61
5.7	Test condition	63
6	Ensuring the efficacy of the system by the user	65
6.1	Periodic function tests	65

6.1.1	Testing of the fire detection control panel and the power supply devices	65
6.1.2	Testing of detectors	65
6.1.3	Testing the alarming devices	66
6.1.4	Testing the fire control systems	66
6.1.5	Testing the transmitting devices	66
6.2	Other tests	66
6.3	Reconditioning and maintenance	67
6.4	Specifications of control panel devices of Series BC216	67
7	Event memory - entries	68
8	Index	72

1 Introduction

Decades of research and development of LST in the field of fire detection control panel technology and the successful cooperation with renowned international test authorities led to the development of the new fire detection control panels BC216-1 and BCnet216 of LST.

The fire detection control panel BC216-1 was drafted as a compact control panel for application in fire detection systems of small and medium size. The control panel BCnet216 is based on the successful concept of the BC216-1 and additionally offers all advantages of a modern network technology. It consists of several sectional control panels which are allocated exactly where they are needed most - in the vicinity of the fire detectors. This "network" control panel is applied in fire detection systems of medium to very large size and spatially highly ramified systems. Due to network technology the connections of the fire detectors to the control panel can be established vastly more efficient than in conventional fire detection technology.

Due to the modular structure of the control panels these products of high quality can be combined to highly flexible systems of fire detection technology. Besides less cabling work, the failure safety of the system is vastly improved by combining several intelligent sectional control panels to an overall system by means of network technology.

The high failure safety, the modular structure using standardized components, the simplicity of operation but also the high quality standards of LST for development and manufacture classify the fire detection control panels BC216-1 and BCnet216 as the most modern high performance control panels available in the world.



Figure 1: Front view of the fire detection control panel Series BC216

The User Manual for the fire detection control panels BC216-1 and BCnet216 which are collectively referred to as "Series BC216" in this User Manual consists of three parts:

- ◆ The second chapter of the first part ("Part A") sums up the main features for the **user** of the fire detection control panel Series BC216. Chapters 3 through 5 give detailed descriptions and clear operating instructions of the functions of the control panel. Hints to protect the working of the fire detection system are given starting page 65 in Chapter 6: "Ensuring the efficacy of the system by the user". Be sure to pay attention to the safety instructions starting page 8 in Chapter 1.2: "Important hints for the user and the installer"!
- ◆ The second part of the User Manual ("Part B") gives the authorized **installer** of fire detection systems the information necessary for planning the setup of the control panel as well as for installing and assembling the fire detection control panel.
- ◆ The third part of the User Manual ("Part C") supplies the information necessary for the trained installer for putting the control panel into operation, for setting the parameters and for maintenance of the control panel.

This User Manual is not designed as a description of or as an operating instruction for a fire detection system. Therefore, detailed instructions for how to act in case of an alarm or a fault are not given. Individual differences in the variety of components used and in the setup are so extensive that an efficient general description of the system or of the organization in case of an alarm would not be possible.

Due to national guidelines or regulations and local restrictions, some of the described functions of the control panel can be used only selectively or maybe even not at all. Authorization to operate the control panel is also regulated differently in different communities. Furthermore, many features are only available if the appropriate optional componentries are installed. Which of the possible functions of the control panel of your fire detection system are admissible and efficient is decided by the authorized installer. Relevant information can be found in the description of your fire detection system. It is no deficiency if your fire detection system does not use all features described in this User Manual.

This User Manual describes the variety of functions of the fire detection control panels of the Series BC216 that are valid for the operating software PL149 V4.1106. (How to access the version number of the software is described from page 46 in Chapter 4.7.12.9: "Displaying the installed componentries - submenu point [Componentries]"). Control panels using software with a different version number can differ in certain functions from the software described in this Manual.

1.1 Symbols and type fonts

Especially important parts of this Manual are marked by the following symbols:



Means **DANGER!** Paying no attention to these hints can lead to danger to health and life.



Means **ATTENTION!** Ignoring these hints can lead to malfunctions of the system and to damage of property.



Means **TIP!** Here the text contains hints for easier operation of the control panel.



Means that the country- and/or the site-specific demands of the **approvals** have to be observed.

Menupoints and displays of the LC-display are put in brackets in this text. In case of writing the displays in a "display-frame", the brackets are left out.

1.2 Important hints for the user and the installer

Get to know the functions and operation of the control panel and their effects on the whole fire detection system right away, so that you can take appropriate measures quickly and without delay in case of fire. A short summary of the most important operations of the control panel is included in the delivery documents of the control panel (Operation Manual In Short Form). This summary is supposed to be an instructional booklet for the user. It does not replace the Manual at all! Contained in the summary is a survey where the authorized installer has recorded the actual setup of the basic functions of the control panel. On this setup depend the workings, the handling and the displays of the different parts of the control panel that are described in general terms in this Manual. Also pay attention to the overall description of your fire detection system!

Peripheral devices like fire detectors, remote signalling and operating units, signalling equipment, etc., used in addition to the control panel in a fire detection system are only mentioned as examples and are not described in detail in this User Manual.

Fire detection systems and devices are used to detect fire and to raise alarm rapidly. Since this equipment is designed to protect life and property from the dangers of fire, it has to be planned, installed and put into operation very carefully by competent and skilled technicians. Changes in the use of rooms or

in the expansion of the area surveilled require careful replanning and adaptation of the fire detection system.

The fire detection system has to be checked and maintained regularly (at least once a year) by trained and skilled personnel in order to maintain its functions and to avoid false alarms.



For planning, installing, modifying, maintaining and servicing your fire detection system, be sure to commission only specialists who are demonstrably trained specifically for the functions of the fire detection control panel BC216-1 or BCnet216 by Labor Strauss Sicherungsanlagenbau Ges.m.b.H. Wien (LST), or by persons being explicitly authorized by LST.

The control panel has to be protected from moisture and damage of any kind. It is to be installed in a dry and clean room easy accessible to the safety personnel. The temperature has to be within the range of -5°C and $+50^{\circ}\text{C}$. For the fire detection control panel BCnet216, whose components are usually spread in the surveilled area, these requirements are equally valid for all components of the control panel.

Do not use corrosive or abrasive cleaners for cleaning the case or the keypad; use only mild household cleaners. Water or other fluids under no circumstances may enter the interior of the case!



Prior to opening a case, the mains voltage of the regarding case has to be shut down and secured against restart! Consider that, if the mains voltage is connected, there are parts in the open case of the control panel that carry life-endangering voltage! The protective case of these parts may never be removed.

Further security hints for the installer are given in Part B of this User Manual.

1.2.1 What to do in case of a fire alarm

Keep calm in case of a fire alarm. Silence the internal buzzer of the control panel BC216-1 or of all BCnet sectional control panels of the network control panel BCnet216 by using the button 'Silence buzzer'. All further actions such as, e.g., identifying the alarming detector zone, activating the delay time, exploring the fire location, starting to extinguish the fire, instructing the fire brigade, etc., depend on the local circumstances. These actions - summarily called "organization in case of an alarm" - are to be determined by both the user of the system and the fire brigade at the time when the control panel is planned and put in operation. If the light-emitting diode 'Call fire brigade' is illuminated on the fire detection control panel or your fire detection system is not connected to a permanently manned designated alarm respondent (e.g., the fire brigade), you have to notify the fire brigade yourself immediately. Further hints are given starting page 50 in Chapter 5.2: "Fire alarm condition".

1.2.2 What to do in case of a fault

The fire detection control panel Series BC216 as well as the connected components of your whole fire detection system are in operation for 24 hours a day - over many years. Although the components have been built with highest care and are checked thoroughly and regularly during maintenance, faults can occur due to such factors as dirty fire detectors, malfunctioning components, damage, etc. Different faults have different effects on the functioning of the alarm system, ranging from "no effect" to "complete shutdown" of the fire detection system.

In order to maintain the most important functions of the control panel in case of malfunctions in single parts of the control panel, the manufacturer has included elaborate security-measures that were developed during many years of experience with fire alarm technology. Nevertheless, a total guarantee for the proper working of the control panel in case of a fault cannot be given, especially if two or more malfunctions occur simultaneously.

If the display or a light-emitting diode indicates a fault, you have to assume that the corresponding part of the system does not work. Make sure that the system is reconditioned fast. In some cases, such as, e.g., a mains power fault message, caused by erroneous shutdown, the reconditioning may be carried out by yourself. In most cases, however, you will have to commission a trained and authorized specialized company (preferably the company that performs the periodic maintenance of your system) to carry

out the reconditioning. Together with the fire prevention officer you have to determine the additional protective measures that are to be taken until the system is fully operational again. Such measures might include, e.g., special attention by your personnel or fire watches in the area where the fault has occurred.

Two special faults are to be emphasized:

- ◆ The light-emitting diode 'POWER' is not illuminated:
If nothing else is illuminated on the control panel (e.g., when testing the displays by the function "display test"), it is likely that the mains power, as well as the emergency power of the corresponding BCnet sectional control panel are shut off. **Therefore, the part of the fire detection system which was surveilled by this BCnet sectional control panel is out of function!** If the fire detection control panel only consists of one control panel BC216-1, **the whole fire detection system is out of function!**
- ◆ The light-emitting diode 'System fault' is illuminated or flashing:
This is a sign that important parts of the control panel BC216-1 (or with the fire detection control panel BCnet216 the corresponding BCnet sectional control panel) are out of function. The displaying of events on the display is affected. But the reception of alarms from unaffected parts of the system and their transmission to the primary transmitting device (to the fire brigade, usually), to the primary alarming device and to the displays on the control panel will continue to work due to special measures built into the system.
In this state of fault the control panel may not be able to distinguish between alarms of fire detector zones, alarms of fault detector zones and technical alarms. Every alarm message is evaluated as fire alarm message.

Further information on faults of the fire detection control panel are found from page 58 in Chapter 5.5: "Fault-message condition".



Regular checks of the functions of the control panel and of the fire detection system by the person responsible for fire protection ensures proper functioning of the fire detection system. See from page 65 in Chapter 6.1: "Periodic function tests".

1.3 Standards, CE-labeling, approvals

The fire detection control panels Series BC216-1 correspond to the following international and national standards, national regulations and guidelines:

- ◆ EN54-1, "Fire detection and fire alarm systems - Introduction"
- ◆ EN54-2, "Fire detection and fire alarm systems - Control and indicating equipment"
- ◆ EN54-4, "Fire detection and fire alarm systems - Power supply equipment"
- ◆ OENORM F3000, "Brandmeldesysteme"
- ◆ OENORM F3001, "Brandfallsteuersysteme"
- ◆ TRVB S 123, "Brandmeldeanlagen"
- ◆ DIN VDE 0833-2, "Gefahrenmeldeanlagen für Brand, Einbruch und Überfall"
- ◆ VdS 2203, "Ergänzende Anforderungen an prozessorgesteuerte Gefahrenmeldeanlagen"
- ◆ VdS 2489, "Brandmeldesysteme, Anforderungen und Prüfmethoden"
- ◆ VdS 2540, "Brandmelderzentralen, Anforderungen und Prüfmethoden"
- ◆ VdS 2541, "Energieversorgungseinrichtungen, Anforderungen und Prüfmethoden"

The CE-labeling results from a guideline of the board of the European Community for the coordination of the laws of its member states, including the mutual approval of laws. With the CE-label the manufacturer of the control panel confirms the observance of all relevant EMC and security regulations.

The fire detection control panels BC216-1 and BCnet216 have been approved by the test authorities in the following states:

- ◆ Austria: Prüfstelle für Brandschutztechnik des österreichischen Berufsfeuerwehrverbandes
- ◆ Germany: VdS Schadensverhütung GmbH., Zertifizierungsstelle (BCnet216: pending)
- ◆ Hungary: EMILABS GMBH.

Further approvals are in preparation.

1.4 Warranty

Your fire detection control panel Series BC216 has been manufactured with greatest precision and care. Nevertheless, the possibility of malfunctions cannot be excluded entirely. Please contact the authorized installer of your fire detection system in case of a problem.

As long as the warranty is in effect all parts that fail to operate properly because of a demonstrable flaw in their manufacture or in material either will be replaced or repaired free of charge. In such cases neither the time of the original warranty is extended nor is a new warranty period set for the replaced or repaired parts. All further claims are excluded, especially those regarding secondary damages. Beyond these regulations, the current regulations of the "Allgemeinen Lieferbedingungen der Elektroindustrie" are in effect.

1.5 Special terms

Some of the special terms often used in this manual are defined in the following:

- ◆ **Actuation**
Actuations are used to automatically activate fire control systems (e.g., ventilation, fire doors, etc.) in case of an alarm.
- ◆ **Alarm**
Warning of an existing danger to persons and property.
- ◆ **Alarm delay procedure**
Appliance to delay the automatic transmission to the public fire report post (e.g., the fire brigade) for a set amount of time.
- ◆ **Alarm verification**
Automatic verification of an alarm by checking, if the signs of fire last longer than a set amount of time (e.g., 1 minute).
- ◆ **Alarming device**
Equipment which is connected to the control panel and whose duty it is to alarm the public (e.g., a siren). The alarming device for fire messages which can also be operated - additionally to the menu control - via the buttons in the field 'ALARM. DEVICE 1' of the key pad of the control panel is called primary alarming device.
- ◆ **AUTO-setup**
After confirming the appropriate menu point during putting the control panel into operation, the control panel automatically recognizes the built-in-components as well as the external devices (e.g., fire detectors) and sets the setup for these parts to standard setup. On the basis of the standard setup, the authorized installer sets the parameters of the control panel using the site-specific data.
- ◆ **BCnet sectional control panel**
Part of a fire detection control panel BCnet216 which is installed in the surveilled area of the fire detection system and to which fire detectors, among others, are connected. BCnet sectional control panels can either be equipped with an own display and operating unit and therefore be directly operable, or without own display and operating unit to be operated only from another - operable - BCnet sectional control panel, e.g. the main operating unit.
- ◆ **Competent installer**
The company which is acquainted with local installation regulations, has adequate experience in planning and building fire detection systems and whose technicians are periodically trained (at least once a year) by the manufacturer of the fire detection system and the fire detection control panel on the components of the fire detection system.
- ◆ **Deceptive alarm**
A fire alarm, activated by automatic fire detectors that react to signs that are similar to those of fire but are caused by other agents, such as welding, steam, heat, etc.

- ◆ **Delay time**
The delay time consists of reaction- and exploration time. During the reaction period the activation of the transmitting devices for fire alarm messages can be delayed during day-operation of the fire detection system. Exploration time allows the user to find the cause of the alarm and to decide if the fire brigade indeed should be notified.
- ◆ **Detection area**
A particular part of a surveilled area where the fire detectors installed there share a display on the fire detection control panel.
- ◆ **Detector line**
Branch cable wiring that connects fire detectors (usually conventional detectors) to the fire detection control panel.
- ◆ **Detector zone**
The fire detectors of a surveilled area that share a display on the fire detection control panel are summed up to detector zones. Detector zones can be set for fire alarm, fault alarm and technical messages on the fire detection control panel Series BC216.
- ◆ **Disablement**
Deliberately set condition of a fire detection system, where either the whole system or parts of it are put out of operation.
- ◆ **False alarm**
Alarm that is released because of a technical fault in the fire detection system.
- ◆ **Fault detector**
A fault detector transmits an appropriate signal to the control panel if a fault has occurred such as, e.g., a loss of weight of the extinguishing agent in an extinguishing system.
- ◆ **Fire brigade control unit**
This optional unit indicates the most important operational conditions in standardized form and thus enables the fire brigade to coordinate the necessary procedures efficiently.
- ◆ **Fire control system**
Fire protection systems or other equipment (e.g., ventilation, fire doors, automatic gas extinguishing systems, elevators) that will be activated automatically in case of fire.
- ◆ **Fire detector (automatic)**
Automatic fire detectors test continually or periodically the presence of one or more signs of fire. Automatic fire detectors differ by the kind of signs they are observing, such as smoke, heat, flame, etc.
- ◆ **Fire detector (non-automatic)**
Non-automatic fire detectors are designed to be activated manually. Usually, a simple mechanical safeguard (e.g., a pane of glass is used in the manual call point) has to be removed before the fire detector can be activated.
- ◆ **GSSnet member**
The Global Security System GSSnet consists of the single components of the system and the failure-safe redundant data line which combines the components to one unit. All system components such as BCnet sectional control panels, remote display and operating units, gateways, etc. connected to this data line are named GSSnet members. Each GSSnet member is assigned a GSSnet member number during putting the system into operation.
- ◆ **Interdependence of two detectors**
Measure to verify an alarm. The state of alarm is only attained after two fire detectors of the same detector zone have detected signs of fire. Is the second detector not activated within a short time (e.g., 2 minutes) after the activation of the first detector, the first detector is reset automatically by the control panel. The activation of the first detector is shown on the LC-display as "pre-alarm". Using the fire detection control panel BC216-1 or when using the fire detection control panel BCnet216 in each of BCnet sectional control panels, also more than two detectors can be combined to a "multiple detector" - dependency, still called "interdependence of two detectors" for simplicity.

- ◆ **Loop**

Ring-shaped wiring with bi-directional data-bus to connect intelligent fire detectors (e.g., sensors, detectors) and actuation devices to the fire detection control panel. A wire breakage in the loop leads to a fault display on the control panel but does not affect the functions of the connected devices. Isolation elements limit the effect of a short-circuit in the wiring, so that a short-circuit will either have no effect at all or impair only one or a few devices.
- ◆ **Main operating unit**

The operable BCnet sectional control panel of a fire detection control panel BCnet216 which, besides supervising the fire detectors, etc., also realizes network administration of a GSSnet. All events of the fire detection control panel BCnet216 are basically displayed on the main operating unit and all BCnet sectional control panels can be operated via the main operating unit.
- ◆ **Maintainer**

The company (or its representative) who carries out maintenance, reconditioning and repairs. Similar requirements apply to the maintainer and to the competent installer but the maintainer additionally has to be trained periodically (at least once a year) by the manufacturer of the fire detection system and the fire detection control panel in maintenance and reconditioning.
- ◆ **Maintenance**

The totality of preventive measures to maintain the functions of a fire detection system.
- ◆ **Network control panel**

The control panel consists of single BCnet sectional control panels which are arranged locally spread in the surveillance area of the fire alarm system and connected via a redundant network. These BCnet sectional control panels together form a virtual overall control panel. At least one of these BCnet sectional control panels is defined as main operating unit via which the network administration is executed. The main operating unit is equipped with a display and operating unit; all further BCnet sectional control panels may also be equipped with a display and operating unit but also can work without display and operating unit.
- ◆ **Organization in case of an alarm**

The total of all planned measures that are in place to warn, rescue, prevent the fire from spreading, fight the fire and for orientation.
- ◆ **Pre-alarm**

The information that the first detector in an interdependence of two detectors has detected signs of fire. The pre-alarm is shown on the LC-display, but usually no other signalling is taking place. The pre-alarm is either terminated automatically after a short while or turns into a fire alarm when a second detector of the interdependence of two detectors is activated.
- ◆ **Primary alarming device**

See "Alarming device"
- ◆ **Primary transmitting device**

See "Transmitting device for fire alarm messages"
- ◆ **Reset**

An activated device (e.g. an alarming device) is returned to inactive condition by a reset; this device will not be disabled permanently. A reset device can be renewedly activated automatically by a new event (e.g. a new alarm).
- ◆ **Setting of the parameters**

Setting of the site-specific parameters on the fire detection control panel by the authorized installer when the system is put into operation or modified. The user can not modify the parameters.
- ◆ **Signs of fire**

Changes in measurable conditions in the vicinity of an initial fire, e.g., temperature.
- ◆ **Transmitting device for fire alarm messages**

Equipment for transmitting a fire alarm to a public fire report post (e.g., fire brigade). The fire alarm, evaluated by the control panel, is transmitted to the transmitting device, which is usually mounted close to the control panel. The transmitting device alarms the public fire report post by us-

ing proper equipment for transmission (e.g., continually monitored telephone cables). The transmitting device for fire alarm messages which can also be operated - additionally to the menu control - via the buttons in the field 'TRANSM. DEVICE 1' of the key pad of the control panel is called primary transmitting device. The possibility of alarm delay (also see the terms "Alarm delay procedure", "Delay time") is exclusively existing for the primary transmitting device.

◆ **Two-zone dependency**

Measure to guard against deceptive activation of actuators (e.g., of an extinguishing system). The activation of the corresponding parts of the system takes place only after at least one fire detector in each of the two linked detector zones have detected signs of fire. Using the fire detection control panel BC216-1 or when using the fire detection control panel BCnet216, in every BCnet sectional control panel, also more than two detector zones can be combined to a "multiple detector zone" - dependency, still called "two-zone dependency" for simplicity.

◆ **User**

Person(s) who are responsible for the operation and the use of the fire detection system.

2 Fire detection control panel Series BC216

The construction of a typical fire detection system, the most important features of the fire detection control panels Series BC216 and the connection of the peripheral components of a fire detection system to the fire detection control panel are described in this chapter.

2.1 Typical construction of a fire detection system with control panel BC216-1

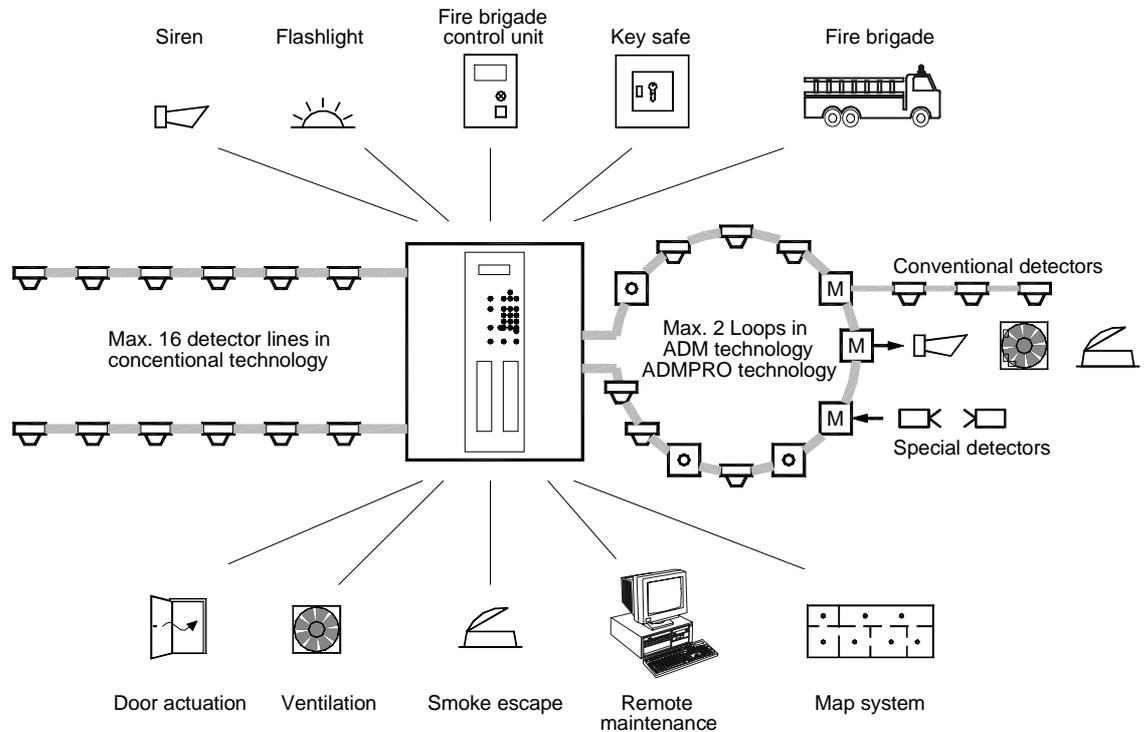


Figure 2: View of a typical fire detection system constructed with the fire detection control panel BC216-1
The system consists of

- the fire detection control panel BC216-1 including the power supply,
- the automatic and non-automatic fire detectors that are combined into detector zones,
- the acoustic and/or optic alarming devices,
- the transmitting device linked to a designated alarm respondent,
- fire control systems, information devices and information systems.

The fire detection control panel is the compact processing unit of a fire detection system - all information from the system is received here. Automatic fire detectors that react to signs of fire such as smoke, radiation, heat, etc., as well as manual call points are combined in detector zones and are wired to the control panel. The data transmitted by the fire detectors are analyzed and rated in the fire detection control panel. The fire detection control panel decides if the situation is to be rated as a fire alarm. Does the control panel decide for "fire alarm", the alarming devices and the fire control systems are automatically activated by the fire detection control panel, and the alarm is transmitted to the public fire report post.

Controls that are activated by the fire detection control panel can comprise single functions (e.g., switching off the ventilation) as well as elements combined to zones (e.g., several door closers in a fire area).

2.2 Typical construction of a fire detection system with network control panel BCnet216

Basically the network fire detection control panel BCnet216 does not work differently than described from page 15 in Chapter 2.1: "Typical construction of a fire detection system with control panel BC216-1". The most essential difference to a single control panel is that the network fire detection control panel does not form a physical unit but consists of single sectional control panels which are arranged throughout the surveilled area of the fire detection system and which are combined to a virtual control panel by a network cable interconnected in a circular pattern. A maximum of failure proofness and cost-efficiency is achieved with this technique of optimizing the cabling system.

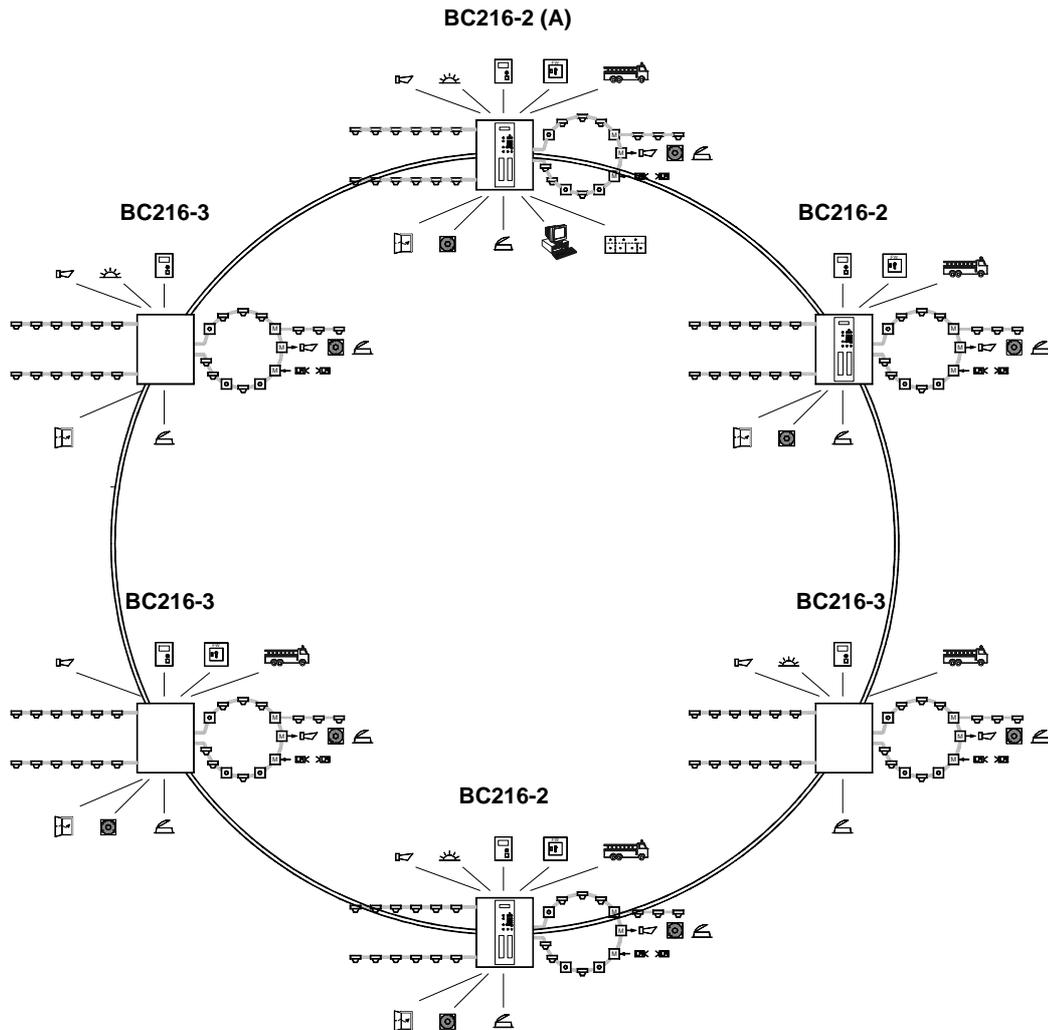


Figure 3: View of a typical fire detection system constructed with the fire detection control panel BCnet216
The system consists of

- one BCnet sectional control panel parameterized as main operating unit (A),
- further BCnet sectional control panels BC216-2 (with display and operating unit),
- further BCnet sectional control panels BC216-3 (without own display and operating unit),
- the automatic and non-automatic fire detectors that are combined into detector zones,
- the acoustic and/or optic alarming devices,
- the transmitting device linked to a designated alarm respondent,
- fire control systems, information devices and information systems which are connected either directly to one or more of the applied BCnet sectional control panels or via gateways to the network. The stated devices can basically be connected to every BCnet sectional control panel. The operation of these devices is independent from which BCnet sectional control panel it is connected to and is made via one or more therefore parameterized operable BCnet sectional control panels BC216-2.

Basically all fire detectors and other devices that may be connected to a stand-alone control panel of type BC216-1 may also be connected to every single of these BCnet sectional control panels (see from page 15 in Chapter 2.1: "Typical construction of a fire detection system with control panel BC216-1"). The operation of the network control panels by the user is made as usual like with a "one case" - fire detection control panel. Either the whole control panel can be operated via one or more display and operating units of BCnet sectional control panels or via remote display and operating units or only parts of the whole system can be operated by the display and operating units, depending on the requirements. In none of the different possibilities the user will recognize that in reality the control panel consists of several components spread over a wide range of space.

Further devices (e.g. remote display and operating units, gateways for the connection to foreign networks, etc.) can be embedded in the network of a network fire detection control panel as GSSnet member in addition to BCnet sectional control panels.

2.3 Features of the fire detection control panel Series BC216

2.3.1 Fire detection control panel BC216-1 (stand-alone)

The fire detection control panel BC216-1 is designed as compact stand-alone control panel to be used in a modern fire detection system of small and medium size as a receiving and controlling unit. Due to its modular construction and its flexibility in the setting of parameters, it can be very easily adapted to different demands and thus generally can be used in a large variety of circumstances. The fire detection control panel BC216-1 sets new standards for user comfort, variety of functions and security in the fire alarm technology, which benefit the user as well as the installer of the fire detection system. An overview of the most important features of the control panel is provided in the following list.

Depending on the built-in technology, the detectors of the fire detection system are connected to the control panel either by **one or two loops** in intelligent ADMPRO- or ADM-technology with up to 128 detector zones in each loop, or by **8 or 16 detector zones** in addressable conventional technology, or by a combination of the two technologies. The decision, which technology should be used, therefore can be made without compromises, considering only fire protection criteria.

The parameters of the detector zones can be set for detector zones for **fire**, detector zones for **fault** or for detector zones for **technical messages**.

A supervised **siren output, dry relay contacts** for fire alarm and fault alarm, and 16 **open-collector outputs** with open parameters for general activation purposes are supplied to show conditions of operation and to activate fire protection systems.

The Info display with its **4-line illuminated LC-display** provides text to keep you informed of all current events. Text consisting of 20 characters each line can be used not only for detectors and detector zones, but also for activation outputs, transmitting devices, etc. This information makes it possible to locate the occurrence of the event exactly and to act fast in case of an emergency.

For separate displaying of events of detector zones, actuations, transmitting devices, etc., and thus to provide higher transparency, the optional 48 **double LED-display** with open parameters can be used. For lettering the display insert and letter the supplied insertable labels individually.

Four **levels of authorization** guarantee high safety against unauthorized access. Two of these authorization levels are secured by the use of freely settable codes.

The simple **operating structure** enables the user to operate the control panel without stress. Using easy understandable menus, logically connected sequences are combined into simple operations. The experienced user can execute the most important operations very fast without having to scroll through every single menu point, by using the **menu-quick-operation**.

The supervised connection of two independent **transmitting devices** for connecting the fire detection system to a designated alarm respondent (e.g., the fire brigade) and to a country-specific **fire brigade control unit**, the optional Fire Brigade Interface is to be used.

In case of an alarm, the user can explore the possible danger prior to the transmission of the fire alarm to the fire brigade by using the **alarm delay procedure** with deadman's handle.

The standard built-in **INFO-bus** makes the connection of a fire brigade control unit and of display devices, transmission devices for remote indication units and of other information devices using wire-saving technology possible.

A **32-bit high performance microprocessor** system together with additional extra auxiliary microprocessors on the componentries is operated by a special real time multi tasking operating system and, together with redundant logic for processing, provides clarity and security.

Open parameters of the control panel, parameters of detectors and modules, as well as display texts, outputs and interfaces to peripheral devices emphasize the **universal flexibility** of the control panel.

The **parameters** of the control panel are set by the authorized installer either by using the keypad of the control panel, by using a standard PC keyboard, or by using a PC (Notebook) and the comfortable parameter setup software. Text, for example, can be entered or changed easily by using a PC keyboard.

The **power supply** from the mains power is ensured by a switched power unit with **50W rated power**, that also supplies enough energy for the connected peripheral devices. Low current consumption, low heat emission and by that, high reliability is guaranteed by the high efficiency of the switched power unit.

A sufficiently dimensioned optional **stand-by battery** ensures that the fire detection system will continue to work unaffectedly for a long time in case of mains power shut down. The stand-by battery is charged temperature-controlled by the power unit, and is secured against total discharge in case of mains power shut down. The case of the fire detection control panel is built for accommodating the stand-by battery.

An **optional case** with the same dimensions as the standard case is available to house a second set of batteries (in case of increased power consumption), as well as for housing additional componentries for expansion.

The **event memory** saves the last 500 events that have been registered by the control panel. You can display the contents of the memory at any time on the LC-display. A filter enables you to limit displays of the saved events by selecting events according to criteria that are needed frequently. The contents of the memory are, like all other parameters of the control panel, preserved indefinitely in case of a total power failure for unlimited time.

The built-in **clock** supplies the time-information for the display of events as well as for the events saved in the memory. The switch between **summer- and wintertime** is automatic. The user can define the date for the next two time switches in advance.

The **timer with weekly program** enables the timed switching of day operation of the control panel for alarm delay operation of the transmitting device for fire alarm messages.

The connections for a tool for setting parameters or for an **external serial printer** are provided by **two serial interfaces**. Since the interface for the printer has open parameters, the printer may be used as a protocol printer, maintenance printer, to print measured values of detectors, or as a setup printer.

With the **AUTO-setup** feature the fire detection control panel recognizes all connected components of the system and sets their setup to standard setup when it is put into operation.

Under normal circumstances, elaborate measures for compensating power spikes and high frequency fields enable the control panel to operate in an **unshielded network**.

Remote maintenance is possible with an optional interface converter that connects the fire detection system to the Security System Manager (SAM) of LST.

Automatic fire detectors are in steady contact with the air of the surveilled area. Due to the dirt in the air (e.g., dust), every detector will get dirty as time passes. Dirty detectors are one of the main reasons

for false fire alarms. The fire detection control panel BC216-1, besides automatic adjusting of the sensitivity of the detectors, is capable of displaying a **dirt message** on the control panel before the detectors activate false alarms due to dirt, by using ADM-, ADMPRO- as well as addressable conventional technology.

The control panel is capable of making a **forecast** for each detector about the time of the next cleaning by analyzing the measured values provided by the automatic detectors of ADMPRO- and ADM-technology.

2.3.2 Fire detection control panel BCnet216 (network control panel)

The network fire detection control panel BCnet216 (consisting of BCnet sectional control panels BC216-2 and BC216-3) is designed to be used in a modern fire detection system of medium to very large size as a receiving and controlling unit. Due to its compact modular construction of the single BCnet sectional control panels and its flexibility in the setting of parameters, it can be very easily adapted to different demands and thus generally can be used in a large variety of circumstances. The control panel sets new standards for the security in the fire alarm technology while reducing the costs due to the simplicity of cabling.

The listed features from page 17 in Chapter 2.3.1: "Fire detection control panel BC216-1 (stand-alone)" of the stand-alone control panel are valid also for **every BCnet sectional control panel** of the network control panel BCnet216.

The **operation** of the whole network control panel BCnet216 is made via the display and operating units of one or more BCnet sectional control panels or via remote display and operating units in the same way as the operation of a compact control panel. The user will not recognize that in reality the control panel consists of several components which are spread over a wide range of space.

Display and operating units of BCnet sectional control panels or remote display and operating units can also be configured as **sectional display and operating units** for displaying and operating area parts of the whole system, depending on the requirements.

The network is constructed **circularly and redundant**. In case of a line fault of the network through wire breakage or short circuit all BCnet sectional control panels and other GSSnet members keep working uneffectedly. Even in case of multiple faults of the network cabling all GSSnet members keep working, but in this case displaying and operating is probably only possible directly on the BCnet sectional control panels and limited to the corresponding surveillance area. Optionally the activation of a transmitting device can be constructed so that even with a double fault in the network cabling no impairing of the function occurs. Connection of the BCnet sectional control panels to the network is made by one of the serial interfaces built into the sectional control panels.

Up to **127 GSSnet members** (i.e. BCnet partial control panels, remote display and operating units, gateways, etc.) can be connected to the network. The line length between two neighbouring GSSnet members may be up to 1200m, for larger distances **repeaters** can be interposed.

Up to 9699 detector zones, 9699 actuations, 99 transmitting devices and 99 alarming devices can be managed in a network fire detection control panel BCnet216.

2.4 Peripheral devices for the fire detection control panel Series BC216

In a fire detection system a series of peripheral devices such as fire detectors, sirens, transmitting devices, displaying devices, etc. are used which are activated and/or monitored by the fire detection control panel.

2.4.1 Detectors

Fire detectors of a fire detection system are combined locally to fire protective efficient detector zones and connected to the fire detection control panel BC216-1 or to the BCnet sectional control panels of a fire detection control panel BCnet216. The location of fire is identified by the zone number(s) dis-

played on the control panel. In addition to the zone number, the fire detection control panels Series BC216 are capable of displaying a zone-specific text for every detector zone and a detector-specific text for every single fire detector. Thereby relevant information is provided for the safety personnel fast and without delay.

Besides with automatic and non-automatic fire detectors, the fire detection control panels Series BC216 are also equipped for the connection of fault detectors and the processing of their information (e.g., surveillance of weight of the extinguishing agent in an extinguishing system) and of technical detectors (e.g., the indication of the position of fire dampers). These detectors too are combined to fault-detector zones and to detector zones for technical messages. The processing of the information of these detector zones is similar to the processing of fire alarm information. The only difference is the kind of alarm activated in case of an event.

The fire, fault and technical detectors connected to the fire detection control panel BC216-1 or to every BCnet sectional control panel of a control panel BCnet216 can be combined into up to 144 detector zones. Each detector zone can be disabled and enabled independently and is displayed on the LC-display of the control panel with its zone number and information text. On the control panel, individual detectors can be enabled and disabled also, depending on the built-in function modules.

The operating and displaying of detector zones are described starting page 39 in Chapter 4.7.7: "Displaying and operating detector zones - menu point [Zone:]".

2.4.2 Acoustic and optic alarming devices

Persons who are in danger can be warned by the fire detection control panel BC216-1 or by every BCnet sectional control panel of a fire detection control panel BCnet216 by acoustic alarming devices (e.g., sirens) or optical ones (e.g., flashlights) that are combined into up to ten independent zones. The activation of the alarming devices is dependent on logic combinations of the alarm activation of detector zones or of single detectors. Thereby, evacuation alarms, for example, can be adapted to the level of danger present in the local situation.

Each alarming zone can be enabled, disabled and silenced individually in case of an alarm. The displaying and operating of alarming devices are described starting page 43 in Chapter 4.7.10: "Displaying and operating alarming devices - menu point [Alarming device:]".

The overall number of all zones of alarming devices is limited to 99 in a fire detection control panel BCnet216.

2.4.3 Transmitting devices

Up to ten independently operating transmitting devices can be activated by the fire detection control panel BC216-1 or by every BCnet sectional control panel of a fire detection control panel BCnet216 to alarm the designated alarm respondent (e.g., the fire brigade). The activation of each transmitting device is dependent on logical combinations of the alarm activation of detector zones or of individual detectors. Thereby an alarm activated by a manual call point can be distinguished from one activated by an automatic fire detector, for example, at the transmission of the alarm information to the fire brigade. Transmitting devices can also be set for the transmission of fault messages (e.g., to a central fault report post) or for the transmission of technical messages.

Each transmitting device can be enabled and disabled individually. The displaying and operating are described starting page 42 in Chapter 4.7.9: "Displaying and operating transmitting devices - menu point [Transmit. device:]".

The overall number of all transmitting devices is limited to 99 in a fire detection control panel BCnet216.

2.4.4 Actuations

Practically any number of actuations can be activated by the fire detection control panels Series BC216. The activation of each actuation is dependent on logic combinations of the alarm activation of detector zones and of single detectors. Actuations can be set for the case of fire ("fire control system"), as well as for faults and technical messages.

Each actuation can be enabled and disabled individually. The displaying and operating of the actuations are described starting page 41 in Chapter 4.7.8: "Displaying and operating actuations - menu point [Actuations:]".

2.4.5 Information devices for the fire brigade

The fire detection control panels Series BC216 support the functions of various devices used in a fire detection system for the information of and use by the fire brigade. These are, for example, fire brigade control units, key safes and key depots, fire brigade map systems, etc. The modular construction of the fire detection control panels Series BC216 facilitates the simple adaptation to country-specific designs of these devices.

2.4.6 Information systems

Besides the standard devices mentioned above, printers, additional computer aided information systems and superior managing devices and main control panels are often used in a fire detection system. Such devices are connected to and managed by the control panel via the serial interfaces contained in the fire detection control panel Series BC216, or with fire detection control panels BCnet216, also via gateways which are connected to the network.

3 Displaying and operating elements

The functions and effects of the displaying and operating elements of the fire detection control panel Series BC216 and the optional protocol printer are described in this chapter. The operation of the control panel itself is described starting page 29 in Chapter 4: "Basic operation of the fire detection control panels Series BC216" and starting page 49 in Chapter 5: "Operating conditions of fire detection control panels Series BC216".



For reasons of simplicity the BCnet sectional control panels of the fire detection control panel BCnet216 equipped with an display and operating unit are named "operable BCnet sectional control panels" in the following paragraphs of this chapter.

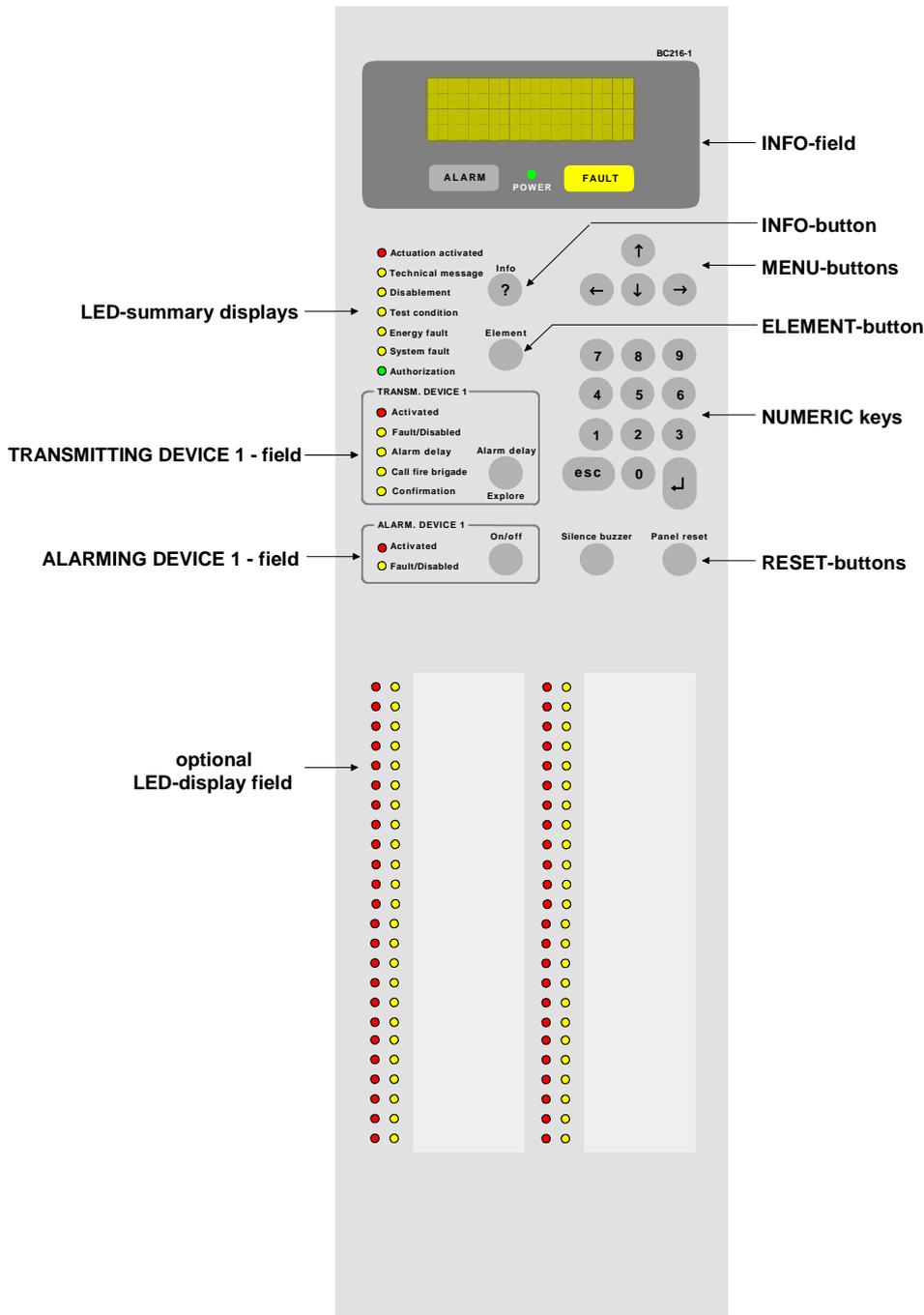


Figure 4: Displaying and operating elements of the fire detection control panel Series BC216

You operate the fire detection control panel Series BC216 with the clear and sturdy keypad on the front of the case. An illuminated LC-display and light-emitting diodes (LED) are integrated in the keypad as optical display elements. For acoustic alarming, a loud buzzer is fitted in the case of the control panel.



Event messages of the whole control panel are standardizedly displayed on the displaying elements of all operable BCnet sectional control panels with the network fire detection control panel BCnet216. The operating menus are exclusively displayed on the BCnet sectional control panel where the operation is made.

3.1 Info field

The Info field of the fire detection control panel BC216-1 and every operable BCnet sectional control panel of the fire detection control panel BCnet216 contains 4 display elements:

- ◆ Exact information is provided by the LC-display measuring four lines by 20 characters. All messages about events and menu points for operation and setting of parameters are displayed here by using text. The messages that are displayed separately on the control panel by using light-emitting diodes are shown in detail on the LC-display as well.

The display lights up if an event has occurred. In the normal condition (that means, there is no event and no operating action at the control panel), the illumination is turned off 30 seconds after a button was pressed last.

30 seconds after the last operating action the display returns to showing the earliest event with the highest level of priority, no matter what event was displayed last.

- ◆ The red illuminated display 'ALARM' indicates the condition of a fire alarm. Every message from a fire detector that is evaluated by the fire detection control panel BC216-1 or BCnet216 as fire alarm, activates this display and keeps it illuminated until all alarms have been reset.
- ◆ The yellow illuminated display 'FAULT' indicates the condition of a fault. Every message from a fault detector or fault, evaluated by the fire detection control panel BC216-1 or BCnet216 as a fault, activates this display and keeps it flashing until no fault is left.
- ◆ The green light-emitting diode 'POWER' indicates the sufficient supply of energy to the fire detection control panel BC216-1 or the corresponding BCnet sectional control panel of the BCnet216.



With the fire detection control panel BCnet216 area filters can be set by the installer for every BCnet sectional control panel through which only certain messages are processed and displayed on the BCnet sectional control panel. Basically, all messages are processed and displayed on the BCnet sectional control panel, defined as main operating unit.



If the light-emitting diode 'POWER' is not illuminated you have to assume that the control panel or the BCnet sectional control panel is not able to receive, evaluate and transmit messages of detectors due to a total loss of power, i.e., the mains power as well as the emergency power supply are shut down!

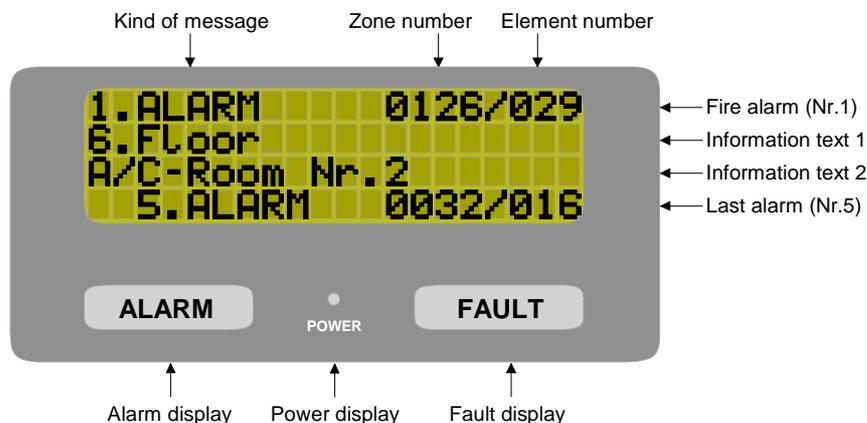


Figure 5: Info-field - exemplary fire alarm with 5 current fire messages
 The first line displays the current alarm with the zone and element number.
 The second line displays the first text information for the zone of the current alarm.

The third line displays the text information for the element of the current alarm. Is no element text programmed, the second text information for the zone is displayed instead. At installations without elements, the element display is inapplicable.

The fourth line displays the last registered alarm (here: the 5th alarm) with zone and element number.



The fourth line of the LC-display is reserved for the displaying of the last registered fire alarm. In the absence of a fire alarm, the fourth line of the display stays blank at all times. The fourth line of the display is only inscribed for a short time during the testing of the display.

3.2 'Info'-button

The 'Info'-button basically has two functions:

- ◆ By pressing the 'Info'-button, additional information to the current information is displayed in the second and third line of the LC-display in a 3-second cycle. For example, in a case of a fault in a detector zone, the kind of fault (e.g., a dirty detector), the date and time of the occurrence, and the number of current faults are displayed successively after pressing the 'Info'-button. With the fire detection control panel BCnet216 it is also displayed which BCnet sectional control panel the detector zone or the detector is connected to.
- ◆ This information is followed by the display of relevant help-hints. Basically, the input possibilities that are admissible in the current situation are displayed successively.



If you are pressing a button during the displaying of the additional information or the help-text, the displaying will be stopped and your input will be evaluated. Therefore you do not need to wait for the end of the help-text before you can start a new input.

3.3 Menu buttons

By using the '← →'-buttons you are scrolling the main menu points ring-shaped; by using the '↑↓'-buttons you are scrolling the submenu points of the priorly shown main menu ring-shaped. The submenu point that you confirm by using the '↵'-button will be executed.

You return to the next higher menu level by the use of the 'esc'-button.



For faster operation of the control panel the most frequently used operations can be executed without having to use the structure of the menu. For further information see from page 33 in Chapter 4.3.1: "Menu-quick-operation".

3.4 Numeric keys

Numeric inputs are performed by using the numeric buttons of the keypad. Examples are: the input of an authorization code, selection of a detector zone or of an element of a detector zone, etc. In addition, and depending on the relevant menu point, direct operating functions are made possible by using the numeric buttons.

By using the '↵'-button you confirm an input or are moving to the submenu shown. By using the 'esc'-button you undo an input or else you return to the preceding menu point.

3.5 'Element'-button

Many processes of operating, displaying or setting of parameters of the fire detection control panel Series BC216 also can have an effect on just a single element of a detector zone (e.g., on a single fire detector of a detector zone). The selection of an element is made by entering the detector zone number, pressing of the 'Element'-button (the display shows "/>) and entering the number of the element.



For the installer: On the PC-keyboard, the 'Element'-button is represented by the dividing button of the numeric keypad ('÷').

3.6 Reset-buttons

- ◆ 'Panel reset'-button: All actual fire alarms, technical messages, fault alarms, faults and actuations are reset in one action on the control panel by pressing this button. With a fire detection control panel BCnet216 this function effects the entire control panel, irrespective of the BCnet sectional control panel on which the button was pressed. For further information see from page 31 in Chapter 4.2.1: "Resetting the fire detection control panel".
- ◆ 'Silence buzzer'-button: The internal buzzer is silenced by pressing this button. With a fire detection control panel BCnet216 the internal buzzers of all BCnet sectional control panels are silenced, irrespective of the BCnet sectional control panel on which the operation was made. This button has the additional function of activating the display test. (See page 44 in Chapter 4.7.12.2: "Testing the optic and acoustic displays and the buzzer - submenu point [Display test]").

3.7 Light-emitting diodes displays

The illumination of one of the light-emitting diodes indicates a current event. Detailed information is shown on the LC-display, or - if several events occurred simultaneously - can be displayed separately.



Notice that area filters may be parameterized for BCnet sectional control panels of a fire detection control panel BCnet216 which suppress the output of various information on the corresponding BCnet sectional control panel.

- ◆ 'Actuation activated' (red): Is illuminated if one or more actuations, transmitting devices or alarming devices are activated. See page 55 in Chapter 5.3: "Activation condition of actuations".
- ◆ 'Technical message' (yellow): Is illuminated if one or more technical messages of corresponding detectors have arrived. See page 56 in Chapter 5.4: "Message condition for technical messages".
- ◆ 'Disablement' (yellow): Is illuminated if one or more parts of the system or functions are disabled. See page 61 in Chapter 5.6: "Disablement condition".
- ◆ 'Test condition' (yellow): Is illuminated if one or more detector zones or elements are in test condition. See page 63 in Chapter 5.7: "Test condition".
- ◆ 'Energy fault' (yellow): Is flashing in case of a fault in the power supply (power unit, stand-by battery, etc.). See page 58 in Chapter 5.5: "Fault-message condition".
- ◆ 'System fault' (yellow): Is flashing in case of a fault in the central computer; it is illuminated in case of a fault of the display and control panel computer.



In order to maintain the most important functions of the control panel or the BCnet sectional control panels in case of malfunctions of single parts of the control panel, the manufacturer has included elaborate security-measures that were developed during many years of experience with fire alarm technology. Nevertheless, a total guarantee for the proper workings of the control panel cannot be given, especially if two or more faults occur simultaneously!

Observe the Hints given from page 9 in Chapter 1.2.2: "What to do in case of a fault", from page 58 in Chapter 5.5: "Fault-message condition" and from page 67 in Chapter 6.3: "Reconditioning and maintenance"!

- ◆ 'Authorization' (green): Is illuminated after entering the code for authorization level 2 (operating the control panel is possible now) or is flashing after entering the code for authorization level 3 (setting of parameters is possible now). See page 29 in Chapter 4.1: "Operating authorization".

3.8 TRANSM. DEVICE 1 - field

Up to ten independent transmitting devices can be managed by the fire detection control panel BC216-1 and by every BCnet sectional control panel of the fire detection control panel BCnet216. They can be parameterized either as primary transmitting device or as transmitting device for fire messages or as transmitting device for faults.



The function domain "notification of the fire brigade in case of fire" regionally is regulated differently. Therefore, the following list only presents the most important possibilities of this function domain of the fire detection control panel Series BC216.

The displaying and operating elements of the field TRANSM. DEVICE 1 are reserved for the primary transmitting device, which is exclusively designed for the transmission of fire alarm messages. All further transmitting devices are operated exclusively by the use of the menu and displayed on the LC-display.

- ◆ 'Activated' (red): Is illuminated if the fire alarm has been transmitted to the primary transmitting device (i.e., the notification of the fire brigade has started). The actual transmission to the fire brigade requires the connection of the control panel to the regional transmission system of the fire brigade!
- ◆ 'Fault/Disabled' (yellow): Is flashing in case of a fault in the primary transmitting device or in its transmittal and is illuminated in case of the disablement of the transmitting device Nr. 1.
- ◆ 'Alarm delay' (yellow): Is illuminated in alarm delay operation (day-operation), and is flashing during exploration time after the activation of the alarm delay. See page 32 in Chapter 4.2.4: "Alarm delay procedure of the primary transmitting device".
- ◆ 'Call fire brigade' (yellow): Is illuminated in case of a fire alarm, if the alarm has been transmitted to the primary transmitting device but the transmittal to the fire brigade did not take place. This display depends on the regional transmitting device system. Ask the authorized installer of your fire detection system for information.
- ◆ 'Confirmation' (yellow): Is illuminated to confirm the successful activation of the transmitting device (to the fire brigade, e.g.). This display depends on the regional transmitting device system. Ask the authorized installer of your fire detection system for information.
- ◆ 'Alarm delay/Explore'-button: This button has several functions, depending on the operating condition of the fire detection control panel:
 - If there is no current fire alarm you can alternate between operation with alarm delay (day-operation) and operation without alarm delay (night-operation) by pressing this button.
 - If this button is pressed during activated alarm delay operation in case of fire, the transmitting of the alarm to the fire brigade is delayed for the span of the programmed exploration time. See page 32 in Chapter 4.2.4: "Alarm delay procedure of the primary transmitting device".
 - During running exploration time pressing of the button leads to displaying the time remaining till the activation of the transmitting device.



By using the built-in timer, the switch to day-operation can be limited to a defined time window. At all other times the button 'Alarm delay/Explore' is ineffective. See from page 32 in Chapter 4.2.4: "Alarm delay procedure of the primary transmitting device". The alarm delay procedure may be suppressed totally, depending on local restrictions.

3.9 ALARM. DEVICE 1 - field

The fire detection control panel BC216-1 or every BCnet sectional control panel of a fire detection control panel BCnet216 can manage up to ten different alarming devices. The device connected to the supervised siren output of the control panel or the BCnet sectional control panel is - presumed that the output was parameterized as alarming device - named primary alarming device. This primary alarming device is operated by the displaying and operating elements located in the field ALARM. DEVICE 1. All further possible alarming devices are operated exclusively by the use of the menu and displayed on the LC-display.

The displaying and operating elements have following functions:

- ◆ 'Activated' (red): Is illuminated if the primary alarming device is activated.
- ◆ 'Fault/Disabled' (yellow): Is flashing in case of a fault of the primary alarming device or its wiring; it is illuminated in case of its disablement.
- ◆ 'On/off'-button: The primary alarming device (e.g., siren) is silenced by pressing this button. In case of a new alarm or by pressing the button again - if the alarm is still current - the alarming device can be reactivated and can be silenced in the same way (this repeating function is dependent on local requirements). The button 'On/off' is not assigned for general disablement of the alarming devices;

this is only possible by the use of the menu (see from page 43 in Chapter 4.7.10: "Displaying and operating alarming devices - menu point [Alarming device:]").

The displaying and operating elements of the field ALARM. DEVICE 1 are out of function if the supervised siren output of the fire detection control panel has not been parameterized as alarming device.

3.10 Optional LED-display field

The optional LED-display field (LED-display field LAB48-1) consists of 48 red and 48 yellow light-emitting diodes working in pairs. Their parameters can be set for displaying conditions of single detector zones, actuations, transmitting devices and alarming devices. The individual lettering of this display is done with insertable labels.

3.11 Acoustic signal

A buzzer is built into the fire detection control panel BC216-1 or in every operable BCnet sectional control panel of a fire detection control panel BCnet216 for acoustic signalling of fire alarms, fault alarms, faults and other exceptional conditions. Inadmissible inputs with the keypad are indicated by a short beep as well.

The buzzer also is used as a reminder: If there is a current fire alarm, a fault alarm, a fault or a technical message, the silenced buzzer is activated briefly every 15 minutes.

The buzzer is silenced by using the button 'Silence buzzer'; with the fire detection control panel BCnet216 the buzzers of all other BCnet sectional control panels are silenced as well.

3.12 Protocol printer

For printing a protocol of all incoming events or of all operation proceedings, a commercial printer with serial interface can be connected to the fire detection control panel BC216-1 or to every BCnet sectional control panel of a fire detection control panel BCnet216. Following printers are currently supported by the control panel:

- ♦ Seiko DPU-414, Art. Nr. 0227003
- ♦ Epson LX-300, Art. Nr. 0227008.

You can read further information on the printers in Part B of the User Manual.

Either all events, just the events of the basic control panel or just the events of the detector zones are printed, depending on the setting of the parameters of the corresponding printer interface by the authorized installer. After every 50 printed lines a hint is printed, showing the actual filter.



The parameterized area filter of the BCnet sectional control panel is effective also besides the actual printer filter with BCnet sectional control panels of a fire detection control panel BCnet216.

The print-out lines are numbered continuously; each event is printed with date and time of occurrence, respectively of termination as well as with the texts that are used for displaying in the LC-display. An event can activate a series of secondary events that are printed on the printer as well. For example, in case of an alarm from a detector zone transmitting devices, actuations and alarming devices are activated successively as well.



At the termination of an event, the text of the event is printed with an appended ".T" as an indication for termination.

321	21.12.2002 08:32	ALARM	0002/014	1.Floor	Store room 3
322	21.12.2002 08:32	ACTU.ACT	0012	Loft	Fire dampers
323	21.12.2002 08:32	AL-DEV.ACT	01	Sirens	Main building
324	21.12.2002 08:33	DELAY.ACT	01	Trans.dev.fire	Fire brigade
325	21.12.2002 08:36	AUTHORIZATION ON		User level	
326	21.12.2002 08:36	DISABLEM.	0002	1.Floor	Storage area
327	21.12.2002 08:36	ALARM.T	0002	1.Floor	Storage area
328	21.12.2002 08:36	AL-DEV.ACT.T	01	Sirens	Main building
329	21.12.2002 08:36	ACTU.ACT.T	0012	Loft	Fire dampers

```

330 21.12.2002 08:45 ENABLEMENT 0002 1.Floor Storage area
331 21.12.2002 08:47 AUTHORIZATION EXIT User level

```

Figure 6: Example of a protocol print-out

The continuous line number, date, time, event (with zone and element number, if available), event text 1, event text 2 are printed (from left to right).

08:32: The detector 2/14 activated an alarm; due to this the actuation 12 and the alarming device Nr. 1 were automatically activated.

08:33: The alarm delay was activated by the user.

08:36: The authorization code was entered and the detector zone 2 was disabled. Due to this, the alarm was terminated, followed by the automatic silencing of the alarming device and of the actuation.

08:45: The detector zone 2 was enabled.

08:47: The authorization was exited.

At events which also supply a complementary text (e.g. at a fault of a detector zone: the information whether wire breakage or short circuit occurred) this text is printed in a second line after the event line.

The event print-out of a network fire detection control panel BCnet216 is always printed in two lines, the number of the GSSnet member is also printed besides a possible complementary text (see above paragraph).

The events are printed in their temporal order as they were received by the fire detection control panel.



The print-out can be repeated anytime. The repetition of the print-out is started in the menu point [System] - [Repeat print-out], as described starting page 47 in Chapter 4.7.12.11: "Repeating a print-out - submenu point [Repeat print-out]".

If the printer detects "out of paper", the print-out is interrupted. The messages received in the meantime are saved partly in the printer and partly in the control panel. The printer memory of the control panel is capable of saving up to 500 printer lines. The saved data is printed after the printer is in operation again.



If you switch off the printer the data in the printer's memory is lost.

Use of the protocol printer for printing control panel configuration, detector measured values and further information which is required by the authorized installer or the maintenance technician are described from page 46 in Chapter 4.7.12.10: "Printing - submenu point [Print-out]" and in the further parts of this User Manual.

4 Basic operation of the fire detection control panels Series BC216

The basic functions of the fire detection control panels Series BC216, together with their operation, are described in this chapter. Almost all necessary operations can be executed by the use of the menu. For a few operations some special buttons are mandated by standards. Also described is the operation of the fire detection control panel by using a connected fire brigade control unit.

No principle differences exist between operation possibilities via the key pad of the fire detection control panel BC216-1 and the network fire detection control panel BCnet216. At least one BCnet sectional control panel with key pad exists in a control panel of type BCnet216 which was defined by the installer as main operating unit. All operating actions on this main operating unit are the same as the operation of a compact control panel of type BC216-1.

If a fire detection control panel BCnet216 consists of several operable BCnet sectional control panels the operating possibilities can be regulated differently, depending on the corresponding application or country specific regulations. Following combinations are provided:

- ◆ The main operating unit is the only operating unit which is active in normal condition. All other operating units are blocked. Only after multiple line faults of the network lines have interrupted the connection of a BCnet sectional control panel to the main operating unit the operation of this separated BCnet sectional control panel is automatically activated.
- ◆ All operating units are of equal rank. The operation of further units can still be partially or completely blocked (depending on country specific regulations) during operating an operating unit.
- ◆ "Area operating units" are implemented besides the main operating unit. These are designated for the operation of limited areas of the fire detection control panel (e.g. limited on one floor of a building) only. The globally effective operating procedures (e.g. by the button 'Panel reset') however, act on the whole fire detection control panel BCnet216.

Please retrieve the information on which operating possibilities and operating restrictions are provided especially in your fire detection control panel from the engineering data of your fire detection system.

4.1 Operating authorization

The whole operation and setting of parameters of the fire detection control panels Series BC216 is made in four hierarchically arranged levels of authorization according to international standards.

◆ Authorization level 1

Admissible operations basically are restricted to displaying information and to silencing the built-in buzzer. No permanent modifications of conditions such as, e.g., the disablement of a detector zone, can be made in this level of authorization. Anybody who has access to the keypad of the control panel has authorization level 1.

◆ Authorization level 2

The unrestricted operation of the fire detection control panel is possible. The modification of site-specific parameters is not possible in this level of authorization. You enter authorization level 2 by entering a 4-digit numeric code ("user code") on the keypad of the control panel in authorization level 1. This ensures that only persons who are authorized by the user can enter this level of authorization.



Different user codes can be programmed for single operable BCnet sectional control panels of a network fire detection control panel BCnet216.

By entering authorization level 2 various important parts of the system such as, e.g., transmitting devices, actuations, etc. can be put out of operation automatically, depending on regional regulations and restrictions.



Due to this, do not stay in authorization level 2 longer than needed for operation! Return to authorization level 1 immediately after completing the task, so that the disabled parts can be put into operation again.

By confirming the menu point [Exit authorization?], authorization level 2 is left. Has no operation occurred for 15 minutes, the control panel returns to authorization level 1 automatically.

The numeric code for authorization level 2 ("user code") is set by the installer of the fire detection system together with the user. Has the code been forgotten, the installer, in authorization level 3, can set a new code for authorization level 2. It is impossible to get a read-out of a forgotten code on the control panel.



This user code has to be accessible to the safety personnel (fire brigade) in case of an alarm. You can write the user code, for example, on a tag on the building key in the key safe, or in the fire brigade control unit, or else into the system engineering data (fire prevention plan, etc.). You have to coordinate these actions with the safety personnel.



Note that the user code is not to be made public, or else you have to expect improper use of the fire detection control panel.

◆ Authorization level 3

Further important operation proceedings for the maintenance technician and the overall parameter settings for the site-specific data are accessible in addition to all operations of authorization level 2. Authorization level 3 is reserved for the authorized installer of the fire detection system. You enter authorization level 3 by entering a 5-digit numeric code ("installer code") on the keypad of the control panel or the corresponding operable BCnet sectional control panel in authorization level 1.



With the network fire detection control panel BCnet216, the setting of the parameters of the network specific data is possible exclusively via PARSOFT (see User Manual Part C).

The processing of messages in the fire detection control panel on basis of the old parameters is still effective during the setting of new parameters. The same parts of the system that can be put out of operation in authorization level 2 can be put out of operation in authorization level 3, depending on local regulations and restrictions. Notice the statements made for authorization level 2.



In authorization level 3, the first three lines of the LC-display are reserved for displaying the operations of setting the parameters. Only the fourth line is used for displaying the latest alarm event.

By confirming the menu point [Exit authorization?], authorization level 3 is left. During exiting authorization level 3, the entered parameters are checked and adopted. Have any parameters been changed, the control panel will restart using the new parameters.



Similar to when the button 'Panel reset' is pressed, all current alarms, faults, actuations, etc. are reset by restarting.

nd/Einrückung Different installer codes can be programmed for single operable BCnet sectional control panels of a network fire detection control panel BCnet216.

No time limit is assigned in authorization level 3.

The numeric code for authorization level 3 ("installer code") is set by the installer himself and should be treated confidentially in his own interest. Has the installer code been forgotten, only the manufacturer of the fire detection control panel can reset the code to the initial value. It is impossible even for the manufacturer to get a read-out of a forgotten installer code on the control panel.



Different installer codes can be programmed for single operable BCnet sectional control panels of a network fire detection control panel BCnet216.

◆ Authorization level 4

This authorization level allows the manufacturer of the fire detection control panel or an authorized representative in a specific country to change the logic operation of the program, for example, to comply with mandated country-specific functions) by using special tools and tools for setting parameters. This level of authorization requires the opening of the control panel, special tools and precise knowledge of the interactions of the software-modules.



During activities that require authorization level 4, the fire detection control panel is usually completely out of service!

4.2 Operations using single buttons

Single buttons are provided on the control panel for the following operations:

4.2.1 Resetting the fire detection control panel

By using the button 'Panel reset' fire alarms, fault alarms, faults, activated actuations, technical messages, activated transmitting devices, activated alarming devices, etc., all of which are displayed on the fire detection control panel BC216-1 are simultaneously reset. With the network fire detection control panel BCnet216, the button 'Panel reset' of every operable BCnet sectional control panel acts on the whole fire detection control panel. Displays of faults of the system, disablements and test conditions are not affected by the reset. Disabled parts of the system and parts that are put in test condition are not enabled either by resetting the control panel.

The minimum requirement for resetting the control panel is authorization level 2.



The causes of the alarms, faults, etc. are not affected by resetting the control panel! If the causes have not been removed prior to resetting, the alarms, faults, etc., will be displayed again after resetting the control panel and will be processed like new messages leading, for example, to the activation of the transmitting devices, activation of fire protection devices, etc.



Important information can vanish from the display, and fire control systems that should be kept activated can be reset prematurely or not be activated at all by resetting the control panel prematurely.

4.2.2 Silencing the internal buzzer / display test

You can silence the internal buzzer of the fire detection control panel BC216-1 or of all operable BCnet sectional control panels of a control panel BCnet216 by using the button 'Silence buzzer'. The buzzer will be reactivated by every received fire-, fault- or technical message.

For silencing the buzzer and for testing the displays, authorization level 1 is sufficient.

At a fault message or a technical message, the buzzer silences automatically after 15 minutes without the pressing of a button.



The buzzer is used as a reminder as well: In case of a current fire alarm, fault alarm, fault or technical message, the silenced buzzer is activated briefly every 15 minutes.

If the buzzer is not activated and you are pressing this button, the function "display test" is activated. This means that the buzzer, all dots of the LC-display and all light-emitting diodes are activated; you can check if all display elements are in function. The function "display test" of the button "buzzer off" is locked as long as an event is current which has activated the buzzer (e.g. alarm or fault condition).

You can activate the display test by the use of the menu as well. See from page 44 in Chapter 4.7.12.2: "Testing the optic and acoustic displays and the buzzer - submenu point [Display test]".

4.2.3 Silencing the primary alarming device

In case of an alarm, you are silencing the corresponding primary alarming device by using the button 'On/off' located in the field ALARM. DEVICE 1. As long as the control panel is still in the state of fire alarm, the silenced alarming device can be reactivated by pressing the button again.

The silenced primary alarming device is activated again by receiving another alarm message and can be silenced in the same way - provided that this feature of the control panel has been enabled by the installer when parameters are set.

For silencing and reactivating the primary alarming device authorization level 1 or 2 is required, depending on the parameterization of the control panel.



With the possibility to reactivate the primary alarming device, you can repeat a prematurely interrupted evacuation alarm of a building without activating a new alarm as long as the fire alarm is still displayed on the control panel! After resetting the fire alarm, the repetition of the evacuation alarm is only possible by renewed activation of an alarm.



All other alarming devices are operated exclusively by the use of the menu.

Further operating functions for the primary alarming device (e.g., disablement) are possible by the use of the menu. See from page 43 in Chapter 4.7.10: "Displaying and operating alarming devices - menu point [Alarming device:]".



Note the difference between silencing and resetting (which are valid only for the current event), and disablement (which is an enduring condition, terminated only by the enablement) of a part of the system, e.g., an alarming device!

4.2.4 Alarm delay procedure of the primary transmitting device

If there is no current fire alarm you can switch the corresponding primary transmitting device between day-operation (light-emitting diode 'Alarm delay' is illuminated) and night-operation (light-emitting diode 'Alarm delay' is not illuminated) by pressing the button 'Alarm delay/Explore'.

During night-operation, an incoming alarm message activates the corresponding primary transmitting device immediately if the parameters of this alarm message have been set to activate the transmitting device.

During day-operation, an incoming alarm message activates the corresponding primary transmitting device, delayed by the span of time for reaction, if the parameters of this alarm message have been set to activate the transmitting device.

Is the button 'Alarm delay/Explore' pressed during the time for reaction (this means, before the transmitting device has been activated), the control panel switches to "exploring" and extends the delay time. During this extended delay time (the exploration time), the responsible persons can locally decide if it is necessary to contact the fire brigade. If this is not necessary, the contacting of the fire brigade can be forestalled by disabling the alarming detector zone. Is the delay time elapsed without the alarm having been reset, the fire brigade is contacted.

During running exploration time you can display the time remaining till activation of the transmitting device on the LC-display by pressing the button 'Alarm delay/Explore'.

Is another alarm or fault message received during this delay, the delay is automatically interrupted and the fire brigade is contacted immediately.

The light-emitting diode 'Activated', located in the field TRANSM. DEVICE 1, is illuminated during day-operation only after the exploration time has elapsed or has been interrupted.



The delay times are often regulated exactly by local or country specific directives. Typical values are 30 seconds for reaction time and 270 seconds for exploration time. In addition, specific organizational measures are often mandated as well.



Alarm messages originating from manual call points, from detectors in two-zone dependency, detectors in interdependence of two detectors and from automatic extinguishing systems are transmitted to the fire brigade without delay, even if the alarm operation is activated!

For switching between day- and night-operation, authorization level 2 is needed; "exploring" can be activated in authorization level 1 as well.

This switch can be influenced by the internal timer of the control panel: The timer with weekly program releases a time window in which the user can switch between day- and night-operation as he likes. Outside this time window, the timer switches directly to night-operation and fixes this condition. The switching times are entered on the control panel by the installer when putting the control panel into operation.



By exception of the primary transmitting device, all other transmitting devices are operated exclusively by the use of the menu. Only the primary transmitting device is equipped with an alarm delay procedure and timer activation.

4.3 Operations using the menu

The displaying and operating menus are similar in structure to the menus of modern programs for PCs. By using the '← →'-buttons you scroll ring-shaped in the main menu. You can display only one point of the menu at a time.



While scrolling in the main menu, the titles of the "display"-menu points [Alarms], [Activated actuations], [Technical messages], [Faults], [Disabling] and [Test conditions] are displayed briefly on the LC-display.

If you stop at a point of the main menu and use the '↑↓'-buttons, you are scrolling ring-shaped in the submenu belonging to the priorly shown main menu point. If you are confirming a submenu point by using the '↵'-button, this point is executed or you are entering another submenu.

If further entries are necessary for the chosen submenu point, you can browse these by using the '↑↓'-buttons or you can directly enter numbers, and confirm your entry by using the '↵'-button.



The most common operations can be made without strictly observing the structure of the menu. See from page 33 in Chapter 4.3.1: "Menu-quick-operation".

Some points of the menu demand the additional selection of a number (e.g., you have to enter the desired detector zone number in the main menu point [Zone:]). After confirming the menu, the lowest possible number (e.g., the detector zone with the lowest zone number) is automatically suggested. This number can either be accepted, overwritten by using the keypad or increased or decreased by using the '↑↓'-buttons. You can only enter the submenu if you have confirmed your entries by using the '↵'-button.

Additionally, some points of the menu provide the selection of an element in addition to the selection of a zone- or actuation number. For this you do not confirm the entered zone- or actuation number by using the '↵'-button but by using the special button 'Element' (the LC-display is showing "/") and entering the desired number of the element. After confirming this number with the '↵'-button, you enter the submenu.

At entering a submenu, the first submenu point is displayed. You can scroll to the desired submenu point by using the '↑↓'-buttons and confirm it by using the button '↵'.

After choosing a part of the system by using the '↵'-button, the current condition of this part is displayed in the submenu in capital letters. You can either change to the desired condition by using the '↑↓'-buttons and confirm your choice with the '↵'-button or you can, by using the menu-quick-operation, achieve the desired condition by entering one number (e.g., 0 = disable, 1 = enable). If you do not want to change the condition, you have to press the button 'esc'. In both cases, the display returns to the previously displayed submenu point. If you want to operate the same part of the system again, you have to confirm it again by using the button '↵'.

The possible submenu points, conditions and numbers for the menu-quick-operation are stated in the following sections.

By using the 'esc'-button, you are returning to the next higher point of the menu.

4.3.1 Menu-quick-operation

Some frequently used operations can be accessed directly by using shortcuts in the structure of the menu.

◆ Input of the numeric code for authorization level 2

As long as a numeric input is made in a main menu point of authorization level 1, it is evaluated as

the beginning of a code and leads you straight to the menu point [Authorization code:]. This happens also if you are in a display-menu point such as, e.g., the display of current fire alarms.



This menu-quick-operation can not be used while you are viewing the event memory.

- ◆ **Selection of a detector zone**

If you are in a main menu point of authorization level 2 or 3 that does not require a numeric input, any numeric input is evaluated as an input of a detector zone and leads you to the menu point [Zone:].

- ◆ **Disabling of a detector zone being in alarm condition**

If you are displaying the current alarms in the menu points [Alarms], [Technical messages] or [Faults], you can directly disable the displayed detector zone by using the '↵'-button.

- ◆ **Disabling of parts of the system being in test condition**

If you are displaying the parts of the system that are currently in test condition in the menu point [Test conditions], you can directly disable the displayed parts of detector zones, actuations and alarming devices being in test condition by using the '↵'-button.

- ◆ **Enabling of disabled parts of the system**

If you are displaying the currently disabled parts of the system in the menu point [Disables], you can enable the displayed part of the system by using the '↵'-button.

- ◆ **Direct entering of the desired condition**

After selecting a part of the system, you can directly set the desired condition by entering a number without using the menu. The meaning of the numbers is uniform (e.g., "0" for disable, "1" for enable, etc.), but not all possible inputs are available in every menu point.

- ◆ **Exiting authorization level 2**

By pressing the button 'esc' repeatedly (how often depends on the point of the menu you are currently in), you arrive directly at the menu point [Exit authorization?], which you confirm by pressing the '↵'-button.



Note for all the above points, that for any change in conditions, the minimum requirement is authorization level 2!

4.3.2 Exiting the menu

Basically you exit the menu by confirming the menu point [Exit authorization?] with the '↵'-button. The control panel returns to authorization level 1 automatically 15 minutes after a button was pressed last in authorization level 2 - independent of the menu point in which a button was pressed last.

The control panel returns to displaying the event with the highest priority automatically 30 seconds after a button in authorization level 2 was pressed last, if an event is currently on the control panel. This is independent of the menu point where a button was pressed last. The current authorization level is maintained.

No time limit is assigned in authorization levels 3 and 4.

4.4 Overview of the display- and operation menus

In authorization level 1 only a limited operation of the fire detection control panel is possible. Only information on current events or information on the system (e.g., event memory) can be viewed by using the menu buttons. No permanent changes of conditions can be made. Silencing the internal buzzer and the primary alarming device is possible in this authorization level as well.

Unlimited operation of the control panel is facilitated by authorization level 2. Authorization level 3 is reserved for the installer of the fire detection system.

Authorization level 1		Authorization levels 2 and 3	
Main menu points	Submenu points	Main menu points	Submenu points
Alarms		Alarms	
Activated actuations		Activated actuations	
Technical messages		Technical messages	
Faults		Faults	
Disablements		Disablements	
Test conditions		Test conditions	
		Zone: *)	Disable Enable Activate Test condition on Measured value/ maintenance
		Actuation:	Disable Enable Activate Meas.val./Maint.
		Transmit. device:	Disable Enable
		Alarming device:	Disable Enable Activate Meas.val./Maint. Silence Reactivate
Event memory *)	Display all Control panel Detector zones	Event memory	Display all Control panel Detector zones
System	Event counter Display test Repeat print-out	System	Event counter Display test LCD contrast Clock time correct. Clock time setting ¹⁾ Date setting ¹⁾ Winter/summertime Summer/wintertime Componentries Print-out ¹⁾ Repeat print-out Stop measurement print-out Change user code ¹⁾ Change install. code ¹⁾
Authorization code:		Exit authorization?	

¹⁾ These submenu points are accessible only in authorization level 3 (that means, only to the authorized maintainer).

Table 1: Overview of the available main and submenus in authorization levels 1 and 2, respectively. You are scrolling the main menu ring-shaped by using the '← →'-buttons, and the submenu by using the '↑↓'-buttons. The corresponding standard-entry-menu point, in normal condition, is marked by *). Single menu points can be suppressed depending on the context.



The menus for setting the parameters (which are reserved for the installer in authorization level 3) are not shown in the above table. They are described in detail in Part C of this Manual.



The control panel returns to displaying the event with the highest priority automatically 30 seconds after a button was pressed last, if an event is currently on the control panel - independent of which menu point was called last.

4.5 Entering and exiting authorization level 2

To enter authorization level 2 from authorization level 1, you have to enter the 4-digit user code programmed by the installer. You have two possibilities to start this:

- ◆ Scroll the main menu points to the menu point [Authorization code:] by using the '→'- or the '←'-button, or
- ◆ Enter your user code directly and arrive automatically at the menu point [Authorization code:] without scrolling through the menus.



This menu-quick-operation is not possible while you are viewing the event memory.

You enter the 4-digit code and confirm the entry by using the '↓'-button. One '*' is displayed on the LC-display for every entered digit. If the entry was correct, the second line of the LC-display shows [User level] and the green light-emitting diode 'Authorization' is illuminated on the panel.



By entering authorization level 2, different important parts of the system (e.g., transmitting devices, actuations, etc.) can be put out of operation automatically depending on regional restrictions and regulations and the setting of the parameters by the authorized installer (which are also dependent on the regional restrictions and regulations). Devices activated earlier are not put out of operation. By returning to authorization level 1, the parts are put into operation again.



Do not stay in authorization level 2 longer than needed for operation! Return to authorization level 1 immediately after completing the task, so that the disabled parts can be put into operation again.

If you have entered the wrong code, [Wrong entry!] will be displayed on the LC-display, the buzzer will send a short signal and you will have to repeat the input. You can clear the entry by using the 'esc'-button and then can begin to enter the code again. The number of wrong inputs is not limited.

If a first-fire alarm occurs while entering the user code, the code entry is rejected and the fire alarm is displayed. You have to begin your entry again subsequently.

To return from authorization level 2 to authorization level 1, you have to scroll to the main menu point [Exit authorization?] either by using the menu or by using the menu-quick-operation (see page 33 in Chapter 4.3.1: "Menu-quick-operation"), and confirm the menu point by using the '↓'-button. The LC-display shows the hint [User level exited] and the green light-emitting diode 'Authorization' on the panel is switched off.



15 minutes after any button was pressed last, the fire detection control panel Series BC216 leaves authorization level 2 automatically.



If you press the button '↑' in the menu point [Authorization code:], the display shows an information for 5 seconds. This information enables the manufacturer to reset a lost installer code (for further information see Part C of the User Manual). If you have pressed the button erroneously do not pay attention to the information; it will vanish automatically.

4.6 Entering and exiting authorization level 3

To enter authorization level 3 (this level is reserved for the installer) from authorization level 1, you have to enter the 5-digit installer code in the same way as described starting page 36 in Chapter 4.5: "Entering and exiting authorization level 2", by using either the menu or the menu-quick-operation. If the entry was correct, the LC-display shows [Installer level] and the green light-emitting diode 'Authorization' flashes on the panel.



By entering authorization level 3, and depending on the parameters set by the authorized installer, transmitting devices or actuations can be put out of operation automatically. Earlier activated devices are not put out of operation. By returning to authorization level 1 the parts are put back into operation again.

The number of incorrect inputs is limited. After 5 incorrect inputs, the input of the installer-code is locked for 15 minutes.

To return from authorization level 3 to authorization level 1, you have to scroll to the main menu point [Exit authorization?] either by using the menu or by using the menu-quick-operation and confirm the menu point by using the '↓'-button. The LC-display shows the hint [Installer level exited] and the green light-emitting diode 'Authorization' on the panel is turned off. If any parameters were changed, the control panel will restart automatically in order to make the new parameters effective. Further information can be found in Part C of the User Manual.



In the same way as when pressing the button 'Panel reset', all current alarms, faults, etc. are reset by re-starting. See from page 31 in Chapter 4.2.1: "Resetting the fire detection control panel".



An automatic time-activated exiting of authorization level 3 is not provided.

4.7 Description of the menu points

All main and submenu points accessible to the user are described briefly in this chapter. Furthermore, alternative possibilities of menu-quick-operations are described. Note that some menu points are only accessible in authorization level 2!



Scroll the menu points of the main menu by using the buttons '← →', and scroll the menu points of the corresponding submenu as well as the list of the information to be displayed by using the buttons '↑↓'. Confirm the displayed submenu point by using the '↓'-button. Pay attention to the special functions of this button in some menu points. Return to the next higher menu point by using the button 'esc'. Information on the displayed event and on the operations now possible is provided by pressing the button 'Info'.

For individual displays of all events of detector zones, actuations, transmitting devices, alarming devices, etc., two lines of the LC-display are for use. In case of an event,

- ♦ the second line of the LC-display shows the zone-, transmitting device-, etc., text1 and
- ♦ the third line of the LC-display shows the element text or (if there is no element text) the zone-, transmitting device-, etc., text2.

The authorized installer enters the texts during the setting of the parameters.

4.7.1 Displaying fire alarms - menu point [Alarms]

Scroll through all current fire alarms by using the '↑↓'-buttons (for details see from page 50 in Chapter 5.2: "Fire alarm condition").

```

1.ALARM      0003/029
<zone text 1>
<element text>
      1.ALARM  0003/029
  
```

Figure 7: Example for an alarm display of the detector zone 3, detector Nr. 29. Has no element text been programmed, the second line of the zone text (if available) is displayed.



In this case, the '↓'-button has a special function: The detector zone whose alarm is currently displayed is disabled by using this button.



Pre-alarms are displayed in this menu point as well. Pre-alarms are activated by the first alarming detector in an interdependence of two detectors. A pre-alarm is displayed on the LC-display as "PRE-AL". Further information can be found starting page 55 in Chapter 5.2.5: "Fire alarm condition - special case: alarm in an interdependence of two detectors".

4.7.2 Displaying activated actuations - menu point [Activated actuations]

Scroll through all activated actuations by using the '↑↓'-buttons (details see from page 55 in Chapter 5.3: "Activation condition of actuations"). Note that activations of transmitting devices and of alarming devices are displayed as activated actuations as well.

<pre>1.TR-DEV.ACT 01 <transm.dev.text1> <transm.dev.text2> 1.ALARM 0003/029</pre>	<pre>3.ACTU.ACT 0001 <actuation text1> <actu.element text> 1.ALARM 0003/029</pre>
---	---

Figure 8: Examples for the display of an actuation activation.
 Left figure: Transmitting device Nr. 1 is activated as the first actuation.
 Right figure: Actuation Nr. 1 is activated as the third actuation. Has no element text been programmed, the second line of the actuation text (if available) is displayed.

4.7.3 Displaying technical messages - menu point [Technical messages]

Scroll through all current technical messages by using the '↑↓'-buttons (details see from page 56 in Chapter 5.4: "Message condition for technical messages").

```
1.TECH.MSG 0005/011
<zone text1>
<element text>
```

Figure 9: Example for the display of a technical message from detector zone 5, detector Nr. 11. Has no element text been programmed, the second line of the zone text (if available) is displayed.



In this case, the '↓'-button has a special function: The detector zone whose technical message is currently displayed is disabled by using this button.

4.7.4 Displaying fault messages - menu point [Faults]

Scroll through all current faults by using the '↑↓'-buttons (details see from page 58 in Chapter 5.5: "Fault-message condition").

<pre>1.ACTU.FLT 0003/018 <actuation text1> <actu.element text></pre>	<pre>2.ENERGY FAULT stand-by battery</pre>
--	--

Figure 10: Example for the display of faults
 Left figure: Display of a fault of actuation Nr. 3, element Nr. 18. Has no element text been programmed, the second line of the actuation text (if available) is displayed.
 Right figure: Energy fault, fault of the stand-by battery. In addition to the fault cause, the name and number of the concerning BCnet sectional control panel (=GSSnet member number) are displayed if the fault of a part of a BCnet sectional control panel of the network fire detection control panel BCnet216 is reported.

Faults that are detected by the control panel itself (e.g., a fault of the function of a part of the control panel) as well as faults that are transmitted to the control panel by connected fault detectors are displayed in this menu point.



In this case, the '↓'-button has a special function: The detector zone whose fault message is currently displayed is disabled by using this button.

4.7.5 Displaying disablements - menu point [Disablements]

Scroll through all current disablements by using the '↑↓'-buttons (details see from page 61 in Chapter 5.6: "Disablement condition").

```
1.TECH.DIS 0003
<zone text1>
<zone text2>
```

Figure 11: Example for the display of the disablement of a technical message, zone 3.



In this case, the '↵'-button has a special function: The part of the system whose disablement is currently displayed is enabled by using this button (Menu-quick-operation).

4.7.6 Displaying test conditions - menu point [Test conditions]

Scroll through all system parts in test condition by using the '↑↓'-buttons (details see from page 63 in Chapter 5.7: "Test condition").

```
1.TEST COND 0003
<zone text1>
<zone text2>
```

Figure 12: Example for the display of a test condition of zone 3.



In this case, the '↵'-button has a special function: The part of the system whose test condition is currently displayed is disabled by using this button (Menu-quick-operation).

4.7.7 Displaying and operating detector zones - menu point [Zone:]

In this menu point you can operate, activate (for test purposes) and display the condition of whole detector zones as well as single elements of detector zones. Note the hints given starting page 33 in Chapter 4.3: "Operations using the menu"! Minimum requirement for this menu point is authorization level 2.

The installer sets the parameters of detector zones to zones for fire detection, for technical messages or for fault messages while the system is put into operation. The differences between the different kinds of detector zones lie basically in the kind of alarm given and in how the alarm is reset.

At the enablement of a detector zone or of elements of these zones, the control panel checks for 5 seconds if a criterion for an alarm currently exists in this zone. In such a case (e.g., a manual call point has not been reset after an alarm activation), the enablement is refused and the LC-display shows [Cannot be enabled!] or [Cannot be enabled completely!].



Before enabling a detector zone or a detector, you have to make sure that the local conditions cannot cause an alarm situation during enablement. Not all automatic fire detectors that are on the market are able to detect an alarm situation and contact the fire detection control panel within 5 seconds.

4.7.7.1 Operating whole detector zones

After confirming the menu point [Zone:], the first available detector zone is proposed with the corresponding zone-text. You can either accept the proposal, search the desired detector zone by using the '↑↓'-buttons, or directly enter the zone number of the desired zone. You confirm the choice by using the button '↵'.



You can go directly to the menu point [Zone:] by using the menu-quick-operation. See from page 33 in Chapter 4.3.1: "Menu-quick-operation".

The third line of the LC-display shows the current condition of the chosen zone in capital letters. If you intend to change this condition you can either scroll to the desired condition by using the '↑↓'-buttons or by the menu-quick-operation, using numeric buttons:

"0" - disable

"1" - enable

"2" - activate (for test purposes)

"3" - test condition on.



No alarm is transmitted by detector zones that are disabled, faulted or put in test condition. A detector zone that is disabled, faulted or put in test condition and is programmed in a two-zone dependency is removed from this dependency. If the dependency consists only of two detector zones one of which is out of function, the two-zone dependency cannot activate the devices that are to be activated!



Parameters of actuations can be set so that they are activated at disablement or at a fault of the corresponding detector zone as well. Information on the kind of activation used in your system can be found in the engineering data of your fire detection system.



The alarming of a detector zone for test purposes leads to a real alarm, technical message or fault alarm, and to the activation of all actuations whose parameters have been set for this detector zone. Note that this can lead to an unintended activation of an extinguishing system and thus to danger to life, and to costly damage of property. Contact the responsible person (e.g., fire prevention officer, safety officer) prior to activating a test alarm, so that he can make the required mechanical or electrical switch-offs of extinguishing systems or similar devices before the activation of the alarm. During a test alarm, transmitting devices or alarming devices are not activated.



During maintenance of the system, detector zones are set to test condition so that its detectors can be tested on their function without activating a fire alarm. See from page 65 in Chapter 6.1.2: "Testing of detectors". By disabling and then enabling the detector zone, you leave the state of test condition of this detector zone.

4.7.7.2 Operating single elements of detector zones

Provided that the technology used in your control panel allows it, you can operate individual elements of a detector zone. Elements can be enabled and disabled, and can be activated for test purposes. The maintainer also can get a read-out of the actual measured value and a maintenance prediction, if intelligent detectors are used. (These actions are described in Part B of this User Manual).

The selection of a detector zone is similar to the description in the foregoing section, but you have to use the button 'Element' (LC-display shows: "/") instead of the button '↵' to confirm the zone number. Now the first available element number will be suggested and displayed to the right of the zone number and the "/". The third line of the LC-display shows the element text. You select the desired element similar to the selection of the detector zone and confirm it by using the '↵'-button.



For the installer: The button 'Element' is represented by the divide-button of the numeric keypad ("÷") on the PC-keyboard.

The third line of the LC-display shows the current condition of the chosen element in capital letters. You can either scroll to the desired condition by using the '↑↓'-buttons or by menu-quick-operation, using numeric buttons:

"0" - disable

"1" - enable

"2" - activate (for test purposes)

"3" - test condition on

"4" - measured value/maintenance.



The warning hints starting page 39 in Chapter 4.7.7.1: "Operating whole detector zones" are valid analogously for the operation of single elements as well!



A detector that is disabled and is programmed in a dependency of two detectors is removed from this dependency. Does the dependency consist only of two detectors, the second detector is ineffective as well because it can only activate a pre-alarm.



If you have disabled all detectors of a detector zone, this is displayed as a disablement of the whole detector zone.



During maintenance of the system, detectors are set to test condition so that the detectors can be tested on their function without activating a fire alarm. See from page 65 in Chapter 6.1.2: "Testing of detectors". By disabling and then enabling the detector you end the test condition of this detector.

If the function "measured value/maintenance" is selected, the LC-display shows the measured value at the time of function selection of this detector. Also displayed is the time that the detector presumably will work reliably without maintenance at stable environmental conditions.

Zone: 0001/016	
Meas.val.	maint.
125	>>12

Figure 13: Display when selecting the function "Measured val./Maint." for detector Nr. 16 of zone 1. The left side of the third line displays the current measured value of this detector; the right side displays the time (in months) that the detector will function without maintenance.



The function "Measured val./Maint." does not disable the corresponding detector! An alarm criterion of the detector is processed in the control panel in normal ways.

4.7.8 Displaying and operating actuations - menu point [Actuations:]

You can operate, activate (for test purposes) and display the condition of actuations or single elements of actuations in this menu point. Consider the hints given starting page 33 in Chapter 4.3: "Operations using the menu"! Minimum requirement for this menu point is authorization level 2.

An actuation can activate single fire control systems (e.g., switching off the ventilation system in case of a fire alarm), as well as several elements simultaneously (e.g., several door closers in a fire area).



Depending on the purpose, different kinds of actuations are used for fire control systems. The ability to operate an actuation can be restricted, depending on its purpose. For example, the parameters of an actuation can be set so that you can only disable the activated actuation after you have removed the cause of the activation (e.g. a fire alarm).



Have the parameters of an actuation been set for a two-zone dependency to increase the security against deceptive activation, the activation of the actuation will take place only after at least two detector zones of this two-zone dependency are in condition of an alarm.

4.7.8.1 Operating actuations

After confirming the menu point [Actuations:], the first available actuation is proposed with the corresponding text. You can either accept the proposal, search for the desired actuation by using the '↑↓'-buttons, or directly enter the actuation number of the desired actuation. You confirm the choice by using the button '↵'.

The third line of the LC-display shows the current condition of the chosen actuation in capital letters. You can either scroll to the desired condition by using the '↑↓'-buttons, or the menu-quick-operation, using numeric buttons:

"0" - disable

"1" - enable

"2" - activate.



If the authorized installer has set the parameters of the actuation so that it is put out of operation automatically in authorization level 2 or 3 (see from page 36 in Chapter 4.5: "Entering and exiting authorization level 2" and page 36 in Chapter 4.6: "Entering and exiting authorization level 3"), the LC-display shows the condition which the actuation will have after returning to authorization level 1.

Whether or not you can disable an activated actuation is set by the installer while the system is put into operation.



A disabled actuation or a disabled element of an actuation cannot carry out its purposes in case of an alarm.



The activation of an actuation for test purposes acts like a real activation! Consider that this may lead to an unintended activation of an extinguishing system and thus to danger to life and to costly damage of property. Contact the responsible person (e.g., fire prevention officer, safety officer) prior to activating a test alarm so that he can make the required mechanical or electrical switch-offs of extinguishing systems or similar devices before the start of the activation.



If the criterion for activation of the actuation exists at the time of the enablement of this actuation, the actuation will be activated immediately!

4.7.8.2 Operating single elements of actuations

Provided that the technology used in your control panel allows it, you can operate individual elements of an actuation. Such elements can be enabled and disabled and can be activated; furthermore their measured values can be displayed.

The selection of an actuation element is similar to the selection of elements of a detector zone (see from page 40 in Chapter 4.7.7.2: "Operating single elements of detector zones"). The third line of the LC-display shows the current condition of the chosen element in capital letters. You can either scroll to the desired condition by using the '↑↓'-buttons or the menu-quick-operation, using numeric buttons:

"0" - disable

"1" - enable

"2" - activate.

"4" - Measured val./Maint.



The warning hints on page 41 in Chapter 4.7.8.1: "Operating actuations" are valid analogously for the operation of single actuation elements as well!



If you have disabled all elements of an actuation, this is displayed as a disablement of the whole actuation.

When calling up the function "Measured val./Maint.", a measured value according to the condition of the element at the time of call up will be put out depending on the type of actuation element. In this case the maintenance prognosis is insignificant.

4.7.9 Displaying and operating transmitting devices - menu point [Transmit. device:]

You display the current switch condition of a transmitting device on the LC-display and disable and enable a transmitting device in this menu point. Consider the hints given starting page 33 in Chapter 4.3: "Operations using the menu"! Minimum requirement for this menu point is authorization level 2.



Have the parameters of a transmitting device been set for a two-zone dependency to increase security against deceptive activation, the activation of the transmitting device will take place only after at least two detector zones of this two-zone dependency are in condition of alarm.

After confirming the menu point [Transmit. device:], the first available transmitting device is proposed. You can either accept the proposal, search the desired transmitting device by using the '↑↓'-buttons or by directly entering the number of the transmitting device. You confirm the choice by using the button '↵'.

The third line of the LC-display shows the current condition of the chosen transmitting device in capital letters. You can either scroll to the desired condition by using the '↑↓'-buttons or the menu-quick-operation, using numeric buttons:

"0" - disable

"1" - enable.

An activated transmitting device cannot be disabled directly. Before you can disable it you have to remove the cause of the activation (e.g., disable the alarming detector zone).



A disabled transmitting device cannot transmit an alarm!
If a disabled transmitting device is enabled while criteria for activation exist, it will be activated immediately.



If the parameters of the transmitting device have been set to take the device out of operation automatically in authorization level 2 or 3 (see from page 36 in Chapter 4.5: "Entering and exiting authorization level 2" and page 36 in Chapter 4.6: "Entering and exiting authorization level 3"), the LC-display shows the condition the transmitting device will have after returning to authorization level 1.

4.7.10 Displaying and operating alarming devices - menu point [Alarming device:]

You can disable and enable an alarming device and activate it in this menu point. Consider the hints given starting page 33 in Chapter 4.3: "Operations using the menu"! Minimum requirement for this menu point is authorization level 2.



Have the parameters of an alarming device been set for a two-zone dependency to increase the security against deceptive activation, the activation of the alarming device will take place only after at least two detector zones of this two-zone dependency are in condition of alarm.

After confirming the menu point [Alarming device:], the first available alarm output is proposed. You can either accept the proposal, search the desired alarm output by using the '↑↓'-buttons or directly enter the output number of the desired alarm output. You confirm the choice by using the button '↵'. The third line of the LC-display shows the current condition of the chosen alarming device in capital letters. You can either scroll to the desired condition by using the '↑↓'-buttons or the menu-quick-operation, using numeric buttons:

"0" - disable

"1" - enable

"2" - activate

"4" - Measured val./Maint.

"5" - silence

"6" - reactivate (a silenced alarming device).

You cannot disable an already activated alarming device, only silence it. The alarming devices can be parameterized so that a silenced alarming device is activated again by a new alarm, or can be reactivated by using the menu (provided that the alarm situation still exists), depending on local requirements.



A disabled alarming device cannot alarm! It is not enabled automatically by a new alarm.



The activation of an alarming device by using the menu command [Activate] is a real activation! Before starting the activation for test purposes make sure that everybody in the building is informed of the test alarm.

When calling up the function "Measured val./Maint.", a measured value according to the condition of the module at the time of call up will be put out depending on the type of device used. The maintenance prognosis is insignificant.

4.7.11 Menu point [Event memory]

The fire detection control panel Series BC216 saves every detected event of the fire detection system in an event memory with a capacity of 500 events. The oldest event will be overwritten. The contents of the event memory are saved in non-volatile semi-conductor memories and are conserved - like all other parameters of the control panel - in case of a total loss of the power supply for an unlimited time. The events of the entire control panel - filtered by the area filter set for the corresponding BCnet sectional control panel - are saved in the event memory of every operable BCnet sectional control panel of a fire detection control panel BCnet216.



The most important entries in the event memory are: begin and end of authorization, occurrence and termination of alarms, technical messages, fault alarms, faults; of activations of zones, elements and actuations; of test conditions, disablements, alarm delay procedures; of activations of transmitting devices and of alarming devices.

The event memory can be accessed by using the menu point [Event memory]. You can set one of the possible filters [Display all], [Control panel] or [Detector zones] for the displaying of the events by the use of the '↑↓'-buttons. After confirming the chosen filter with the '↵'-button, the most recent event is displayed with its running number. Now you can scroll forward or backward in the event memory by using the '↑↓'-buttons. The event with the number *001 is always the oldest event kept in the event memory.

An overview of all possible event texts can be found starting page 68 in Chapter 7: "Event memory - entries".

An example for the display of an alarm:

```
ALARM          0001/016
<zone text1>
<element text> *234
```

Figure 14: Display of the event memory entry (here, Nr. 234) of an alarm of the detector zone 1, detector Nr. 16. Has no element text been programmed, the second zone text (if available) is displayed. To gain space for the running number, the information displayed in the third line (here, the element text) is shortened to 16 characters for displaying.



By pressing the 'Info'-button, date and time of occurrence of the event and - depending on the kind of event - extended event texts as well as the GSSnet member number are displayed on the LC-display.

4.7.12 Menu point [System]

In this menu point you can get a read-out and modify settings of different system information, as described in the following.

With the fire detection control panel BCnet216 all menus related to date and time can be called on the BCnet sectional control panel defined as main operating unit only. All clocks of other BCnet sectional control panels are permanently synchronized with the time of this BCnet sectional control panel.

4.7.12.1 Read-out of the event counter - submenu point [Event counter]

You can display the number of alarms that have triggered an activation of a primary transmitting device or a transmitting device for fire alarms since the fire detection control panel BC216-1 or all BCnet sectional control panels of a fire detection control panel BCnet216 were first put into operation. If the corresponding transmitting device is already activated, no further alarms are counted.

BCnet sectional control panels which were limited to a part of the whole fire detection system by an area filter during commissioning will only count alarms which originated from that part.



The event counter (alarm counter) cannot be reset.

4.7.12.2 Testing the optic and acoustic displays and the buzzer - submenu point [Display test]

In this test, the buzzer, the LC-display and all light-emitting diodes are activated. Thereby you can check easily if all displaying elements work. The same functions are executed by pressing the button 'Silence buzzer'. (See from page 25 in Chapter 3.6: "Reset-buttons").

4.7.12.3 Setting the contrast - submenu point [LCD contrast]

Using the '↑↓'-buttons you can set the contrast of the LC-display in 10 steps, according to the positioning of the control panel (viewing angle) and to local light conditions. Minimum requirement for this submenu point is authorization level 2.

4.7.12.4 Correcting the clock time - submenu point [Clock time correction]

The built-in quartz clock has an accuracy of a few seconds per year. In case of higher deviations, the time of the clock can be corrected by the maintainer during the periodic maintenance.

The user, too, can correct the time displayed on the LC-display in normal condition for up to ± 10 minutes.

After entering the submenu, the time to be corrected is displayed. You can change the time by using the $\uparrow\downarrow$ -buttons in steps of minutes. Confirming the corrected time with the ' \downarrow '-button, the new time is accepted and the seconds are set to 0. When the time is corrected, the control panel automatically calculates a correctional factor that optimizes the accuracy of the clock.

For reasons of safety, the range of correction is limited to ± 10 minutes and can only be spent once in 7 days. Minimum requirement for this submenu point is authorization level 2.

4.7.12.5 Setting the clock time - submenu point [Clock time setting]

This menu point is only accessible to the authorized installer, i.e., only in authorization level 3.

To correct higher deviations of the clock time, as when the control panel is put into operation first, the installer sets the clock time in this menu point in the format "hhmm". The seconds are set to 0 after confirming the settings by using the ' \downarrow '-button.



The quartz clock has an additional power reserve of approximately 10 minutes in case of a total shut down of the power supply. The set switching times of the alarm delay timer and the dates for shifting between summer- and wintertime are conserved indefinitely, also at a total shut down of the power supply.

4.7.12.6 Setting the date - submenu point [Date setting]

This menu point is only accessible to the installer, i.e., only in authorization level 3. The installer sets the date in this menu point in the format "ddmmyyyy" when the control panel is put into operation first.

4.7.12.7 Switching to summertime - submenu point [Winter/summertime]

You can enter the date for the automatic switch to summertime in this menu point. When first put into operation or if no switch is desired, the LC-display shows [**.**.****] after confirming this menu point. Now you can enter the desired switching date in the format "ddmmyyyy" and confirm it by pressing ' \downarrow '. In case of an error you can erase your input by using the 'esc'-button and begin with entering the date again. The entered date is checked for formal correctness. If the date is invalid, a fault message is displayed.

The switch to summertime takes place on the set date at 02:00 o'clock.



If you did not set the switching date in time, you can set it to yesterday, for example. The clock will switch to summertime immediately.

You can erase the date by entering the number 99 in the day digits (or by using the button 'del' on the PC-keyboard). The LC-display shows [Date deleted] as confirmation and at renewed confirmation of this menu point, [**.**.****] is displayed and the switch will not take place. The switch from summer- to standard time is not affected by this.

Minimum requirement for this submenu point is authorization level 2.

4.7.12.8 Switching to standard time - submenu point [Summer/wintertime]

You can enter the date for the automatic switch from summer- to standard time in this menu point. The action is similar to the one described on page 45 in Chapter 4.7.12.7: "Switching to summertime - submenu point [Winter/summertime]".

The switch to standard time takes place at the set date at the time of 03:00 o'clock.

4.7.12.9 Displaying the installed componentries - submenu point [Componentries]

You can display the corresponding number of the software version and an additional information (such as, e.g., the serial number) of the componentries installed in the control panel by using the buttons '↑↓'. Minimum requirement for this submenu point is authorization level 2.

4.7.12.10 Printing - submenu point [Print-out]

This menu point is only accessible to the installer, i.e., only in authorization level 3.

The installer can print the essential parameters of the control panel and the connected fire detectors for service and maintenance purposes. You select one of the print-out possibilities below. Confirmation by pressing '↵', starts the print-out.



With the fire detection control panel BC216-1 the print-out possibilities relate to the data of the whole control panel, with the network fire detection control panel BCnet216 to the data of the BCnet sectional control panel to which the printer is connected. Exceptions are print-outs for which a print-out range can be entered: in these cases the print-out range can include several BCnet sectional control panels or even the entire control panel.

- ◆ [Service print-out]: **Service print-out** prints a list of the event memory contents. (The last occurred event is printed first). Depending on the setting of the parameters of the printer interface either all events are printed, or just the events of the detector zones, or just the events of the basic control panel. The print-out lines are numbered by the numbers of the event memory. Further information can be found in the Chapter "Setting the parameters of the interfaces" in Part C of this User Manual.
- ◆ [Settings print-out]: **Settings print-out** clearly and concisely prints the parameters of the fire detection control panel BC216-1 or of the BCnet sectional control panel of a fire detection control panel BCnet216 to which the printer is connected. The succession of the parameters on the print-out is the same as in the control panel.
- ◆ [Meas.value print-out]: **Measured value print-out for zones** prints a list of all ADM and ADMPRO detectors and their measured values as well as the maintenance prognosis after entering a domain (which is determined by the upper and lower zone/element limits), an interval for a possible periodical output and the desired printer filter.
Besides the current measured value, the month's average values of the last 6 months, the current alarm threshold and the expected value in one year are printed out.
The input "0" for the interval means a single print-out. If an interval is defined (area 00:00:10 - 48:59:59), the print-out is repeated periodically.
[Print all], [Maint. <= 12 months] and [minimum value...] can be selected as printer filters. When selecting [Maint. <= 12 months], all detectors which should be replaced within the next 12 months are printed on basis of the maintenance prognosis. When selecting [minimum value...], input of a threshold value is required; all detectors whose values are equal to or higher than the threshold will be printed.
- ◆ [Meas. print-out act.], [Meas. print-out al.d]: **Measured value print-out for actuations and alarming devices** on loops (actuation modules) prints a list of all ADM and ADMPRO actuation modules of the selected area and their measured values after entering a domain (determined by the upper and lower actuation/element limits) and an interval for a possible periodical print-out.
The input "0" for the interval stands for a single print-out. Is an interval defined, the print-out will be repeated periodically.

The service and settings print-out can be stopped with the 'esc'-button. The characters already contained in the printer's memory are still printed out after stopping the print-out!

A measured value print-out can be aborted via the menu point "System - Stop measurement print-out: ↵" (see from page 47 in Chapter 4.7.12.12: "Abort measured value print-out - submenu point [Stop measurement print-out:]"). This menu point is accessible in authorization level 2 and higher. The menu can be changed while the print-out is executed in the background.



With a single measured value print-out, the output of current events is suppressed until the print-out has been finished. With the periodical measured value print-out, occurring events are printed instantly, therefore interrupting the running measured value print-out shortly.



If no printer is permanently connected to the control panel, you have to set the parameters of a serial interface for a printer interface and connect the printer to the control panel by using the Serial Interface Module SIM216-1 before starting the print-out. Consider the baud-rate the printer is set to. Further information on setting the parameters of the interfaces can be found in Part C of this User Manual.

4.7.12.11 Repeating a print-out - submenu point [Repeat print-out]

If a protocol printer connected to the fire detection control panel, you can repeat the print-out of the last events to reprint lost print-outs (e.g., in case of being out of paper or a printer fault) with this menu point. The repeated print-out usually starts five events prior to the last alarm event but contains at least 20 and a maximum of 50 events.

After finishing the repeated print-out, the normal protocol print-out is resumed without any loss.

This menu point is accessible in authorization level 1.

4.7.12.12 Abort measured value print-out - submenu point [Stop measurement print-out:]

A running measured value print-out (single print-outs as well as periodical print-outs) can be aborted via this menu point; the last printed line will be completed.

This menu point is accessible in authorization level 2 and higher.

4.7.12.13 Modifying the numeric code for the user - submenu point [Change user code]

This menu point is only accessible to the installer, i.e., only in authorization level 3.

By entering a four-digit numeric code twice, the installer sets the code for the user. (See from page 29 in Chapter 4.1: "Operating authorization").

With the fire detection control panel BCnet216 the user codes of the single BCnet sectional control panels can also be defined individually. A common user code can be entered for all BCnet sectional control panels when setting the parameters of the control panel on the main operating unit via PC and parameter setup software PARSOFT-2 - provided that no individual user codes have been parameterized. This common user code can be changed subsequently on every BCnet sectional control panel.



The control panel is delivered with a preset user code of "1111".

4.7.12.14 Changing the numeric code by the installer - submenu point [Change installer code]

This menu point is accessible only for the specialist installer (i.e., only in authorization level 3). By entering a five-digit numeric code twice the installer sets a new installer code. Please pay attention to the hints starting page 29 in Chapter 4.1: "Operating authorization".

With the fire detection control panel BCnet216 the installer codes of the single BCnet sectional control panels can also be defined individually. However, an installer code for all BCnet sectional control panels can be entered when setting the parameters of the control panel on the main operating unit via PC and parameter setup software PARSOFT-2; individual installer codes defined prior to this will be overwritten. This installer code can be changed subsequently on every BCnet sectional control panel.



The control panel is delivered with a preset installer code of "99999". The program demands the installer to change this code when it is put into operation first.

4.7.13 Menu points [Authorization code:], [Exit authorization?]

After confirming this menu point you can either enter the code for authorization level 2 or 3 or exit authorization level 2 or 3, depending on the current authorization level. (See from page 36 in Chapter 4.5: "Entering and exiting authorization level 2").

4.8 Operating the control panel by using the fire brigade control unit

A fire brigade control unit offers the fire brigade the possibility to operate the necessary functions of the control panel uniformly. Fire brigade control units are locally designed differently and sometimes have to fulfill different functions. Thus only the basic operations can be described in this User Manual. Information on the actually possible operations is to be found in the User Manuals of the respective fire brigade control units.



Commonly, fire brigade control units are secured with a lockable door and thus can be operated only by the fire brigade.

In the following, the most common input elements of the different fire brigade control units are juxtaposed to the comparable operations on the control panel itself.

Operation element on the fire brigade control unit	Operation on the control panel BC216-1
Reset control panel	corresponds to the button "Panel reset"
Silence acoustics on the control panel	corresponds to the button "Silence buzzer"
Silence sirens	all alarming devices are silenced jointly
Acoustic signals off	all alarming devices are silenced jointly

Table 2: Comparison of the common operating elements of fire brigade control units to the corresponding operations of the fire detection control panel Series BC216.

5 Operating conditions of fire detection control panels Series BC216

This chapter describes the operating conditions of a fire detection control panel or -system and the possibilities of operation resulting from these conditions. The following operating conditions are internationally standardized:

- ◆ normal condition (i.e., no event is registered on the control panel);
- ◆ fire alarm condition (at least one alarm has been received from a fire detector);
- ◆ fault condition (at least one function of the control panel or the connected network has a fault, or a fault alarm from a fault detector has been received);
- ◆ disablement condition (at least one function of the control panel or a part of the system is disabled);
- ◆ test condition (at least one part of the system is in test condition and therefore is out of function).

Furthermore, the fire detection control panels Series BC216 satisfy expectations of modern security technology by offering the additional possibility to display "technical messages" and the condition of installed actuators on the control panel. Usually the "technical messages" and actuators are information concerning preventive fire protection (such as the displaying of messages from fire protection devices, displays of weight or pressure loss of the extinguishing agent in gas extinguishing systems, positions of fire doors and fire dampers, etc.).



This additional information is not directly related to the fire detection system but in many cases provides an essential basis for decisions of the fire prevention officer in case of fire. The local approval authorities decide over the admissibility of the processing and displaying of technical messages on the fire detection control panel.

In addition to the operating conditions defined in normative standards,

- ◆ the message condition for technical messages (at least one message of a transmitter for technical messages has been received), and
- ◆ the activation condition of actuators (at least one actuator has been activated due to a fire alarm, fault, disablement or technical message)

have been defined as further possible operating conditions of the fire detection control panels Series BC216.

Other than the normal condition, all conditions can occur at the same time. E.g., a fire detection system can display the fire alarm of a fire detector (fire alarm condition), and, at the same time, an earthing can cause the fault condition and a disabled detector zone can cause the disablement condition.

Since not all operating conditions can be displayed at the same time, priorities are set for displaying:

- ◆ fire alarm condition (highest priority)
- ◆ activation condition of actuators
- ◆ message condition for technical messages
- ◆ fault condition
- ◆ disablement condition
- ◆ test condition (lowest priority).



Of course, the powerful microprocessor systems used in the fire detection control panels Series BC216 are capable of processing all information virtually at the same time. The above list of priorities applies only to the displaying of information, not to their processing!

In addition to their display on the LC-display, the current operating conditions are indicated by using light-emitting diodes on the display and operating unit of the control panel.

Does an event of higher priority occur, the control panel will change to the corresponding event menu automatically. You can browse in the menu at any time by using the '← →'-buttons and thereby display events of lower priority as well. By using the entries of the event memory, you can display events on the LC-display that have been terminated in the meantime (e.g., a temporary fault of a part of the system).



By using the '↑↓'-buttons, you can browse in an event-category (e.g., in all current alarms); by using the '← →'-buttons, you can scroll to the previous or the next main menu point. (See from page 34 in Chapter 4.4: "Overview of the display- and operation menus").

30 seconds after the last operation, the LC-display returns automatically to displaying the first event with the highest priority regardless which event you displayed last.

With the network fire detection control panel BCnet216 the event information is equally available on every operable BCnet sectional control panel. Area filters, however, can be set by the installer for every BCnet sectional control panel (except the main operating unit) through which events of other BCnet sectional control panels are excluded from displaying and operating on the corresponding BCnet sectional control panel. At least on the BCnet sectional control panel defined as main operating unit all operating conditions of the entire network control panel are visible.

5.1 Normal condition

In accordance with its definition, no event is currently on the control panel in normal condition. This is the standard condition of every fire detection control panel. It should be left only in exceptional cases and for a limited time.



Every condition other than normal condition indicates that an event is currently on the control panel or the control panel is not operating fully!

The normal condition is indicated by:

- ◆ The illumination of only the green light-emitting diode 'POWER' while the control panel is in authorization level 1;
- ◆ The date and time on the first line of the LC-display.

If the control panel has been switched to authorization level 2 (see from page 29 in Chapter 4.1: "Operating authorization"), the second line of the LC-display shows [User level], and the green light-emitting diode 'Authorization' is illuminated. In authorization level 2, depending on regional regulations and restrictions, important parts of the system (e.g., transmitting devices, actuators, etc.) can be taken out of operation automatically. In this case the control panel is no longer in normal condition but in disablement condition. (See from page 61 in Chapter 5.6: "Disablement condition"). Pay attention to the hints given starting page 36 in Chapter 4.5: "Entering and exiting authorization level 2".

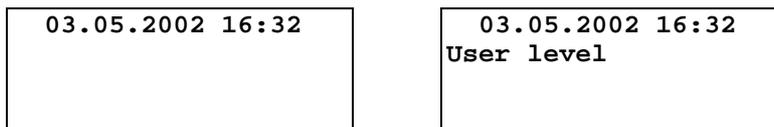


Figure 15: Display in normal condition of the control panel.

Left figure: authorization level 1

Right figure: authorization level 2

Hints for operating the menu and for authorization are displayed by using the 'Info'-button. The possibilities for operations are explained starting page 29 in Chapter 4: "Basic operation of the fire detection control panels Series BC216".



15 minutes after a button was pressed last, the fire detection control panel BC216-1 leaves authorization level 2 automatically.



With the network fire detection control panel BCnet216 the operating authorization is valid only for the operable BCnet sectional control panel on which the user code was entered.

5.2 Fire alarm condition

The control panel is in fire alarm condition when it receives an alarm from one or more fire detectors, classifies it as a fire alarm and initiates the corresponding outputs.



No rules or instructions beyond those necessary for the operation of the control panel are given in this User Manual. You have to analyze the site-specific dangers and gain the corresponding measures in case of emergency yourself, or you delegate this responsibility to a skilled person.

The fire alarm condition is indicated on the control panel as follows:

- ◆ The red summary display 'ALARM' in the info-field is illuminated.
- ◆ The internal buzzer is activated intermittently.
You can silence the internal buzzer by using the button 'Silence buzzer'. The buzzer is reactivated by every received alarm and can be reset in the same way.
- ◆ The menu automatically jumps to the menu point [Alarms] immediately after the first alarm, and with all other alarms 30 seconds after the last button was pressed.
The first line of the LC-display shows the first alarm, the fourth line displays the last alarm received. The second and third line display the programmed zone and the element-specific text for the alarm displayed in the first line. The alarms are numbered in the order they are received on the control panel.

1.ALARM	0003/029	1.ALARM	0003/029
<zone text1>		<zone text1>	
<element text>		<element text>	
1.ALARM	0003/029	6.ALARM	0015/123

Figure 16: Display of a fire alarm condition of the control panel

Left figure: Just one alarm (Nr. 1, detector zone 3, detector Nr. 29) is present. This alarm is displayed as the first as well as the last alarm.

Right figure: Six alarms are present. The last received alarm, Nr. 6, is displayed in the fourth line of the LC-display. The displayed texts always refer to the alarm displayed in the first line!

Has no element text been programmed, the second zone text (if available) is displayed instead.

- ◆ Provided that the parameters of the primary transmitting device have been set in a way that the cause of the current alarm is a reason for automatic transmission of the alarm to a designated alarm respondent (e.g., the fire brigade), the red light-emitting diode 'Activated' in the field TRANSM. DEVICE 1 is illuminated.



Is the alarm delay procedure activated (the yellow light-emitting diode 'Alarm delay' in the field TRANSM. DEVICE 1 flashes during exploration time), the transmitting device is 'Activated' only after the lapse of the exploration time or at the reception of a further alarm or of a fault. (See from page 32 in Chapter 4.2.4: "Alarm delay procedure of the primary transmitting device").

- ◆ Have the parameters of the transmitting device been set for a two-zone dependency, the activation of the transmitting device takes place only after at least two zones of this two-zone dependency are in the condition of alarm. (See from page 39 in Chapter 4.7.7: "Displaying and operating detector zones - menu point [Zone:]").
- ◆ Provided that the parameters of the alarming device have been set for the current cause of the alarm, the red light-emitting diode 'Activated' located in the field ALARM. DEVICE 1 is illuminated to indicate, that the alarming devices connected to the primary alarming device have been activated.
Have the parameters of the alarming device been set for a two-zone dependency, the activation of the alarming device takes place only after at least two zones of this two-zone dependency are in the condition of alarm. (See from page 39 in Chapter 4.7.7: "Displaying and operating detector zones - menu point [Zone:]").
- ◆ Provided that the parameters of actuations have been set for the current cause of the alarm, the red light-emitting diode 'Actuation activated' is illuminated to indicate that the actuations have been activated.
Have the parameters of the actuation been set for a two-zone dependency, the activation of the actuation takes place only after at least two zones of this two-zone dependency are in the condition of alarm. (See from page 39 in Chapter 4.7.7: "Displaying and operating detector zones - menu point [Zone:]").



The activation of a transmitting device and of an alarming device are classified as an actuation and therefore activate the red light-emitting diode 'Actuation activated' as well.

- ◆ If the parameters have been set accordingly, the red light-emitting diodes of all alarming zones, actuations, transmitting devices and alarming devices are illuminated on the optional LED-display field.

You can scroll through all current alarms by using the '↑↓'-buttons. The running number in front of the word "ALARM" indicates which alarm is currently displayed (starting with the tenth alarm a "+" is used instead of the number). The second and third line show the text for the alarm displayed in the first line. By pressing the button 'Info', additional information on the displayed alarm is provided, such as, e.g., date and time of the reception of the alarm displayed in the first line, the number of current alarms, hints for operating the menu, hints for the authorization, etc.

The following example of three current fire alarms shall illustrate this operation:

```
1.ALARM    0003/029
<zone text1>
<element text>
  3.ALARM  0016/020
```

first display

press '↓'-button

```
2.ALARM    0003/010
<zone text1>
<element text>
  3.ALARM  0016/020
```

press '↓'-button

```
3.ALARM    0016/020
<zone text1>
<element text>
  3.ALARM  0016/020
```

press '↓'-button

you have arrived at the first display again

```
1.ALARM    0003/029
<zone text1>
<element text>
  3.ALARM  0016/020
```

Figure 17: Display-sequence of a fire alarm condition of the control panel with three current fire alarms. By using the '↑↓'-buttons, the first three lines of the LC-display show the alarm information. By using the 'Info'-button, additional information for the corresponding alarm is displayed.



The fourth line is reserved for the alarm received last. Every newly received alarm overwrites the fourth line.

A fire alarm is saved on the control panel even if the cause of the alarm is no longer current. The resetting of an alarm is described starting page 54 in Chapter 5.2.4: "Terminating the fire alarm condition".



Displaying the activation of the further transmitting devices is described starting page 42 in Chapter 4.7.9: "Displaying and operating transmitting devices - menu point [Transmit. device:]". Displaying the activation of the further alarming devices is described starting page 43 in Chapter 4.7.10: "Displaying and operating alarming devices - menu point [Alarming device:]". Furthermore, you can view all activated transmitting devices and all activated alarming devices in the menu point [Activated actuations] described starting page 55 in Chapter 5.3: "Activation condition of actuations".

5.2.1 The first operations on the control panel in fire alarm condition

The most important thing is: Keep calm and do not lose control of the situation!

Always assume that the fire alarm is "real" and not a deceptive alarm. Therefore do not press the button 'Panel reset' under any circumstances before the investigation into the cause of the alarm is finished!



The information on the transmission to the fire brigade and the sirens given in this chapter are only valid for the common case that the panel was configured during commissioning so that an alarm notification of the fire brigade takes place by the primary transmitting device and the local sirens act as primary alarming device. The operating and displaying devices of the fields TRANSM. DEVICE 1 and ALARM. DEVICE 1 are only effective in the way described then!

Otherwise you have to operate the transmitting device and the alarming device by the use of the menu. The installer of the system informs you on the corresponding details of the configuration.

- ◆ Reset the internal buzzer (press the button 'Silence buzzer').
- ◆ Check if the fire brigade has been notified. The light-emitting diodes in the field TRANSM. DEVICE 1 indicate this as follows:
Is one of the yellow light-emitting diodes 'Fault' or 'Call fire brigade' in the field TRANSM. DEVICE 1 illuminated, it is not certain that the fire brigade has been notified automatically. In this case contact the fire brigade immediately!
If the red light-emitting diode 'Activated' is not illuminated, the fire brigade has not been notified. The omission may be caused by a defect (in this case, the fire brigade is to be contacted immediately), or by the activation of the alarm delay procedure and, with it, of the delayed activation of the primary transmitting device. In case of a two-zone dependency it may be caused by the fact that the transmitting device will be activated only after an alarm from another detector zone which is also contained in this two-zone dependency.



If the delay procedure has been activated, the light-emitting diode 'Alarm delay' in the field TRANSM. DEVICE 1 is illuminated. If you press the button 'Alarm delay/Explore' in the field TRANSM. DEVICE 1 during the time set for reaction (e.g., 30 seconds), the light-emitting diode 'Alarm delay' will start to flash as an indication that you have started the exploration timer. Now you have exactly the set exploration time (e.g., 270 seconds; this time is country-specifically settable) in order to decide if it is necessary to notify the fire brigade. If you decide that this is not necessary you can forestall the notification by disabling the alarming detector zone(s).

In case of doubt, you have to contact the fire brigade immediately!

- ◆ Check, if the connected sirens have been activated. If you are within hearing distance of the sirens, this check is very easy. If not, you will have to rely on the displays in the field ALARM. DEVICE 1:
Is the light-emitting diode 'Activated' not illuminated, the sirens have not been activated.
Is the light-emitting diode 'Fault/Disabled' illuminated or flashing, it is not clear whether or not the sirens have been activated. In this case you have to start alternative measures to alarm the persons in the endangered areas.
Reset the sirens only if you are sure that no evacuation alarm is needed!
- ◆ Find out where the first fire alarm has occurred.
The first line of the LC-display shows the number of the detector zone and the number of the fire detector that activated the alarm, the second and third lines show hints on the locality. You also can get information on the locality by looking up the numbers of the detector zones and the fire detectors in the list of detector zones provided in the engineering data.
- ◆ Find out how many alarms were activated.
The fourth line displays the last alarm. Its running number (e.g., [6.ALARM]) shows how many alarms were activated (in the example: 6).
- ◆ Take a survey of all current alarms.
Here, the superiority of the operation of the control panel becomes obvious: By using the '↑↓'-buttons, you can scroll through all current alarms and obtain information on the locality of every one of them.
- ◆ If the displays 'FAULT' or 'Disablement' are illuminated, you have to find out which parts of the system are affected and start alternative measures if necessary.



Parts of the system (e.g., actuations) that are disabled or have a fault, cannot cope with their assigned tasks.



Starting at the display of alarms you can scroll to the main menu points [Faults] and [Disablenents] by using the '← →'-buttons. In these menu points you can scroll through the events by using the '↑↓'-buttons.

- ◆ Determine - either by yourself or through other qualified persons - the actual potential for danger in the locations where a fire has been detected.

All further actions result from the above point and are not dealt with further in this User Manual.



For all operations explained here authorization level 1 is sufficient, which means that you do not have to enter a numeric code!

5.2.2 Resetting the alarming devices

You can reset the primary alarming device by pressing the button 'On/off' located in the field ALARM. DEVICE 1. (See from page 26 in Chapter 3.9: "ALARM. DEVICE 1 - field"). After receiving a new alarm or after pressing this button again, the alarming device can be reactivated, depending on local installation regulations.

The further alarming devices are reset by using the menu. This operation is described starting page 43 in Chapter 4.7.10: "Displaying and operating alarming devices - menu point [Alarming device:]".

5.2.3 Resetting an alarm of a detector zone

You can reset the alarm of a detector zone by disabling the corresponding detector zone or the alarming detector (see from page 39 in Chapter 4.7.7: "Displaying and operating detector zones - menu point [Zone:]"). Thereby all actuations dependent on this alarm are reset as well.



Alarms of detector zones remaining in the display memory are renumbered in order of their occurrence.

5.2.4 Terminating the fire alarm condition

The condition of fire alarm is terminated if no detector zone is reporting a fire alarm anymore. The condition for this is that

- ◆ the signs of fire (e.g., smoke, temperature, etc.) that caused the fire alarm do not exist anymore and the fire detectors have been reset, or
- ◆ the affected detector zone and the affected elements have been disabled.

Automatic fire detectors usually are reset from the control panel by disabling, followed by enabling, the detector zone or a single detector. The disablement and enablement of detector zones and detectors are described starting page 39 in Chapter 4.7.7: "Displaying and operating detector zones - menu point [Zone:]". Manual fire detectors (manual call points) have to be priorly reset mechanically on the detector itself.



If individual detector zones or detectors are enabled, the control panel checks for five seconds if criteria for an alarm exist in this zone. In such a case (e.g., a non-automatic fire detector has not been reset), the enablement is rejected and the LC-display shows [Cannot be enabled!] or [Cannot be enabled completely!].



Some special fire detectors may require special resetting procedures, the authorized installer will inform you about them.

The fire alarm condition is terminated after you have reset all alarming detector zones and detectors.

By pressing the button 'Panel reset' you reset all current fire alarms together with other displays at once.



By resetting all alarms and other displays at the same time, you are deleting all entries in the event-menus and thereby you lose the fast access to information on current events.



When resetting with the button 'Panel reset', no check is made to see if the local alarm situation is existing still. Has, for example, the sign of fire not been reduced properly (e.g., for smoke detectors, by thoroughly ventilating a smoky room), a new alarm is activated after resetting.

5.2.5 Fire alarm condition - special case: alarm in an interdependence of two detectors

Interdependencies of two detectors can be set during planning for exceptional local circumstances. In this case the condition of fire alarm is attained only if at least two detectors of an interdependence of two detectors are in the state of alarm at the same time. Is the first detector of an interdependence of two detectors in the state of alarm, the control panel evaluates this as a pre-alarm. The LC-display of the control panel displays a pre-alarm similarly to an alarm but uses the word "PRE-AL". Usually no further optical or acoustic displays are activated. However, the parameters of an actuation can be set so that the actuation is activated in case of a pre-alarm. A pre-alarm is either deleted after a short period of time (typically after 2 minutes) or it changes directly to fire alarm condition if a second detector meanwhile attained the state of alarm during the pre-alarm time as well. The further processing and the display happen as described starting page 50 in Chapter 5.2: "Fire alarm condition".

Also more than two detectors can be combined into an interdependence of two detectors. If at least two detectors of this interdependence of two detectors are in the state of alarm, the fire alarm condition is attained.



A detector is removed automatically from the interdependence of two detectors if it is disabled or has a fault until the fault, or the disablement is terminated. Have the parameters of the interdependence of two detectors been set for just two detectors, the disablement or the fault of one of these detectors prevents fire alarm condition since only pre-alarm can be activated!

5.3 Activation condition of actuations

If one or more actuations have been activated, the fire control panel is in activation condition of actuations. Actuations are predominantly used for automatic activation of fire control systems (e.g., for closing fire doors, switching off air condition or ventilation systems, opening smoke escapes, activating extinguishing systems, etc.). Actuations can be activated by one detector zone or by a two-zone dependency or - if the detector technology used allows it - by a single detector or by an interdependence of two detectors.



The activation of transmitting devices or alarming devices generally is displayed as an actuation too, by the LED display 'Actuation activated'.

Which events (e.g., fire alarm of a detector zone, alarms of determined detectors of a detector zone, disablements, faults, etc.) are to activate automatically which actuations is determined during the planning of the fire detection system. Access this information in the engineering data of your fire detection system.



The fire control panel transmits only an activation signal to the connected fire protection devices. It does not activate the fire protection devices itself!

The activation condition of actuations is displayed on the control panel as follows:

- ◆ The red light-emitting diode 'Actuation activated' is illuminated.
 - ◆ The menu jumps automatically to the menu point [Activated actuations] if no event of higher priority is currently on the control panel.
- The first line of the LC-display shows the temporarily first activated actuation. The second and third line display the zone and the element-specific text for the actuation displayed in the first line. The fourth line is reserved for displaying alarms. The activated actuations are numbered in the order of their activation.

```

1.ACTU.ACT  0004/021
<zone text1>
<element text>
  1.ALARM  0003/029

```

Figure 18: Display in activation condition of actuations
Actuation Nr. 4, actuation element Nr. 21 is displayed as the first activated actuation. The second and third lines contain text information regarding the actuation. Is no element-text available, the third

line will show the second zone text, if this is available. The fourth line is reserved for fire alarm messages.

- ◆ If the parameters have been set accordingly, the light-emitting diodes of all activated actuations are illuminated on the optional LED-display field.

Additional information (e.g., date and time of the activation of the actuation displayed in the first line, the number of activated actuations, hints for operating the menu, hints for authorization, etc.), can be displayed by using the 'Info'-button.

Generally, the actuation is activated until the cause of the activation (e.g., the alarm of a specific detector zone) is terminated.



Is an actuation deactivated, all actuation-displays remaining in the display memory are renumbered in the order of their activation.

You can scroll through all activated actuations by using the '↑↓'-buttons.

The following activation messages are displayed on the LC-display of the control panel:

Condition	Displaying (1st line)
Activation of an actuation zone (e.g., Nr. 4)	1 . ACTU . ACT 0004
Activation of an element (e.g., Nr. 21) of an actuation zone (e.g., Nr. 4)	1 . ACTU . ACT 0004 / 021
Activation of a transmitting device (e.g., Nr. 2)	1 . TR - DEV . ACT 02
Activation of an alarming device (e.g., Nr. 6)	1 . AL - DEV . ACT 06

Table 3: Messages regarding the activation condition of actuations



The number series for defining the actuations (in the example above, "0004") is independent from the numbers of the fire detector zones, fault detector zones and technical messages. Detection zones, actuations, transmitting devices and alarming devices have their own number series.

5.3.1 Activating an actuation in a two-zone dependency

To increase the security against deceptive activation, the parameters of every actuation (e.g., the activation of an extinguishing system) can be set so that it is activated only after at least two detector zones are in the condition of alarm at the same time.



The fire alarm condition of the control panel already is attained with the alarm of the first detector!



A detector zone is removed automatically from a two-zone dependency if it is disabled or has a fault until the fault or the disablement is terminated. Have the parameters of the two-zone dependency been set for just two detector zones, the disablement or the fault of one of these detector zones prevents the second detector zone from activating the actuation!

5.4 Message condition for technical messages

Technical messages inform on the control panel about devices that do not directly belong to the fire detection system but are important for fire protection. The devices for technical messages (e.g., about fire doors, fire dampers, smoke escapes, etc.) are combined to zones and wired to the control panel similar to fire detectors. But they do not cause an alarm or fault display on the control panel.

The message condition for technical messages is displayed on the control panel as follows:

- ◆ The yellow light-emitting diode 'Technical message' is illuminated.

- ◆ The internal buzzer is sounding constantly.
You can silence the internal buzzer by using the button 'Silence buzzer'. The buzzer is activated again by each further received technical message and can be reset in the same way.
- ◆ If no event of higher priority is currently on the control panel the menu jumps automatically to the menu point [Technical messages].
The first line of the LC-display shows the technical message that was received first. The second and third line display the zone and the element-specific text for the technical message displayed in the first line. The fourth line is reserved for displaying fire alarms. The activated actuations are numbered in the order of their arrival on the control panel.

```

1.TECH.MSG 0005/011
<zone text1>
<element text>

```

Figure 19: Display in message condition for technical messages

Message Nr. 5, element Nr. 11 is displayed as the first technical message received. The second and third line display text information regarding the displayed technical message. Has no element text been programmed, the second line of the zone text (if available) is displayed. The fourth line is reserved for fire alarm messages.

- ◆ If the parameters have been set accordingly, the light-emitting diodes of all technical messages that were received are illuminated on the optional LED-display field.

Additional information (e.g., date and time of the arrival of the technical message displayed in the first line, the number of technical messages received, hints for operating the menu, hints for authorization, can be displayed by using the 'Info'-button.

You can scroll through all current technical messages by using the '↑↓'-buttons.



The number series for technical messages (in the example above "0005") is the same as for fire detector zones and fault detector zones.

5.4.1 Resetting a technical message

The parameters of detector zones for technical messages can be set to "self holding" or "self resetting". The kind of resetting required in each case is set by the installer.

"Self resetting" detector zones for technical messages display the current detector condition: If the detector returns to normal condition the technical message disappears.

"Self holding" detector zones continue to display the technical messages until the detector zone or the detector is disabled on the control panel. By disabling, all actuations dependent on this message are reset also. Whether or not the detector itself can be returned to normal condition by disabling the detector zone depends on the kind of detector used.



Is a technical message reset, all displays of technical messages remaining in the display memory are renumbered in the order of their occurrence.



Some special detectors may require special resetting procedures, the authorized installer will inform you about them.

By pressing the button 'Panel reset' you reset all current technical messages in addition to other displays at the same time. In this connection please pay attention to the comments starting page 31 in Chapter 4.2.1: "Resetting the fire detection control panel".

5.4.2 Special technical messages

The technical messages, activated by detectors, are described in the foregoing section. Some messages can also be displayed on the LC-display that have been activated directly by other peripheral devices of the fire detection system. These messages are always "self resetting". Besides the displaying on the LC-

display of the panel, the yellow light-emitting diode 'Technical message' and the buzzer are activated by these messages also.

Technical messages of that kind are:

- ◆ The processing of a sabotage-message of a key safe.
Usually this message is reported to a burglar alarm control panel and indicated there as a burglar alarm- or sabotage message. If no burglar alarm system is installed in the building the sabotage message can be reported to the fire detection control panel and can be shown on the LC-display as technical message.
- ◆ The activation of an extinguishing system.
- ◆ The confirmation of the executed activation of the primary transmitting device.

5.5 Fault-message condition

The cause of the fault-message condition can be either the activation of a detector zone for faults (e.g., the surveillance of weight- or pressure loss of the extinguishing agent in extinguishing systems) or a fault of a function of the fire detection system itself. Faults of the fire detection system can concern the connection lines (e.g., broken wire, short-circuit, earthing) between individual parts of the system, the power supply, single detectors, the control panel itself, etc.



Every current fault affects the function of the whole fire detection system. Be aware that a part of a system that has a fault is out of function in its whole. For example, a faulty fire detector zone cannot detect a fire in this detector zone! Have the fault repaired immediately by a company authorized and trained by the manufacturer. Pay attention to the statements starting page 9 in Chapter 1.2.2: "What to do in case of a fault"!



Not all parts of a fire detection system can be checked on continuously. A fault of a part of the system that is not automatically surveilled constantly can be detected only during maintenance or during the periodic testing of its functions by the user.

The fault-message condition is displayed on the control panel as follows:

- ◆ The yellow summary display 'FAULT' is flashing.
- ◆ The internal buzzer is sounding constantly.
You can reset the internal buzzer by using the button 'Silence buzzer'. The buzzer is activated again by each new fault and can be reset in the same way.
- ◆ The menu jumps automatically to the menu point [Faults] if no event of higher priority is currently on the control panel.

The first line of the LC-display shows the first occurred fault. The second and third line display, depending on the kind of fault, additional text (e.g., a zone-, respectively an element-specific text) for the fault displayed in the first line. The fourth line is reserved for displaying fire alarms. The faults are numbered in the order of their occurrence.

<pre>1.FAULT 0011/029 <zone text1> <element text></pre>	<pre>1.FLT-ALARM 0012/028 <zone text1> <element text></pre>
--	---

Figure 20: Examples of displays in fault condition

Left figure: Element Nr. 29 in detector zone Nr. 11 is displayed as the first received fault message.

Right figure: The activation of fault detector Nr. 28 in detector zone Nr. 12 is displayed as the last fault alarm.

The second and third line show text information on the displayed fault. Has no element text been programmed, the second line of the zone text (if available) is displayed. The fourth line is reserved for fire alarm messages.

- ◆ Have the parameters been set to transmit the current fault to a transmitting device for fault messages, the red light-emitting diode 'Actuation activated' is illuminated to indicate that the transmitting device has been activated.

- ◆ At a fault in the primary transmitting device or the primary alarming device, the corresponding yellow LED-displays are flashing.
- ◆ At a fault in the power supply, the yellow light-emitting diode 'Energy fault' is flashing.
- ◆ At a fault in the system, the yellow light-emitting diode 'System fault' is flashing or is illuminated, depending on the kind of fault (see from page 9 in Chapter 1.2.2: "What to do in case of a fault").
- ◆ If the parameters have been set accordingly, the light-emitting diodes of all faulted zone(s) or other parts of the system are flashing on the optional LED-display field.

Additional information (e.g., date and time of the occurrence of the fault displayed in the first line, the kind of fault, etc.) can be displayed by using the 'Info'-button.

You can scroll through all current faults by using the '↑↓'-buttons.



A faulted detector zone that is part of a two-zone dependency of an actuation, a transmitting device or an alarming device is removed from the two-zone dependency. Have the parameters of the two-zone dependency been set for just two detector zones and one of them is faulted, the to be activated actuations cannot be activated by the two-zone dependency in case of fire!

Does an interdependence of two detectors consist of just two detectors and one of them is faulted, the second detector is ineffective as well because it can activate only a pre-alarm.



The number series for faults (in above example, "0012") is the same series as for fire detector zones and detector zones for technical messages.

Fault-messages transmitted to the control panel by fault detectors are saved until the faults have been reset (e.g., by disabling the fault detector zone). Fault displays that are recorded by the control panel itself (e.g., a mains power shut down) are not kept saved. When the cause of the fault is eliminated, the display on the control panel disappears.



You can survey the last 500 events anytime by viewing the event memory. See from page 43 in Chapter 4.7.11: "Menu point [Event memory]".



Has a fault been repaired, all faults remaining in the display memory are renumbered in the order of their occurrence.

The following fault messages are displayed on the LC-display of the control panel:

Condition <i>Effect</i>	Displaying (1st line)
Alarm message from a detector zone (e.g., Nr. 5) for fault messages ¹⁾	1.FLT-ALARM 0005
Alarm message from an element (e.g., Nr. 14) of a detector zone (e.g., Nr. 5) for fault messages ¹⁾	1.FLT-ALARM 0005/014
Alarm of a detector zone (e.g., Nr. 5) for fault messages, in test condition	1.FLT.T-AL 0005
Alarm of an element (e.g., Nr. 14) of a detector zone (e.g., Nr. 5) for fault messages, in test condition	1.FLT.T-AL 0005/014
Fault in a detector zone (e.g., Nr. 4) for fire alarms <i>The transmitting of a fire alarm from the concerning fire detectors to the control panel is no longer ensured.</i>	1.FAULT 0004
Fault in an element (e.g., Nr. 29) of a detector zone (e.g., Nr. 4) for fire alarms <i>The transmitting of a fire alarm from the concerning element to the control panel is no longer possible.</i>	1.FAULT 0004/029
Fault in a detector zone (e.g., Nr. 3) for technical messages <i>The transmitting of an alarm from the concerning detectors to the control panel is no longer ensured.</i>	1.TECH.FLT 0003

Condition <i>Effect</i>	Displaying (1st line)
Fault in an element (e.g., Nr. 5) of a detector zone (e.g., Nr. 3) for technical messages <i>The transmitting of an alarm from the concerning element to the control panel is no longer possible.</i>	1 . TECH . FLT 0003 / 005
Fault in a detector zone (e.g., Nr. 5) for fault messages ¹⁾ <i>The transmitting of a fault message from the concerning detectors to the control panel is no longer ensured.</i>	1 . FLT . FLT 0005
Fault in an element (e.g., Nr. 14) of a detector zone (e.g., Nr. 5) for fault messages ¹⁾ <i>The transmitting of a fault message from the concerning element to the control panel is no longer possible.</i>	1 . FLT . FLT 0005 / 014
Fault in an actuation zone (e.g., Nr. 2) <i>The activation of the elements of the concerning actuation zone is impossible.</i>	1 . ACTU . FLT 0002
Fault in an element (e.g., Nr. 18) of an actuation zone (e.g., Nr. 2) <i>The activation of the concerning elements of the actuation zone is impossible.</i>	1 . ACTU . FLT 0002 / 018
Fault in a transmitting device (e.g., Nr. 1) <i>The transmitting device (e.g. for transmitting alarms to the fire brigade) will not be activated in case of alarm.</i>	1 . TR-DEV . FLT 01
Fault in an alarming device (e.g., Nr. 1) <i>The alarming device (e.g. a siren) will not be activated in case of alarm.</i>	1 . AL-DEV . FLT 01
Fault in a serial interface (e.g., Nr. 1) <i>The connected device (e.g. a printer) does not work properly.</i>	1 . SER-IF . FLT 1
Fault in an Info-bus (interface number 0, e.g., device Nr. 2) <i>The connected device (e.g. a fire brigade control punit) does not work properly.</i>	1 . SER-IF . FLT 0 / 02
Fault in a loop (e.g., function module Nr. 1, loop position Nr. 12) <i>The cabling system has a fault in the specified position. An effect on the function is to be expected with a further fault only.</i>	1 . LOOP . FLT 0001 / 012
Fault in an extinguishing system (activation of a FWI input, especially parameterized for this) <i>The extinguishing system will not be activated in case of alarm.</i>	1 . EXTING . FLT
Fault in the power supply (mains, battery, earthing) <i>See following explanations.</i>	1 . ENERGY FAULT
Fault in an external consumer (e.g., fuse blown) with complementary info displayed in the second line <i>Thereon connected devices are not supplied with power.</i>	1 . FAULT
General fault (the cause is displayed in the second line) <i>See following explanations.</i>	1 . FAULT

¹⁾ The alarm message from a detector zone whose parameters have been set for fault messages (i.e., the activation of a fault detector in this zone), as well as a fault in the detector zone itself (e.g., a broken wire) are evaluated as a fault in the same way!

Table 4: *Messages of the fault-message condition*
By pressing the button 'Info', detailed information on the faults are displayed.



In case of several current faults, you can tell the order of their occurrence by the number in front of the fault message. Starting with the tenth fault, a "+" is written instead of the number. The exact time of the occurrence of the fault can be displayed by pressing the button 'Info'.



The fire detection system is supplied with power by the stand-by battery in case of a fault with mains power shut down. The required bridging time is regulated by local guidelines. Often, a bridging time of 72 hours is demanded. Note that longer mains power shut down times mean that the fire detection system will be out of power and therefore out of function!

At a fault of the stand-by battery the fire detection system is supplied by the mains power only. With a shut-down of the mains power the fire detection system runs out of power and is therefore out of function! A single earthing of the cabling system does not impair the fire detection system, multiple earthings are additionally displayed as a fault of the corresponding part of the system.

If the second line of the LC-display shows "FWI", "FM1", "FM2", "ABB216" or "LAB" as fault cause in case of a fault, you have to assume that

- ◆ the public safety personnel (e.g. the fire brigade) will not be notified automatically in case of alarm ("FAULT FWI") or
- ◆ the fire detectors connected to the function modules FM1 or FM2 are no longer serviced by the control panel and therefore can no longer report alarms to the control panel and, consequently, cannot activate actuations ("FAULT FM1", "FAULT FM2"). Please retrieve information on which fire detectors or detector zones are affected by this fault from your engineering data.
- ◆ the display and operating unit of the control panel ("FAULT ABB216") or the LED-display field of the control panel ("FAULT LAB") is out of function.

If a fire detection control panel BCnet216 displays [MEMB.FLT xxx] in case of fault, you have to assume that the GSSnet member number xxx is completely out of function. If this GSSnet member is a BCnet sectional control panel of the BCnet216, the area which is attended by this BCnet sectional control panel is no longer monitored!

If a fire detection control panel BCnet216 displays [GSS-N.FLT xxx] in case of fault, a line fault exists in the GSSnet wiring after the GSSnet member number xxx. Since the GSSnet is built on circular wiring, this does not yet impair the fire detection system. If however two such faults are displayed, the GSSnet members arranged between the two displayed GSSnet members are no longer connected to the main operating unit and therefore can no longer be attended by it!



With multiple line faults of the network cable the whole circular network will be separated into isolated segments. If the fire detection control panel BCnet216 consists exclusively of operable BCnet sectional control panels, even with such multiple line faults each of the separate segments stays fully operable. In this case the BCnet sectional control panel with the lowest member number in the segment becomes the main operating unit of this segment. Please retrieve the corresponding hints from the engineering data of your fire detection system.

5.6 Disablement condition

The disablement condition is an intentional condition of a fire detection system, in which the system or parts of it are taken out of operation.



By disabling a part of the system or a function, the corresponding part or function is put out of operation! Therefore, disable parts of the system only in exceptional cases and make sure that these parts are not kept disabled longer than necessary.



A disabled detector zone that is part of a two-zone dependency of an actuation, a transmitting device or an alarming device is removed from the two-zone dependency. Have the parameters of the two-zone dependency been set for just two detector zones, one of which is disabled, the devices that ought to be activated cannot be activated by the two-zone dependency in case of fire!

If in an interdependence of two detectors consisting of just two detectors one is disabled, the second detector is ineffective as well because it can only activate a pre-alarm.



The parameters of an actuation can be set so that the actuation is also activated in case of a disablement or a fault of the corresponding detector zone or by entering authorization level 2 or 3. You find information on the kind of actuation used in the engineering data of your fire detection system.

The disablement condition is displayed on the control panel as follows:

- ◆ The yellow light-emitting diode 'Disablement' is illuminated.

- ◆ At disablement of the primary transmitting device or the primary alarming device, the corresponding yellow disablement-LED-displays are illuminated.
- ◆ The menu jumps automatically to the menu point [Disablesments] 30 seconds after any button was pressed last, if no event of higher priority is currently on the control panel.
The first line of the LC-display shows the first disablement. The second and third line display additional text (e.g., a zone-, or an element-specific text) for the disablement displayed in the first line. The fourth line is reserved for displaying fire alarms. The disablements are numbered in order of their execution.

```
1.DISABLEM. 0001/029
<zone text1>
<element text>
```

Figure 21: Display in the condition of disablement

Element Nr. 29 of the detector zone Nr. 1 is displayed as the first executed disablement. The second and third line display information on this disablement. Has no element text been programmed, the second zone text (if available) is displayed. The fourth line is reserved for fire alarm messages.

Additional information (e.g., date and time of the disablement, the number of current disablements, hints for operating the menu, hints for authorization) can be displayed by using the 'Info'-button. You can scroll through all current disablements by using the '↑↓'-buttons.

The following disablements are displayed on the LC-display of the control panel:

Condition	Displaying (1st line)
Disablement of a detector zone (e.g., Nr. 4) for fire alarms	1.DISABLEM. 0004
Disablement of an element (e.g., Nr. 29) of a detector zone (e.g., Nr. 4) for fire alarms	1.DISABLEM. 0004/029
Disablement of a detector zone (e.g., Nr. 3) for technical messages	1.TECH.DIS 0003
Disablement of an element (e.g., Nr. 5) of a detector zone (e.g., Nr. 3) for technical messages	1.TECH.DIS 0003/005
Disablement of a detector zone (e.g., Nr. 5) for fault messages	1.FLT.DIS 0005
Disablement of an element (e.g., Nr. 14) of a detector zone (e.g., Nr. 5) for fault messages	1.FLT.DIS 0005/014
Disablement of an actuation zone (e.g., Nr. 2)	1.ACTU.DIS 0002
Disablement of an element (e.g., Nr. 18) of an actuation zone (e.g., Nr. 2)	1.ACTU.DIS 0002/018
Disablement of an actuation zone (e.g., Nr. 2), automatically in authorization level 2 or 3	1.ACTU.DIS* 0002
Disablement of a transmitting device (e.g., Nr. 1)	1.TR-DEV.DIS 01
Disablement of a transmitting device (e.g., Nr. 1), automatically in authorization level 2 or 3	1.TR-DEV.DIS* 01
Disablement of an alarming device (e.g., Nr. 1)	1.AL-DEV.DIS 01

Table 5: Messages of the disablement condition



In case of several current disablements, you can tell the order of their occurrence by the number in front of the disablement message. Starting with the tenth disablement, a "+" is written instead of the number.



If all elements of a zone have been disabled individually, the whole detector zone is rated as disabled.

A manually disabled part of the system can be enabled again either by using the menu or by pressing the '↓'-button during the display of disablements (menu point [Disablements]). See from page 33 in Chapter 4.3.1: "Menu-quick-operation". System parts which were automatically disabled when entering authorization level 2 or 3 are automatically re-enabled when exiting authorization (see from page 29 in Chapter 4.1: "Operating authorization").



Consider that an alarm or fault message can be caused, and that actuations, transmitting devices, etc. can be activated by enabling a part of the system that is not in normal condition.



At the enablement of a detector zone or of elements of these zones, the control panel checks for 5 seconds if a criteria for an alarm currently exists in this zone. In such a case (e.g., a non-automatic fire detector has not been reset), the enablement is refused and the LC-display shows [Cannot be enabled!] or [Cannot be enabled completely!].



If a disabled part enabled again, all displays of disablements remaining in the display memory are re-numbered in the order of their occurrence.

5.7 Test condition

The fire detection control panel is in test condition if one or more detector zones, actuations or alarming devices are put in test condition. The test condition makes it possible to test the function of fire detectors, technical detectors and fault detectors during maintenance without causing a condition of fire alarm, technical messages or fault messages on the control panel. Only the LC-display shows the test-"alarm" and an entry is made in the event memory. The test-"alarm" is reset automatically after 5 seconds (one-man-maintenance). Furthermore, alarming devices and actuations can be tested on their function without having to activate a fire alarm.



Detection zones in test condition cannot transmit an alarm to the fire brigade, the alarming devices and the actuations in case of fire! Therefore put detector zones in test condition only for test purposes and terminate this condition as soon as possible. Also note the warning hints starting page 61 in Chapter 5.6: "Disablement condition".

The test condition is displayed on the control panel as follows:

- ◆ The yellow light-emitting diode 'Test condition' is illuminated.
 - ◆ The menu jumps automatically to the menu point [Test conditions] 30 seconds after any button was pressed last if no event of higher priority is currently on the control panel.
- The first line of the LC-display shows the first zone that has been put in test condition. The second and third line display additional text (e.g., a zone-, or an element-specific text) for the test procedure displayed in the first line. The fourth line is reserved for displaying fire alarms. The test procedures are numbered in the order of their execution.

```
1.TECH.TEST 0003/005
<zone text1>
<element text>
```

Figure 22: Display in test condition

Element Nr. 5 of the detector zone for technical messages Nr. 3 is displayed as the first executed test procedure. The second and third line display text information on the displayed test procedure. Has no element text been programmed, the second line of the zone text (if available) is displayed. The fourth line is reserved for fire alarm messages.

Additional information (e.g., date and time of the test procedure, the number of current test procedures, hints for operating the menu, hints for authorization) can be displayed by using the 'Info'-button. You can scroll through all current test procedures by using the '↑↓'-buttons.

The following test conditions are displayed on the LC-display of the control panel:

Condition	Displaying (1st line)
Test condition of a detector zone (e.g., Nr. 4) for fire alarm	1 . TEST COND 0004
Test condition of an element (e.g., Nr. 29) of a detector zone (e.g., Nr. 4) for fire alarm	1 . TEST COND 0004/029
Test condition of a detector zone (e.g., Nr. 3) for technical messages	1 . TECH . TEST 0003
Test condition of an element (e.g., Nr. 5) of a detector zone (e.g., Nr. 3) for technical messages	1 . TECH . TEST 0003/005
Test condition of a detector zone (e.g., Nr. 5) for faults	1 . FLT . TEST 0005
Test condition of an element (e.g., Nr. 14) of a detector zone (e.g., Nr. 5) for faults	1 . FLT . TEST 0005/014
Alarm of a detector zone (e.g., Nr. 4) for fire alarm, being put in test condition	1 . TEST - AL 0004
Alarm of an element (e.g., Nr. 29) of a detector zone (e.g., Nr. 4) for fire alarm, being put in test condition	1 . TEST - AL 0004/029
Alarm of a detector zone (e.g., Nr. 3) for technical messages, being put in test condition	1 . TECH . T - AL 0003
Alarm of an element (e.g., Nr. 5) of a detector zone (e.g., Nr. 3) for technical messages, being put in test condition	1 . TECH . T - AL 0003/005
Alarm of a detector zone (e.g., Nr. 5) for fault messages, being put in test condition	1 . FLT . T - AL 0005
Alarm of an element (e.g., Nr. 14) of a detector zone (e.g., Nr. 5) for fault messages, being put in test condition	1 . FLT . T - AL 0005/014
Test activation of a transmitting device (e.g., Nr. 1)	1 . TR - DEV . TEST 01
Test activation of an alarming device (e.g., Nr. 1)	1 . AL - DEV . TEST 01
Test activation of an actuation (e.g., Nr. 1)	1 . ACTU . TEST 0001
Test activation of an element (e.g., Nr. 4) of an actuation (e.g., Nr. 1)	1 . ACTU . TEST 0001/004

Table 6: Messages of test conditions



You terminate a test procedure by disabling the corresponding detector zone. The displays of test conditions remaining in the display memory are renumbered in the order of their occurrence.

6 Ensuring the efficacy of the system by the user

In order to ensure the efficacy of the fire detection system the user periodically should make sure that the system fulfills its determined purposes in all areas and that it functions fully and well.



This internal control may also be ordered by the regulatory agencies.

6.1 Periodic function tests

Periodic function tests have to be performed by trained personnel (e.g., by the fire prevention officer). The function tests generally are simple tests of the operational readiness of the fire detection system, as described exemplary in the following.

6.1.1 Testing of the fire detection control panel and the power supply devices

- ◆ Make sure that the light-emitting diode 'POWER' is illuminated on the fire detection control panel BC216-1 or on all operable BCnet sectional control panels of the network control panel BCnet216.



In normal condition of the control panel only the green light-emitting diode 'POWER' is solely illuminated.

- ◆ Make sure that no fault is currently on the control panel. You recognize the fault condition (see from page 58 in Chapter 5.5: "Fault-message condition") by the flashing of the yellow display 'FAULT'.
- ◆ Make sure that no disablements are in effect and that no detector zones are in test condition.
- ◆ Carry out a display test by pressing the button 'Silence buzzer' on the control panel or on all operable BCnet sectional control panels. Thereby, you are testing the optical displays and the internal buzzer. (See from page 44 in Chapter 4.7.12.2: "Testing the optic and acoustic displays and the buzzer - submenu point [Display test]").
- ◆ In spite of the complex charging control for charging the stand-by batteries, the lifespan of the maintenance-free batteries used in security systems is limited. Notice the specifications of the manufacturer of the battery regarding the usable life of the stand-by batteries used in the control panel (or in the BCnet sectional control panels). Promptly replace expired batteries during the periodic maintenance of the system.



Make sure that the discarded stand-by batteries are disposed of legally. The stand-by batteries used in fire detection systems are built on the basis of lead and sulphuric acid. Such batteries never are to be disposed of in domestic waste!

6.1.2 Testing of detectors

Proper testing devices are available optionally for testing the functions of automatic fire detectors. The function testing is carried out as follows:

- ◆ Put the detector zone whose detectors you want to test in test condition. (See from page 63 in Chapter 5.7: "Test condition").



If you carry out a detector test without putting the corresponding detector zone into test condition, you automatically activate the fire control systems (including, if existing, extinguishing systems - danger to life!) and the alarming devices, and unintentionally call the safety personnel (e.g., the fire brigade).

- ◆ Activate the detectors that are in test condition one after the other by using the appropriate testing device. You recognize the correct function by the light display on the detector. The alarm condition of the detector is reset automatically after a few seconds - you do not have to reset the alarm on the control panel (one-man-maintenance). Make sure that you are activating only detectors that are in test condition!



In addition, you can check on the executed activation of the detectors by reading the event memory subsequently.

- ◆ After finishing the testing of the detectors you have to terminate the test condition immediately.



Detection zones in test condition cannot transmit an alarm to the fire brigade, the alarming devices and the actuations in case of fire! Therefore put detector zones in test condition only for test purposes and terminate this condition as soon as possible.

6.1.3 Testing the alarming devices

The easiest way to test the installed alarming devices (e.g., sirens) is to activate them. (See from page 43 in Chapter 4.7.10: "Displaying and operating alarming devices - menu point [Alarming device:]").



The activation of the alarming devices for test purposes has the same effect as a real activation! Before the activation make sure that everybody in the building is informed of the test alarm.

6.1.4 Testing the fire control systems

You are testing the functions of the fire control systems by activating them. (See from page 41 in Chapter 4.7.8.1: "Operating actuations").



The activation of an actuation for test purposes is a real activation which may lead to an unintended activation of an extinguishing system and thus to danger to life and to costly damage of property. Contact the responsible person (e.g., fire prevention officer, safety officer) prior to making a test alarm, so that he can make the required mechanical or electrical switch-offs of extinguishing systems or similar devices before the start of the activation.

6.1.5 Testing the transmitting devices

For safety reasons, no operating function is provided on the control panel for activating a transmitting device for test purposes. The testing of a transmitting device can take place only by intentionally activating a detector (e.g., a manual call point).



The activation of a transmitting device absolutely has to be coordinated with the designated alarm respondent (e.g., the fire brigade). Alerting the safety personnel for no good reason has to be avoided at all costs.



The activation of a transmitting device by activating a detector is a real alarm message and leads to the activation of all actuations and alarming devices whose parameters have been set accordingly.

6.2 Other tests

Besides testing the functions of the devices, regular checks have to be made to make sure that the system fulfills its intended purpose. Observe all official regulations for the operation of the fire detection system! The following list serves as example of checks of the most important criteria for a typical fire detection system.

- ◆ Make sure that no changes in the use of rooms have been made that would demand a change in the fire detectors.
- ◆ Make sure that no architectural changes have been made that would demand a change in the fire detection system.
- ◆ Make sure that the installed devices and wiring are not damaged.
- ◆ A space of 0.5m has to be kept clear below fire detectors to ensure the proper functioning of the detectors. Manual call points have to be freely accessible at all times.
- ◆ Make sure that all action data (e.g., fire prevention plans) are available in their latest edition for use in case of emergency.



Should you find problems or have doubts during a test of your fire detection system, inform your maintainer.

6.3 Reconditioning and maintenance

Parts of the system that have a fault are not able to perform their functions efficiently or at all. Therefore have faults repaired as soon as possible by a qualified and authorized company, preferably the one that performs the periodic maintenance of your system.

Fire detection systems have to be serviced and - if necessary - reconditioned periodically by a qualified maintainer. Only specialized companies that are demonstrably periodically trained specifically for the functions of this specific fire detection system by LST or by persons being explicitly authorized by LST.



A fire detection system that has not been serviced at all or not competently may not be able to fulfill its purpose to detect a fire reliably and fast. Aside from the resulting gross negligence danger to human life and to property, a fire insurance may reject the claim for compensation in such cases!

6.4 Specifications of control panel devices of Series BC216

Mains voltage	230VAC +10/-15%, 50Hz
Power requirement	60VA
Supply current	max. 0.26A
Output-/rated voltage	typ. 28VDC
Peak current	max. 1.8A
Case	steel sheet, 1mm, powder coated
Colour	grey-white, RAL9002
Dimensions w × h × d	420 × 520 × 120 (mm)
Weight without battery	ca. 6kg
Ambient temperature	-5°C to +50°C
Relative humidity of air	95% (not condensed)

Further detailed specifications are available in Part B of the User Manual of the fire detection control panel Series BC216.

7 Event memory - entries

You can browse in the event memory by the use of the '↑↓'-buttons. The first three lines of the LC-display show the event text as well as the free programmable text information on the event, and provide additional information on events on the control panel. By pressing the 'Info'-button, additional texts (e.g., the reason for a given fault) appear, as well as the date and time of the occurrence or of the termination of the event.

Event	Event text	Text 2nd line	Text 3rd line	Additional text (info-button)
Fire detector zones/elements				
Activation	ALARM 0001/001	zone text 1	zo. text 2 / element text	
Activation termination	ALARM.T 0001/001	zone text 1	zo. text 2 / element text	
Disablement	DISABLEM. 0001/001	zone text 1	zo. text 2 / element text	
Enablement	ENABLEMENT 0001/001	zone text 1	zo. text 2 / element text	
Fault	FAULT 0001/001	zone text 1	zo. text 2 / element text	fault cause
Fault termination	FAULT.T 0001/001	zone text 1	zo. text 2 / element text	fault cause
Pre-alarm	PRE-AL 0001/001	zone text 1	zo. text 2 / element text	
Pre-alarm termination	PRE-AL.T 0001/001	zone text 1	zo. text 2 / element text	
Test activation	TEST-AL 0001/001	zone text 1	zo. text 2 / element text	
Test activation termination	TEST-AL.T 0001/001	zone text 1	zo. text 2 / element text	
Test condition off	TEST COND.T 0001/001	zone text 1	zo. text 2 / element text	
Test condition on	TEST COND 0001/001	zone text 1	zo. text 2 / element text	
Technical detector zones/elements				
Activation	TECH.MSG 0001/001	zone text 1	zo. text 2 / element text	
Activation termination	TECH.MSG.T 0001/001	zone text 1	zo. text 2 / element text	
Disablement	TECH.DIS 0001/001	zone text 1	zo. text 2 / element text	
Enablement	TECH.ENA 0001/001	zone text 1	zo. text 2 / element text	
Fault	TECH.FLT 0001/001	zone text 1	zo. text 2 / element text	fault cause
Fault termination	TECH.FLT.T 0001/001	zone text 1	zo. text 2 / element text	fault cause
Test activation	TECH.T-AL 0001/001	zone text 1	zo. text 2 / element text	
Test activation termination	TECH.T-AL.T 0001/001	zone text 1	zo. text 2 / element text	
Test condition off	TECH.TEST.T 0001/001	zone text 1	zo. text 2 / element text	
Test condition on	TECH.TEST 0001/001	zone text 1	zo. text 2 / element text	
Fault detector zones/elements				
Activation	FLT-ALARM 0001/001	zone text 1	zo. text 2 / element text	
Activation termination	FLT-ALARM.T 0001/001	zone text 1	zo. text 2 / element text	
Disablement	FLT.DIS 0001/001	zone text 1	zo. text 2 / element text	
Enablement	FLT.ENA 0001/001	zone text 1	zo. text 2 / element text	
Fault	FLT.FLT 0001/001	zone text 1	zo. text 2 / element text	fault cause
Fault termination	FLT.FLT.T 0001/001	zone text 1	zo. text 2 / element text	fault cause
Test activation	FLT.T-AL 0001/001	zone text 1	zo. text 2 / element text	
Test activation termination	FLT.T-AL.T 0001/001	zone text 1	zo. text 2 / element text	

Event	Event text	Text 2nd line	Text 3rd line	Additional text (info-button)
Test condition off	FLT.TEST.T 0001/001	zone text 1	zo. text 2 / element text	
Test condition on	FLT.TEST 0001/001	zone text 1	zo. text 2 / element text	
Actuations, Actuation elements				
Activation	ACTU.ACT 0001/001	actuation text 1	actu.text2 / element text	
Activation termination	ACTU.ACT.T 0001/001	actuation text 1	actu.text2 / element text	
Automatic disablement by authorization	ACTU.DIS* 0001/001	actuation text 1	actu.text2 / element text	
Automatic enablement by authorization	ACTU.ENA* 0001/001	actuation text 1	actu.text2 / element text	
Disablement	ACTU.DIS 0001/001	actuation text 1	actu.text2 / element text	
Enablement	ACTU.ENA 0001/001	actuation text 1	actu.text2 / element text	
Fault	ACTU.FLT 0001/001	actuation text 1	actu.text2 / element text	fault cause
Fault termination	ACTU.FLT.T 0001/001	actuation text 1	actu.text2 / element text	fault cause
Test activation	ACTU.TEST 0001/001	actuation text 1	actu.text2 / element text	
Test activation termination	ACTU.TEST.T 0001/001	actuation text 1	actu.text2 / element text	
Transmitting devices				
Activation	TR-DEV.ACT 01	transmitting device text 1	transmit. device text 2	
Activation termination	TR-DEV.ACT.T 01	transmitting device text 1	transmit. device text 2	
Automatic disablement by authorization	TR-DEV.DIS* 01	transmitting device text 1	transmit. device text 2	
Automatic enablement by authorization	TR-DEV.ENA* 01	transmitting device text 1	transmit. device text 2	
Confirmation	TR-DEV.CONF 01	transmitting device text 1	transmit. device text 2	
Confirmation termination	TR-DEV.CONF.T 01	transmitting device text 1	transmit. device text 2	
Delay activated	DELAY.ACT 01	transmitting device text 1	transmit. device text 2	
Delay disabled	DELAY.DISABLE 01	transmitting device text 1	transmit. device text 2	
Delay enabled	DELAY.ENABLE 01	transmitting device text 1	transmit. device text 2	
Disablement	TR-DEV.DIS 01	transmitting device text 1	transmit. device text 2	
Enablement	TR-DEV.ENA 01	transmitting device text 1	transmit. device text 2	
Fault	TR-DEV.FLT 01	transmitting device text 1	transmit. device text 2	fault cause
Fault termination	TR-DEV.FLT.T 01	transmitting device text 1	transmit. device text 2	fault cause
Test activation	TR-DEV.TEST 01	transmitting device text 1	transmit. device text 2	
Test activation termination	TR-DEV.TEST.T 01	transmitting device text 1	transmit. device text 2	
Alarming devices				
Activation	AL-DEV.ACT 01	alarming device text 1	alarming device text 2	
Activation termination	AL-DEV.ACT.T 01	alarming device text 1	alarming device text 2	
Disablement	AL-DEV.DIS 01	alarming device text 1	alarming device text 2	
Enablement	AL-DEV.ENA 01	alarming device text 1	alarming device text 2	
Fault	AL-DEV.FLT 01	alarming device text 1	alarming device text 2	fault cause
Fault termination	AL-DEV.FLT.T 01	alarming device text 1	alarming device text 2	fault cause
Test activation	AL-DEV.TEST 01	alarming device text 1	alarming device text 2	

Event	Event text	Text 2nd line	Text 3rd line	Additional text (info-button)
Test activation termination	AL-DEV.TEST.T 01	alarming device text 1	alarming device text 2	
Control panel events				
Activation term. exing. sys.	EXTING.ACT.T			
Activation exing. system	EXTING.ACT			
Automatic exit user level	AUTHORIZATION EXIT	timeout	user level	
Control panel initialization	INITIALIZE	Count: n		
Control panel reset (on the fire brigade control unit)	CONTROL PANEL RESET	fire brigade	control unit	
Control panel reset (on the control panel)	CONTROL PANEL RESET	keypad		
Emerg. oper. control panel	FAULT	EMERGENCY		
Enter installer level	AUTHORIZATION ON	installer level		
Enter user level	AUTHORIZATION ON	user level		
Exit installer level	AUTHORIZATION EXIT	installer level		
Exit user level	AUTHORIZATION EXIT	user level		
Fault ABB216	FAULT	ABB216		fault cause
Fault earthing	ENERGY FAULT	short to earth		
Fault external consumer	FAULT	fuse 4 blown		
Fault external consumer	FAULT	fuse 5 blown		
Fault extinguishing system	EXTING.FLT			
Fault function module 2	FAULT	FM2		fault cause
Fault function module 1	FAULT	FM1		fault cause
Fault FWI2	FAULT	FWI		fault cause
Fault FWZ2	FAULT	FWZ		fault cause
Fault INFO-bus	SER-IF.FLT 0/01			
Fault LAB48	FAULT	LAB		fault cause
Fault loop	LOOP.FLT 0001/012			
Fault power unit	ENERGY FAULT	power unit		
Fault serial interface	SER-IF.FLT 1			
Fault stand-by battery	ENERGY FAULT	stand-by battery		
Fault term. stand-by battery	ENERGY FAULT.T	stand-by battery		
Fault termin. ext. consumer	FAULT.T	fuse 4 blown		
Fault termin. ext. consumer	FAULT.T	fuse 5 blown		
Fault termin. exting. system	EXTING.FLT.T			
Fault termin. serial interface	SER-IF.FLT.T 1			
Fault termination ABB216	FAULT.T	ABB216		fault cause
Fault termination earthing	ENERGY FAULT.T	short to earth		
Fault termination function module 1	FAULT.T	FM1		fault cause

Event	Event text	Text 2nd line	Text 3rd line	Additional text (info-button)
Fault termination function module 2	FAULT.T	FM2		fault cause
Fault termination INFO-bus	SER-IF.FLT.T 0/01			
Fault termination LAB48	FAULT.T	LAB		fault cause
Fault termination loop	LOOP.FLT.E 0001/012			
Fault termination power unit	ENERGY FAULT.T	power unit		
Notification new year	CLOCK TIME SHIFT	Happy New Year!		
Sabotage fire brig. key safe	SABOTAGE KEY SAFE			
Sabotage term. f. b. key safe	SABOTAGE KEY SAFE.T			
Shifting winter/summer	CLOCK TIME SHIFT	Winter/summer		
Shifting summer/winter	CLOCK TIME SHIFT	Summer/winter		
Fault messages for BCnet216				
Network fault	GSS-N.FLT 002	No communication		
Member fault	MEMB.FLT 001			fault cause
Checksum error				
Configuration FEPRAM	FAULT	Param. setup FEPRAM		fault cause
Configuration RAM	FAULT	Parameter setup RAM		fault cause
Programme memory	FAULT	Software		fault cause
Settings FEPRAM	FAULT	Sys. settings FEPRAM		fault cause
Settings RAM	FAULT	System settings RAM		fault cause

Table 7: List of event memory entries

The actual entries in the event memory depend on the country-specific specifications of the control panel. You can set a filter for reading the event memory. See from page 43 in Chapter 4.7.11: "Menu point [Event memory]".

At events which relate to a specific BCnet sectional control panel (e.g. "ENERGY FAULT") the third line of the LC-display shows the GSSnet member number of the corresponding BCnet sectional control panel when using a network fire detection control panel BCnet216.

8 Index

- Activation condition of actuations, 55
- Actuation, 21
 - Display, 38, 41
 - Light-emitting diode, 25
 - Operate, 41
 - Two-zone dependency, 56
- Alarm counter, 44
- Alarm delay, 18
 - Alarm delay procedure, 11, 32
 - Button, 26
 - Day/night-operation, 32
 - Day / night operation, 26
 - Delay time, 12
 - Exploration time, 32, 53
 - Reaction time, 32, 53
- Alarm verification, 11
- Alarming device, 15, 20, 26
 - Display, 43
 - Number, 20
 - Operate, 43
 - Primary, 11, 26, 31
 - Reactivate, 31
 - Silence, 31, 54
 - Two-zone dependency, 43
- Ambient condition, 9
- Approvals, 10
- Area filter, 23, 27, 43, 44, 50
- Authorization
 - Change code, 47
 - Enter code, 36
 - Exit, 34, 47
 - Light-emitting diode, 25, 36
 - Wrong input, 36, 37
- Authorization level, 29, 30
 - Enter, 36
 - Exit, 30, 36
- AUTO-setup, 11, 18
- BCnet sectional control panel, 11
- Buzzer, 25, 27
 - Reminder, 27
 - Silence, 27, 31
- Clock, 18
 - Clock time correction, 45
 - Clock time setting, 45
 - Date setting, 45
 - Summer/wintertime, 45
 - Timer, 18
- Competent installer, 11
- Componentry
 - Display, 46
- Deceptive alarm, 11
- Dependency
 - Two detectors, 12, 55
 - Two zones, 14
- Detection area, 12
- Detector
 - Fault detector, 20
 - Fire detector, 19
 - Technical detector, 20
- Detector line, 12
- Detector zone, 12, 20
 - Alarm criteria, 39
 - Display, 39
 - Number, 20
 - Operate, 39
- Detector zone alarm
 - Reset, 54
- Detector zone elements
 - Operate, 40
- Disablement
 - Display, 38
 - Light-emitting diode, 25
- Disablement condition, 61
- Display test, 31, 44
- Element-button, 24
- Energy fault, 25
- Event counter, 44
- Event memory, 18, 43, 68
 - Filter, 18, 44
- Exploration time, 12, 26, 32, 51
- False alarm, 12
- Fault
 - What to do, 9
- Fault detector, 12
- Fault message
 - Display, 38
- Fault message condition, 58
- Features, 17
- Fire alarm
 - Display, 37
 - Terminate, 54
 - What to do, 9, 52
- Fire alarm condition, 50
- Fire brigade
 - Information devices, 21
 - key depot, 21
 - key safe, 21
- Fire brigade control unit, 12, 17, 21
 - Operation functions, 48
- Fire control system, 12, 15, 21, 55, 66
- Fire detector
 - Automatic, 12
 - Dirt message, 19
 - Non automatic, 12
- Function test, 65
 - Alarming device, 66
 - Detector, 65
 - Fire control system, 66
 - Fire detection control panel, 65
 - Other, 66
 - Stand-by battery, 65
 - Transmitting device, 66
- GSSnet
 - Line fault, 61
 - Member, 12, 19, 28
 - Member fault, 61
 - Member number, 28
 - Repeater, 19
- INFO-bus, 18
- Info-button, 24
- Installer, 7, 11
- Installer code, 30, 36
 - At delivery, 47
 - Change, 47
 - Lost, 30
- Interdependence of two detectors, 12
 - Disabled detector, 40, 61
 - Fault of a detector, 59
 - Fire alarm condition, 55
- LC-display, 23
 - Adjusting the contrast, 44
 - Illumination, 23
- LED-display field, 27
- Loop, 13, 17
- Main operating unit, 13, 29, 44
- Maintainer, 13
- Maintenance, 9, 13, 63, 67
 - Forecast, 19
 - Maintenance prognosis, 41
 - One-man, 63, 65
- Manual call point, 12, 15
- Measured value
 - Abort print-out, 46, 47
 - Display, 41, 42, 43
 - Print, 46
- Menu-quick-operation, 33
- Menu buttons, 24
- Network, 19
- Normal condition, 23, 50
- Numeric keys, 24
- Operating authorization, 29
- Operating condition, 49
 - Activation cond. of actuations, 55
 - Disablement condition, 61
 - Fault-message condition, 58
 - Fire alarm condition, 50
 - Normal condition, 50
 - Priority, 49
 - Technical message, 56
 - Test condition, 63
- Operation menu, 33, 34
- Optional case, 18
- Organization in case of an alarm, 9, 13
- Panel reset, 31, 54, 57
 - Button, 25
- Power supply, 18
 - Energy fault, 25
 - Total shut down, 23
- Pre-alarm, 13, 55
 - Display, 37
- Primary alarming device, 13
- Primary transmitting device, 13
- Print-out, 46
 - Measured value, 46
 - Repeat, 47
 - Service, 46
 - Settings, 46
- Printer, 18, 21, 27, 46
 - Out of paper, 28
- Printer filter, 27, 46
- Protocol printer, 27, 47
- Reaction time, 32
- Reconditioning, 67
- Remote maintenance, 18
- Sectional control panel, 11, 17, 19, 29
 - Operable, 22
- Self-control, 10, 58, 65
- Serial interface, 18, 21
- Setting the parameters, 13
- Signs of fire, 13
- Siren output, 26

- Software version, 8, 46
- Specifications, 67
- Stand-by battery, 18, 65
 - Disposal, 65
- Standards, 10
- System fault, 10, 25
- Technical message, 49, 56
 - Display, 38
 - Light-emitting diode, 25
 - Reset, 57
 - Self holding, 57
 - Self resetting, 57
- Test condition, 63, 65
 - Display, 39
 - Light-emitting diode, 25
- Timer, 18, 26, 32
- Transmitting device, 13, 17
 - Day/night operation, 32
 - Display, 42
 - For fault messages, 25
 - For fire alarm, 13, 25
 - Number, 20
 - Operate, 42
 - Primary, 14, 25, 26
 - Two-zone dependency, 42
- Two-zone dependency, 14
 - Disabled detector zone, 40, 61
 - Fault of a detector zone, 59
 - Of a transmitting device, 42
 - Of an actuation, 41, 56
 - Of an alarming device, 43
- User, 7, 14
- User code, 29, 30, 36
 - At delivery, 47
 - Change, 47
- Warranty, 11

Fire Detection Control Panel Series BC216

User Manual - Part B

Assembly - Connecting - Commissioning

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Contents

1	Introduction	7
1.1	General	7
1.2	Symbols and type fonts	7
1.3	Important notes	7
1.4	Scope of delivery	8
1.4.1	Fire detection control panel BC216-1	8
1.4.2	Fire detection control panel BCnet216	8
2	Components of the fire detection control panel Series BC216	9
2.1	Overview	9
2.2	Components of the basic version	9
2.2.1	Case	9
2.2.2	Central processing board ZTB216-1, ZTB216-2	10
2.2.3	Power unit NTB216-1	10
2.2.4	Display and operating board ABB216-1	11
2.2.5	Mounting bracket BW216-1	11
2.3	Function modules for detectors and modules	11
2.3.1	Conventional detector interface GIF8-1	11
2.3.2	Loop interface LIF64-1	12
2.4	Connection of fire brigade devices	12
2.5	Serial interface modules SIM216-1 and SIM216-2	13
2.6	Network interface NIF5-1	13
2.7	Light-emitting diode displays	13
2.8	Stand-by battery	13
2.8.1	Determining the required capacity of the stand-by battery	14
2.9	Auxiliary case GEH216-4	15
2.10	Battery bracket BK216-1	15
2.11	Mounting bracket BW216-1	15
2.12	Printer	15
2.12.1	Operation as event printer	15
2.12.2	Operation as service printer	16
2.13	Accessories	16
2.13.1	Printer cable	16
2.13.2	Connection cable between BC216-1, -2, -3 and a PC	16
3	Assembly and installation of optional componentries	17
3.1	Place of assembly	17
3.2	Panel installation	18
3.3	Installation of optional components	19
3.3.1	Conventional detector interface GIF8-1, Loop interface LIF64-1	20
3.3.2	Fire brigade interface FWI2-1	20
3.3.3	Fire brigade interface additional board FWZ2-1	20
3.3.4	LED-display field LAB48-1	21
3.3.4.1	Insertable labels for LED-display field	22
3.3.5	Serial interface modules	23
3.3.6	Network interface NIF5-1	24
3.3.7	Relay modules RL58-1 and RL58-2	24
3.3.8	Stand-by batteries	25
3.4	Installation of the auxiliary case GEH216-4	26
3.4.1	Installation of the stand-by batteries	26
3.4.2	Installation of mounting brackets BW216-1	26

4	Connection	28
4.1	General instructions	28
4.2	Power unit NTB216-1	29
4.2.1	Connection of mains power, the stand-by battery and the external devices	29
4.2.2	Connection to the siren output	30
4.2.3	Connection of the INFO bus	31
4.2.4	Connection of the contact outputs for summary alarm and summary fault	32
4.2.5	Connection of relay modules RL58-1 and RL58-2	33
4.3	GSSnet wiring	34
4.4	Conventional detector interface GIF8-1	35
4.5	Loop interface LIF64-1	36
4.6	Fire brigade interface FWI2-1	37
4.6.1	Relay contacts on the FWI2-1	38
4.6.2	Open collector outputs of the FWI2-1	38
4.6.2.1	System fault / redundant alarm	39
4.6.3	Inputs of the FWI2-1	40
4.7	Fire brigade interface additional board FWZ2-1	41
4.8	Connection of country-specific fire brigade installations	41
4.8.1	Connection of the fire brigade installations / Austria	42
4.8.1.1	Connection of the fire brigade control unit FBF58-1, the key safe adapter AD800-1 and additional installations.	43
4.8.1.2	Connection of the fire brigade control unit FBF58-2, the key safe adapter AD800-1 and additional installations.	44
4.8.1.3	Connection of the BCnet redundant alarm line	45
4.8.2	Connection of the fire brigade installations / Germany	45
4.8.2.1	Connection of the fire brigade control unit FBF900-1, the key depot adapter AD700 and additional installations.	46
4.8.2.2	Connection of the fire brigade control unit FBF900-2, the key depot adapter AD700 and additional installations.	47
4.9	Connection of a typical fire brigade control unit, Swiss version	48
4.10	Connection of a printer or computer	48
5	Commissioning	50
5.1	Preparation	50
5.2	Power supply connection	51
5.3	Setting parameters and function tests	52
5.4	Recalculation of the bridging time	53
5.5	Concluding activities	53
5.6	Reconditioning	53
5.6.1	Lost installer code	54
6	Specifications	55
6.1	Fire detection control panel BC216-1/xx, BC216-2/xx, BC216-3/xx	55
6.2	Power unit NTB216-1	55
6.2.1	Primary alarming device	56
6.2.2	INFO bus	56
6.2.3	Contact outputs for alarm relay and fault relay	56
6.2.4	NTB auxiliary outputs	56
6.3	Conventional detector interface GIF8-1	56
6.4	Loop interface LIF64-1	56
6.5	Fire brigade interface FWI2-1	57
6.6	Fire brigade interface additional board FWZ2-1	57
6.7	LED-display field LAB48-1	57
6.8	Serial interface module SIM216-1	57

6.9	Network interface NIF5-1	58
6.10	Network cable	58
6.11	Auxiliary case GEH216-4	58
6.12	Battery bracket BK216-1	58
6.13	Mounting bracket BW216-1	58
7	Index	59

1 Introduction

1.1 General

The present second part of the User Manual (Part B) of the fire detection control panel Series BC216 provides the competent installer with the information necessary for planning the control panel configuration and for the installation, connection and commissioning of the fire detection control panels BC216-1 and BCnet216. This part of the manual is directly based on Part A of the User Manual. The determinations, remarks and explanations provided there will not be repeated in the present part of the manual. It is therefore indispensable that you familiarise yourself with the contents of Part A of the User Manual before starting installation, connection and commissioning jobs.

All information of this part of the manual for the parameter setup refers to the scope of function of the operating software version number PL149 V4.11. Units using software with another version status may differ in their function from the scope of function described in this manual.

1.2 Symbols and type fonts

Particularly important text passages of this manual are marked with symbols as in Part A. The following symbols are used:



Means **DANGER!** Failure to observe the instructions may threaten life and health.



Means **ATTENTION!** Failure to observe the instructions may lead to malfunctioning of the system or damage to property.



Means **TIP!** The text passage contains information facilitating the operation.



Means that the country- and/or site-specific demands of the **approvals** of the fire detection control panel must be observed.

1.3 Important notes

Fire detection systems and devices must always be planned, installed and commissioned by continuously trained specialists. The specific training for the functions of the fire detection control panel Series BC216 must be provided by Labor Strauss Sicherungsanlagenbau Ges.m.b.H. Wien (LST) or by persons expressly authorised by LST for this purpose.

Peripheral equipment such as fire detectors, signalling devices, transmitting devices, etc., which are used in a fire detection system in addition to the control panel will only be referred to as examples in this manual. The present manual does not provide any information concerning the expert planning or construction of a fire detection system. Neither does it replace the necessary technical qualification nor the specific training of the installer.

Comprehensive precautions of technical circuit and design nature were taken by the manufacturer of the fire detection control panel Series BC216 to suppress interference through electromagnetic fields or noise voltages.

For this reason the control panel can - under normal conditions - be employed in an unshielded cable network. If shielded cables are used all the same, the shielding wires must be connected to the appropriate terminals on the bottom part of the control panel case. Please observe the generally applicable installation regulations for shielded cables.



Prior to opening the case, switch off the mains voltage and secure to prevent switching on!

Please note that with the case open, components are exposed which carry dangerous voltages with the mains switched on! The protective cover of these components must not be removed.



When working on the fire detection control panel and when handling componentries, observe the usual protective measures for the discharge of static charges: Before and during the work to be performed on the circuit boards it is necessary to reliably discharge static charges of the body by contacting an earth-connected metallic part. It is indispensable for mains-operated tools (e.g., soldering iron) to be connected with protective earth or expressly approved for use on static sensitive installations. The usual protective insulation is not sufficient.



During installation, maintenance and reconditioning, observe the applicable laws, standards and guidelines for the installation and maintenance of fire alarm systems!

1.4 Scope of delivery

The basic version of the fire detection control panel BC216-1 is assembled at the factory and supplied 100% function-tested. Please check the delivery for completeness and transport damage before assembling the equipment.

The modules for the connection of fire detectors, componentries and other components as well as the stand-by batteries must be ordered separately in accordance with the planned functions of the control panel. These components are supplied separately from the control panel and must be installed by the system installer. The functions of these components are described from page 9 in Chapter 2: "Components of the fire detection control panel Series BC216" and their installation in the fire detection control panel is described from page 19 in Chapter 3.3: "Installation of optional components".

1.4.1 Fire detection control panel BC216-1

The basic version of the fire detection control panel BC216-1 consists of:

- ◆ power unit NTB216-1,
- ◆ central processing board ZTB216-1,
- ◆ case bottom part,
- ◆ case cover with keypad and built-in display and operating board ABB216-1,
- ◆ installation bracket for the installation of optional additional componentries,
- ◆ enclosed packet of assembly material, replacement fuses, end of line resistors and equipment documentation.

1.4.2 Fire detection control panel BCnet216

The fire detection control panel BCnet216 is not constructed as compact unit but consists of several BCnet sectional control panels of type BC216-2 (with display and operating unit) and BC216-3 (without display and operating unit) which are arranged within the surveilled area of the fire detection system and are interconnected via a data line.

The basic version of every BCnet sectional control panel consists of:

- ◆ power unit NTB216-1,
- ◆ central processing board ZTB216-2 equipped with the network interface NIF5-1,
- ◆ case bottom part,
- ◆ case cover
 - BC216-2: with keypad and built-in display and operating board ABB216-1
 - BC216-3: without keypad and display and operating board ABB216-1,
- ◆ installation bracket for the installation of optional additional componentries,
- ◆ enclosed packet of assembly material, replacement fuses and end of line resistors. The equipment documentation (one copy each of User Manual Series BC216 / Part A and B, Operation Manual In Short Form, etc.) are enclosed with every delivery of a fire detection control panel BCnet216.

2 Components of the fire detection control panel Series BC216

The components of the fire detection control panel Series BC216 and the optional extension modules are briefly introduced and explained in this chapter. It also provides information for calculating the necessary capacity of the stand-by battery.

2.1 Overview

A fire detection control panel BC216-1 or a BCnet sectional control panel of a fire detection control panel BCnet216 consists of the function units included in the basic version and the assemblies for optional installations. Please note when perusing the explanations in this manual that country-specific variants (e.g., with the software of the central processing board ZTB216-1 or ZTB216-2) are possible even in the basic control panel version.

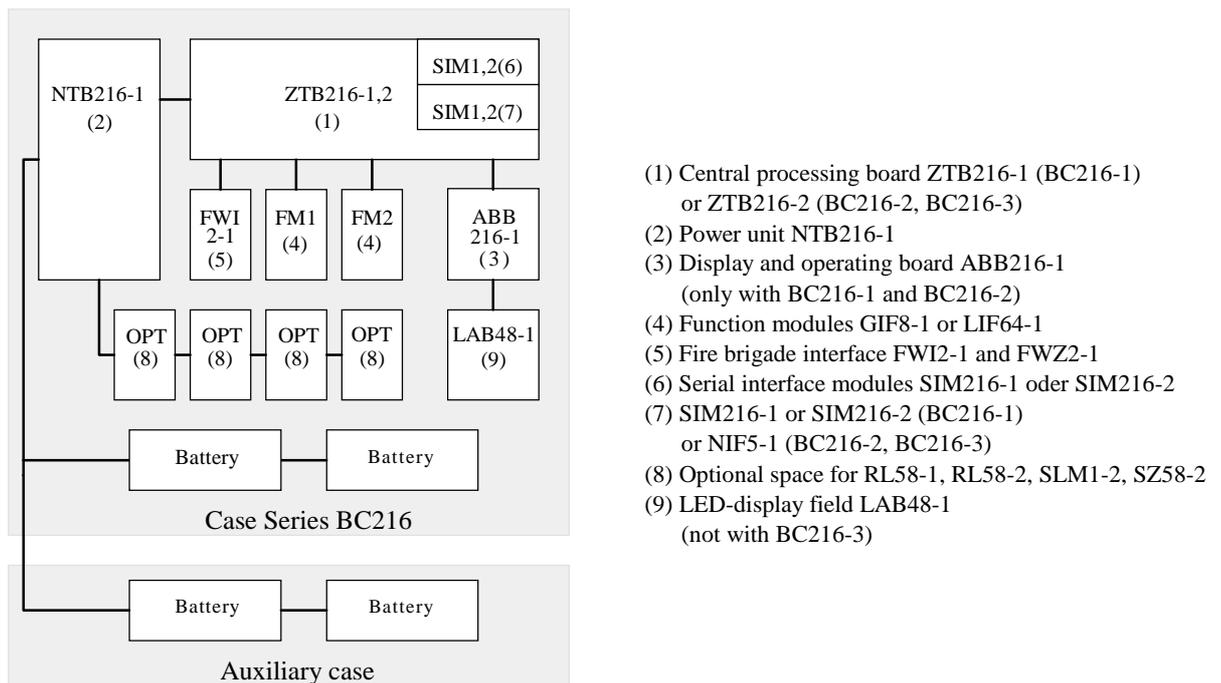


Figure 1: Expansion versions of the fire detection control panel Series BC216

With the BCnet sectional control panels of the network control panel BCnet216 the network interface NIF5-1 is basically implemented in the optional space (7), the only vacant serial interface left is therefore optional space (6).

The display and operating board ABB216-1 and the optional LED-display board LAB48-1 are attached to the detachable case cover.

2.2 Components of the basic version

Which components are included in the corresponding basic version of the fire detection control panel Series BC216 is described in detail from page 8 in Chapter 1.4: "Scope of delivery".

2.2.1 Case

The two-part powder-coated steel sheet case is intended for wall surface mounting. The cover can be hooked into the bottom part of the case during commissioning with the cable to the central processing board ZTB216-1 or ZTB216-2 plugged in. Two stand-by batteries with 12V/max. 20Ah each can be installed in the case even with fully extended control panel.

2.2.2 Central processing board ZTB216-1, ZTB216-2

With its powerful 32-bit processor system, the central processing board ZTB216-1 or ZTB216-2, respectively in the applicable country-specific version is largely responsible for internal signal processing, communication with the display and operating board, the monitoring of the detector modules, the monitoring of in- and outputs, the activation of the outputs and the communication with the peripheral devices (e.g., signalling devices) of the system. With the help of optional interface modules, two serial interfaces permit the connection of an external printer, the link-up to a remote maintenance system, a connection to master systems (e.g., main panel, building management system) or with BCnet sectional control panels of a network control panel BCnet216, the connection to the GSSnet.



Upon failure of the processor system of the central computer, the processor system of the display and operating board takes on essential tasks of the central computer. In this way it is ensured that the light-emitting diode signals, the displays and the operation facilities required in the state of alarm are also serviced upon failure of the central computer. Furthermore the relay HM1 on the fire brigade interface FWI2-1 (usually used as primary transmitting device for fire alarms) as well as the supervised siren output of the power unit NTB216-1 (usually used as primary alarming device) are activated in this case.

The components of the fire detection control panel Series BC216 are connected with the central processing board through a processor-supported bus system. In order to increase the failsafe capacity, this bus system is further protected by an additional diverse bus system.

2.2.3 Power unit NTB216-1

The power unit NTB216-1 serves to generate the voltages for the supply of the fire detection control panel, charging of the stand-by batteries, the supply of the automatic fire detectors and of the additional devices connected internally and externally to the control panel from the mains voltage.

In addition to this, the standard outputs for summary alarm and summary fault, the supervised siren output, the INFO bus connection and 16 open collector outputs with free to set parameters are arranged on the power unit.

The power supply unit is designed as a primary switch converter with high efficiency, resulting in low self-heating and consequently in a high MTBF value. A power failure will be recognised after a few seconds and shown as a fault.

The automatic monitoring of the connected stand-by batteries (including their supply cables and the fuse Si2) is accomplished through a periodical disconnection of the batteries from the charging device, simultaneous loading with a load resistor and measuring of the battery voltage under that load. This complex process ensures that - contrary to other simple monitoring methods - the supply voltage of the entire fire detection system is not subject to periodic fluctuations, but remains largely constant.



Battery monitoring is not performed for as long as mains failure is being signalled.



Monitoring of the mains voltage or the stand-by batteries can be suppressed through parameter setup for special cases where either no mains voltage or no stand-by batteries are available (see User Manual / Part C).



A fire detection system must be supplied by two independent power sources.

The stand-by batteries are charged with current limitation and temperature optimisation. The temperature sensor for controlling the final charge voltage is arranged on the right next to the terminal 20 of the NTB216-1. If the stand-by batteries are not placed in the case of the control panel (or not immediately next to the control panel), but at another place of installation with considerably different temperature conditions, an external temperature sensor may be connected in place of the internal temperature sensor.

An electronic switching device disconnects the stand-by batteries from the charging device in the events of short-circuit or overload, preventing repercussions for the control panel or the BCnet sectional control panel. The stand-by batteries are disconnected from the control panel also when there is a risk of total discharge of the battery.



For reasons of safety a totally discharged stand-by battery is no longer charged automatically by the charging device. The connections for the external devices and those within the control panel are fuse-protected separately, fuse failure is recognised immediately and displayed as a fault.

The entire installation connected to this control panel or BCnet sectional control panel is subject to earth leakage monitoring by the power unit NTB216-1. If earth leakage occurs anywhere within the fire alarm cable system, this is indicated on the fire detection control panel as a fault/earth leakage.



The earth leakage monitoring can be taken out of service through parameter setup for special cases where a connection of the cable network with earth has been established on purpose (e.g., in an intrinsically safe area by the connection of a cable section with the local equipotential busbar) (see User Manual / Part C).



Since the fire detection control panel Series BC216 indicates any malfunction of the system, which may be caused by multiple earth leakage, as a fault of that function, indication of simple earth leakage is not required by the European Standard EN54.

2.2.4 Display and operating board ABB216-1

The display and operating board ABB216-1 has its own processor system to activate the LC-display and light-emitting diodes and to enable the operation of the fire detection control panel. An alarm or fault is acoustically signalled by the buzzer arranged on the display and operating board.



Upon failure of the display and operating board processor, the processor of the central processing board ensures that the LED displays required in the state of alarm are activated and the operation of the built-in buzzer and the supervised siren output of the NTB216-1 is maintained.

2.2.5 Mounting bracket BW216-1

A standardly built-in componentry mounting bracket, equipped with holes according to the LST standard grid, permits the installation of additional componentries. Relay modules RL58-1 or RL58-2, control zone modules SLM1-2, siren supervising modules SZ58-2, isolator modules and other componentries for instance can be quickly and easily installed in this way.

2.3 Function modules for detectors and modules

Function modules for conventional detector technology and for intelligent ADM- or ADMPRO-technology are provided for the connection of fire detectors, fault detectors, technical detectors, control modules and monitor modules. Installation space in the central processing board is provided for two of these function modules. Depending on the size of the system, the control panel or the BCnet sectional control panel can be equipped either with only one, two identical or two different function modules.

2.3.1 Conventional detector interface GIF8-1

The conventional detector interface GIF8-1 is employed for the connection of conventional detectors. Up to 8 detector lines, each comprising one detector zone in addressable conventional technology, can be connected to this module. Depending on your requirements, one or two conventional detector interfaces can be installed in the function module locations of the central processing board (ST2 or ST3, see from page 20 in Chapter 3.3.1: "Conventional detector interface GIF8-1, Loop interface LIF64-1") and thereby up to 16 detector lines can be connected.



Detector line is the term used for the (usually branched) cable path connecting the detectors with the control panel. A detector zone is formed by the detectors of a surveilled area sharing a common display on the fire detection control panel. With the conventional detector interface GIF8-1, all detectors connected to a detector line form one detector zone.

2.3.2 Loop interface LIF64-1

The loop interface LIF64-1 is employed for the use of the intelligent analogue technology. A loop with bi-directional data traffic for the connection of detectors and modules of ADM- or ADMPRO-technology can be connected to it. The detectors and modules connected to a loop can be combined into a total of 128 independent zones.



Due to organizational reasons the total number of zones serviced by the fire detection control panel BC216-1 or by each BCnet sectional control panel of the fire detection control panel BCnet216 must not exceed 144.

Depending on your requirements, you can install one or two loop interfaces at the space for function modules provided in the central processing board (plug-in port ST2 or ST3, see from page 20 in Chapter 3.3.1: "Conventional detector interface GIF8-1, Loop interface LIF64-1"), accomplishing up to 144 detector or actuation zones in this way.



During the configuration, the installer determines through parameter setup of each loop interface whether ADM-technology (99 detectors + 99 modules per loop) or ADMPRO-technology (126 address points per loop) are to be processed.

2.4 Connection of fire brigade devices

The fire brigade interface FWI2-1 is available for the connection to a designated alarm respondent (e.g., the fire brigade).

- ◆ Two relays (HM1 and HM2) with free to set parameters and dry change-over contacts for passing on alarms in various combinations,
- ◆ 9 inputs with free to set parameters,
- ◆ 8 outputs with free to set parameters, and
- ◆ 1 output for system fault

are arranged on this interface for the connection of a country-specific fire brigade control unit, a key safe or a key depot adapter and other equipment. Individual functions can also be assigned to the inputs or outputs with free to set parameters (see User Manual / Part C).

The fire brigade interface additional board FWZ2-1 that fits onto the fire brigade interface FWI2-1 is provided for the line-monitored connection of a transmitting device. With this addition it is possible to accomplish two independent outputs for transmitting devices (e.g., for alarm and/or fault signals) which are monitored for interruption and short circuit. The line monitoring current of these outputs can be parameterised.

Basically, a fire brigade interface FWI2-1 and a fire brigade interface additional board FWZ2-1 can be built into every BCnet sectional control panel with the network fire detection control panel BCnet216. Either further in- and outputs for general use (e.g., for actuations) are provided for the control panel or, with main- and sub-control panel configuration, additional sectional fire brigade control units, sectional key safes, etc. can be controlled.



With the fire detection control panel BC216-1 or the BCnet sectional control panel BC216-2, in case of a failure of the processor system of the ZTB216-1 or ZTB216-2, the siren output of the power unit NTB216-1 and its connected local devices as well as the relay HM1 (which is usually used as primary transmitting device) on the fire brigade interface FWI2-1 are activated in the event of an alarm. As an option it is additionally possible to activate the relay HM2 and the FWI-OC-output terminal 14 (see from page 38 in Chapter 4.6.1: "Relay contacts on the FWI2-1" and from page 38 in Chapter 4.6.2: "Open collector outputs of the FWI2-1"). A failure of the processor system of the ZTB216-2 of a non-operatable BCnet sectional control panel BC216-3 ("black box control panel") is displayed as fault in the overall system. Nevertheless, the local signalling devices and transmitting devices are not serviced in case of alarm.

2.5 Serial interface modules SIM216-1 and SIM216-2

The fire detection control panel BC216-1 can be expanded with two, every BCnet sectional control panel of the network fire detection control panel BCnet216 can be expanded with one serial interface of type RS232-C. The serial interface modules SIM216-1 and SIM216-2 serve to convert the processor signals to the standardised interface levels.

The serial interface module SIM216-1 is designed with isolated potentials and is therefore suitable for the connection of devices, which are not themselves designed with isolated potentials. Typical applications for this are: Printers, PC with parameter setup software PARSOFT-1 or -2x, etc.

The serial interface module SIM216-2 has no potential separation and is therefore suitable only for the connection of a device having its own internal potential separation. This interface module also supports handshake lines of the interface. Typical applications for this are: Remote maintenance via modem, remote parameter setup via modem, etc.

2.6 Network interface NIF5-1

The connection of the BCnet sectional control panels of a network fire detection control panel BCnet216 to the redundant data line which combines the BCnet sectional control panels to an overall control panel is constructed in serial technology via the network interface NIF5-1 which is plugged onto the central processing board ZTB216-2. Besides converting the processor signals to the RS485 interface level of the GSSnet, this componentry also realizes error management for faults of the circularly constructed GSSnet data line via intelligent short circuit isolators and interface change-over switches.

2.7 Light-emitting diode displays

The optionally applicable LED-display field LAB48-1 contains 48 freely adjustable light-emitting diode pairs (one red and one yellow light-emitting diode each) to indicate the activation, fault or switch-off conditions of a defined part of the system. The LED-display field LAB48-1 is controlled by the display and operating board ABB216-1. Insertable labels serve to individually name the light-emitting diodes.

2.8 Stand-by battery

The case of the fire detection control panel Series BC216 is designed to accommodate 2 series-connected stand-by batteries of 12V/17Ah (max. 20Ah). If the capacity of the built-in batteries is not sufficient, the capacity can be doubled by parallel-connecting another 17Ah arrangement (see from page 15 in Chapter 2.9: "Auxiliary case GEH216-4" and from page 29 in Chapter 4.2.1: "Connection of mains power, the stand-by battery and the external devices"). These additional batteries should be installed as close as possible to the built-in batteries in order to ensure identical temperature conditions for all batteries.



Stand-by battery charging is automatically adapted by the control panel to the operating temperature of the batteries.



Only 24V units (i.e., 2 series-connected individual 12V-batteries) may be connected in parallel. The individual batteries must be of the same type. In order to meet the requirements of the 24-hour charging time, the total capacity of the stand-by batteries connected to the BC216-1 or to a BCnet sectional control panel of a BCnet216 must not exceed 34Ah (e.g., 2 x 17Ah connected in parallel).



Use the auxiliary case GEH216-4 which fits to the fire detection control panel Series BC216 for installing additional stand-by batteries or other additional elements, see from page 15 in Chapter 2.9: "Auxiliary case GEH216-4".

The stand-by batteries can generally be operated in any position, but the upright position is preferred (with the connections facing up). Ensure that the connections of the batteries do not make electrical

contact with the case or other metallic parts during the installation or during subsequent operation, this might destroy the battery or the fire detection control panel!

Connect the connection lines to the stand-by battery only when all the cabling work on the system has been completed and checked!



Use only maintenance-free, sealed stand-by batteries with fixed electrolyte and low self-discharge, which are specially suited and approved for emergency power supply of electronic security systems in standby parallel mode.



Do not under any circumstances use batteries of a type other than the type provided as standard, which has been specially designed for use in security systems! The charging process employed in the fire detection control panel is designed for this type of battery, other batteries could start leaking in operation or even burst - the fire detection control panel could be destroyed!

2.8.1 Determining the required capacity of the stand-by battery

In general the required stand-by battery capacity is dependent on

- ◆ the system current during the mains failure,
- ◆ the system current during acoustic and optical alarm and
- ◆ on the required mains failure bridging time.

A separate stand-by battery is installed in every BCnet sectional control panel of the network fire detection control panel BCnet216. The required capacity of these batteries is to be harmonized with the system parts connected to the corresponding BCnet sectional control panel.

The system current to be supplied by the stand-by battery upon mains failure must be calculated during the project phase. To do so, take the quiescent current values from the data sheets of the devices you intend using in the system. The values of the control panel itself can be found from page 55 in Chapter 6: "Specifications". Please note that the fire detection control panel will be subject to a fault status in the event of mains failure!



Avoid all loads not absolutely necessary for the operation of the system. Any permanently connected device will be a burden on the stand-by battery upon mains failure. As part of commissioning the entire system, check in the state of mains shut down to see if the measured system current corresponds with the calculated value.

Determine the current consumption in the state of alarm from the data sheets of the acoustic alarming devices (sirens) and the optical alarming devices (flashlight) employed. Take into account also the power consumption of connected transmitting devices and other facilities (e.g., a fire brigade key safe or a fire brigade key depot).

The required mains failure bridging time is dependent on the respective installation regulations and the local conditions.



A typical requirement, e.g., is that a fire detection system must be able to recognise an alarm even 72 hours after the mains failure started and to signal such alarm optically and acoustically for 30 minutes.

Without taking into account reserves, efficiency, etc., you can approximately determine the minimum capacity of the required stand-by batteries, using the above mentioned installation regulations as a base as follows

$$C_{\text{MIN}} = 72 \times I_{\text{MAINS FAILURE}} + 0.5 \times I_{\text{AL}} \text{ whereas}$$

C_{MIN} ... Minimum capacity in [Ah]

$I_{\text{MAINS FAILURE}}$... total system current during mains failure in [A], without raising alarm

I_{AL} ... entire system current while raising the alarm in [A]

With a BCnet sectional control panel of the network fire detection control panel BCnet216 the current required for supplying the system section which is serviced by the corresponding BCnet sectional control panel (including the BCnet sectional control panel itself) is referred to as "system current".

Add a safety allowance to this calculated minimum value to compensate for exemplary fluctuations or capacity losses caused by the effect of temperature and ageing.

2.9 Auxiliary case GEH216-4

The auxiliary case GEH216-4 with the same dimensions as the control panel case is available for the installation of additional stand-by batteries if higher current is required by the fire detection system or when optional assemblies are installed.

The auxiliary case can house either

- ◆ four batteries 12V/17Ah (one battery bracket BK216-1 is required additionally) and a mounting bracket BW216-1 or
- ◆ two batteries 12V/17Ah (a maximum of 20Ah each) and four mounting brackets BW216-1.

2.10 Battery bracket BK216-1

An auxiliary case GEH216-4 can house up to four stand-by batteries of 12V/max. 20Ah. Two stand-by batteries are arranged on the bottom of the auxiliary case, further two batteries can be installed by using the battery bracket BK216-1 which is screwed on to the bottom part of the case.

2.11 Mounting bracket BW216-1

Mounting brackets BW216-1 are used for the installation of additional componentries fitting the LST standard grid by using plastic spacers.

2.12 Printer

A printer can be connected to the fire detection control panel BC216-1 or to every BCnet sectional control panel of the network control panel BCnet216 either permanently or only for service purposes via one of the two serial interfaces. The printer can also be installed separately from the control panel while the cable length is limited to 5m.

The control panel is prepared for the connection of the following types of printer:

- ◆ Seiko DPU-414, Art. Nr. 227003
 - Upright unit with particularly small dimensions (160mm × 170mm × 66.5mm)
 - Thermal paper, 28m/roll, automatic change-over to offline mode on paper end
 - 80 characters per line
 - Operation via power supply unit and optional Ni-Cd battery
 - Required printer cable: Port D-SUB 9-pin, plug D-SUB 9-pin, max. length 5m
- ◆ Epson LX-300, Art. Nr. 227008
 - Upright unit with the dimensions 366mm × 275mm × 132mm
 - Matrix printer, 9 needles
 - Standard reel paper
 - 80 characters per line
 - Mains operation
 - Required printer cable: Port D-SUB 9-pin, plug D-SUB 25-pin, max. length 5m

Both types of printer require the installation of a serial interface module SIM216-1 in the control panel.

2.12.1 Operation as event printer

The events are recorded with date and time, a continuous number and the additional text information (e.g., location) as a function of the set printer filter (see User Manual / Part C).

2.12.2 Operation as service printer

This operation type of the printer was installed especially for supporting the service and maintenance technician. As installer you can select from the following print-out possibilities for the connected and set-up printer (see User Manual Series BC216 / Part A, menu point [System] - [Print-out]):

- ◆ **Service print-out:** On request the printer prints the contents of the event memory, considering the set printer filter.
- ◆ **Settings print-out:** On request the printer prints a summary of the entire control panel configuration (hardware and parameter setup).
- ◆ **Measured value print-out:** The printer prints the measured values of the connected ADM or ADMPRO detectors and modules. The measured value print-out is available as an unique status print-out of one or several elements (e.g., all detectors of one zone) or as an automatically and continuously operating current measuring value output for a single element.

2.13 Accessories

2.13.1 Printer cable

Standard cables obtainable in specialized stores are used as connection cables for the optional printers Seiko DPU-414 and Epson LX-300 for connection to the serial interface module SIM216-1. The structure of these cables is shown in the following figures.

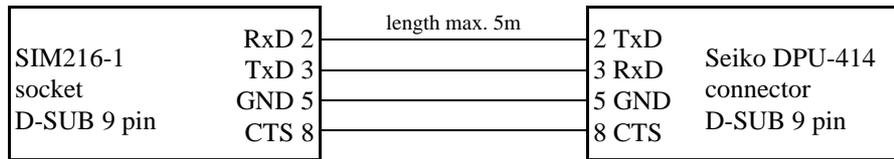


Figure 2: Printer cable for Seiko DPU-414 (Art. Nr. 227007, length: 1,8m)

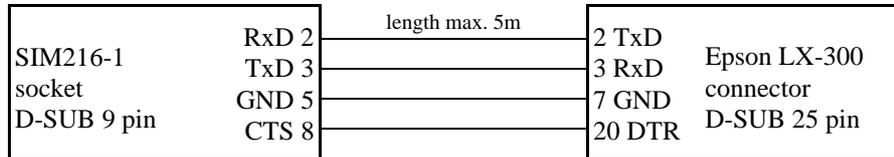
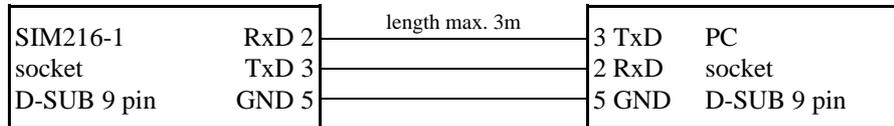


Figure 3: Printer cable for Epson LX-300

2.13.2 Connection cable between BC216-1, -2, -3 and a PC

In order to connect a PC (Notebook) to the fire detection control panel BC216-1 or to a BCnet sectional control panel BC216-2 or BC216-3 you require a standard cable obtainable in specialized stores. The structure of the cable is shown in the following figure.



In each of the two D-SUB ports it is necessary to additionally connect the ports 1 with 4 and 7 with 8.

Figure 4: Connection cable control panel - PC

3 Assembly and installation of optional componentries

This chapter presents the assembly of the fire detection control panel BC216-1, the BCnet sectional control panels of the fire detection control panel BCnet216 and the auxiliary case GEH216-4 as well as the installation of the optional componentries and facilities. You can install and wire-up the optional componentries beforehand so that you merely have to assemble and connect the already assembled control panel on site. Parameter setup (see User Manual / Part C) can be carried out beforehand also, except for date and time the input data will be preserved indefinitely even without supply voltage.



Do not under any circumstances transport the fire detection control panel or the auxiliary case with the stand-by batteries installed! It is indispensable to remove the batteries from the case for transporting (even over short distances!).



Attention with MOS components! The MOS components employed in the device can be destroyed by static loads with the device opened. Prior to and during the work carried out on the printed circuit boards it is necessary to reliably discharge static charges of the body by contacting an earth-connected metallic part (e.g., the earth-connected control panel case).

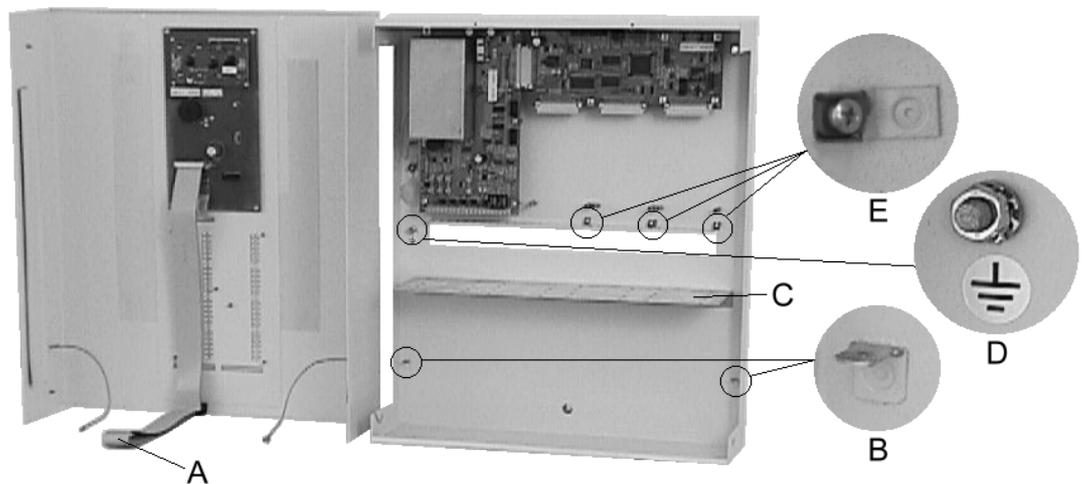


Figure 5: Opened case of the fire detection control panel BC216-1
 A ... Connection cable from the display and operating board ABB216-1 to the central processing board ZTB216-1 / connector ST1
 B ... FASTON Tabs for the earth connection of the case cover
 C ... Mounting bracket for optional componentries
 D ... Equipotential busbar connection
 E ... Terminal connections for shielding wires of shielded cables

3.1 Place of assembly

The fire detection control panel BC216-1 and every BCnet sectional control panel of the network fire detection control panel BCnet216 must be installed in a clean and dry room on a stable wall surface. The room temperature must range between -5°C and $+50^{\circ}\text{C}$, the relative humidity of the air must not exceed 90%. Protect the control panel against splashing water and other mechanical and chemical effects.

The place of assembly must be easily accessible for the public safety personnel (e.g., the fire brigade). Coordinate the place of assembly with the officials concerned. The control panel must be installed at a level above ground at which operation and reading of the displays is possible without obstacle.



The fire development risk must be low in the room where the fire detection control panel is to be mounted. The room must be monitored by the fire detection system.

3.2 Panel installation

The control panel is installed in a 2-piece powder-coated steel sheet case (consisting of the bottom part and the cover). The cover is detachable and can be hooked into the bottom part with the connection cable plugged in to facilitate commissioning. All necessary mounting elements (bolts and plugs) are included in the package accompanying the control panel.

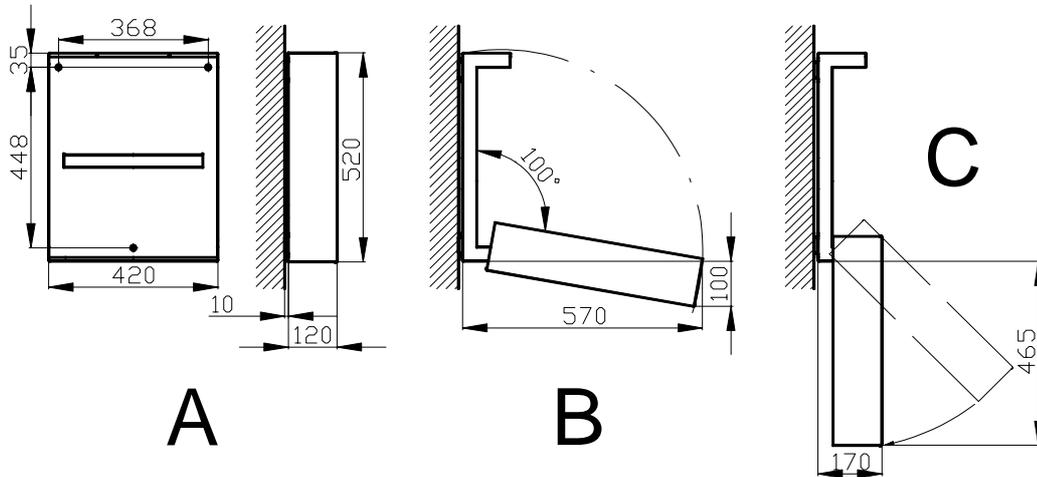


Figure 6: Control panel case

A ... dimensions of the control panel case, position of the installation bores

B ... swivel area of the case cover (approximate values)

C ... case cover hooked into the bottom part of the case



At least 25mm of vacant space must be available below the case to remove the case cover from the bottom part! This minimum vacant space is sufficient for removing the case cover but not for tilting, corresponding to figures 6B or 6C.

- ◆ Loosen the two mounting screws of the case cover and tilt the cover forward. Disconnect the flat cable connecting the display and operating board with the central processing board ZTB216-1 or ZTB216-2 from the central processing board. Loosen the two earth connections from the case and remove the case cover.
- ◆ Mark the three mounting points on the wall, drill the mounting holes with a drill suitable for the plugs, insert the plugs in the drilled holes and provisionally screw the mounting screws in the two upper plugs.
- ◆ Suspend the control panel from the two screws screwed into the wall. Pull the already installed cables through the cable openings at the back of the case, ensuring the proper separation of cables carrying mains voltage and low-voltage.
- ◆ Secure the case using the lower mounting screw. Then tighten the two upper screws, adjusting irregular mounting surfaces through the insertion of spacer elements if required. Ensure that no cables are squashed and that the case is not bent by an uneven mounting surface during tightening.
- ◆ Install the optional componentries at the places provided for this purpose, see from page 19 in Chapter 3.3: "Installation of optional components".
- ◆ Carry out all cabling jobs according to your installation documentation taking into account the connection diagrams shown from page 28 in Chapter 4: "Connection" and the installation regulations for fire alarm systems. Ensure that mains power is not switched on while cabling jobs are in progress!
- ◆ When using shielded cables, connect the shielding wires with the case (earth). The terminal connections on the case bottom part below the function modules are provided for this purpose. Bare shielding wires must be insulated by fitting an insulation tube or similar measures to prevent short circuits.



The fire detection control panel Series BC216 is comprehensively protected against the effects of electrical faults. Shielded cables are therefore not required for the safe operation of the control panel under normal ambient conditions.

- ◆ Hook in the case cover and reconnect the flat cable to the connector ST1 of the central processing board ZTB216-1 or ZTB216-2 (see survey figure from page 19 in Chapter 3.3: "Installation of optional components") and the two earth connections.
- ◆ When closing the case ensure that the bottom part of the case is introduced in the lateral guides of the case cover and no cable is squashed. Secure the case cover with the two mounting screws provided for this purpose.



It is indispensable for the case of the control panel to be earthed in operation! For this purpose connect the control panel case with the equipotential busbar connection of the local electrical installation. Ensure that protective earth is connected to the earth connection terminal on the bottom part of the case, the connection between the protective earth connection of the mains terminal and the bottom part of the case is established and the case cover and the bottom part of the case are electrically connected with the two earth connection lines.

3.3 Installation of optional components

All installation work must only be carried out with the fire detection control panel in the de-energised state. Mains power must be switched off and locked to prevent switching on and the stand-by batteries must be disconnected.



It is absolutely essential that the protective earth conductor and the equipotential busbar are connected to the bottom part of the case to ensure the required discharge of electrostatic charges.

All optional modules are delivered in an antistatic package. Before removing a module from the package it is essential that you discharge yourself by contacting an earth-connected metallic part (e.g., the control panel case). Plug the componentry taken from the package in the connector of the control panel provided for this purpose and tighten the screws. If you remove a componentry it must be immediately placed in the antistatic package without storing the module anywhere in between.

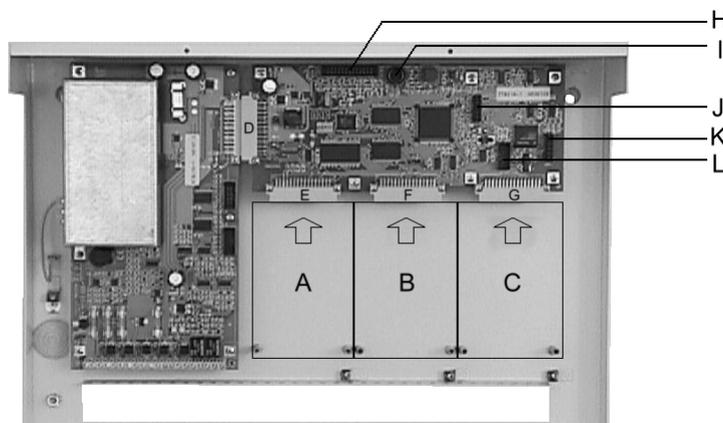


Figure 7: Survey of the connection of optional componentries to the central processing board ZTB216-1 or ZTB216-2.

A ... Place of installation for fire brigade interface FWI2-1

B ... Place of installation for function module FM1

C ... Place of installation for function module FM2

D ... Connector ST5: Power unit NTB216-1

E ... Connector ST4: Fire brigade interface FWI2-1

F ... Connector ST2: Function module FM1

G ... Connector ST3: Function module FM2

H ... Connector ST1: Display and operating board ABB216-1

I ... Connector ST8: Connector for PC keyboard

J ... Connector ST6: "Serial interface 1" serial interface module SIM216-1 or SIM216-2

K ... Connector ST7: "Serial interface 2"

*BC216-1: serial interface module SIM216-1 or SIM216-2
BCnet sectional control panel of a BCnet216: NIF5-1*

L ... Connector ST9: 10-pin connector for diagnostic functions during the manufacturing process

3.3.1 Conventional detector interface GIF8-1, Loop interface LIF64-1

Ensure that the control panel is de-energised. Reliably discharge static loads also during the following activities by touching the control panel case connected to the protective conductor.

- ◆ Plug the first conventional detector or loop interface in the function module space 1 (ST2) of the central processing board ZTB216-1 or ZTB216-2 and secure the module to the case bottom part using the two enclosed screws.
- ◆ Plug the second conventional detector or loop interface (if required) into the function module space 2 (ST3) of the central processing board and secure it to the case bottom part with the two enclosed screws.

With a BCnet sectional control panel of a fire detection control panel BCnet216 the mounting bolts of the function module space 2 are additionally used for securing the terminal board of the network interface NIF5-1. In this case you have to remove the two hexagon bolts which secure the terminal board and plug the corresponding function module (GIF8-1, LIF64-1) in the central processing board as priorly described; secure the function module by tightening the hexagon bolts. Successfully, secure the terminal board of the NIF5-1 on these bolts by using the screws enclosed with every function module (further hints see from page 24 in Chapter 3.3.6: "Network interface NIF5-1").



Ensure that the conventional detector or loop interfaces are plugged in only in the function module spaces provided for this purpose (ST2 or ST3).
To ensure a safe earth connection the mounting screws must be adequately tightened.

3.3.2 Fire brigade interface FWI2-1

Verify that the control panel is de-energised. Reliably discharge static loads also during the following activities by touching the control panel case connected to the protective conductor.

- ◆ Plug the fire brigade interface FWI2-1 into the plug-in space 4 (ST4) of the central processing board ZTB216-1 or ZTB216-2 and secure the assembly to the case bottom part with the two enclosed screws.



Ensure that the fire brigade interface is only plugged into the intended plug-in space ST4.
The mounting screws must be sufficiently tightened to ensure safe earth connection.



If you require monitored outputs for transmitting devices, the fire brigade interface additional board FWZ2-1 must be fitted to the FWI2-1 before installing the fire brigade interface in the control panel.

3.3.3 Fire brigade interface additional board FWZ2-1

Install the fire brigade interface additional board on the fire brigade interface with the help of the three enclosed hexagon bolts as shown in the following.

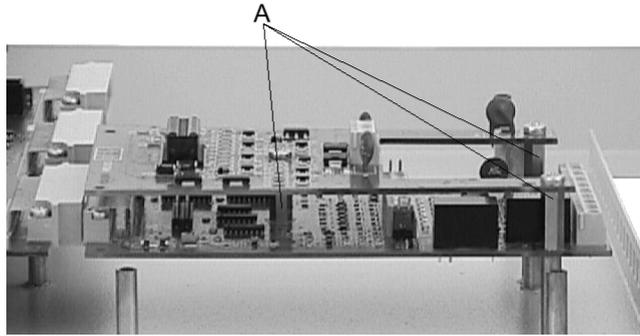


Figure 8: Assembly of the fire brigade interface additional board FWZ2-1 to the fire brigade interface FWI2-1. The power unit NTB216-1 positioned in front was removed for more detailed photographic presentation.

A ... Enclosed hexagon bolts

Ensure that the control panel is de-energised. Reliably discharged static loads also during the following activities by touching the control panel case connected to the protective conductor.

- ◆ If the fire brigade interface FWI2-1 is already installed in the control panel, it has to be removed.
- ◆ Attach one of the supplied hexagon bolts to the fire brigade interface in the centre bore below the pin terminal ST2 by means of the enclosed nut.
- ◆ Plug the fire brigade interface FWI2-1 into the plug-in space 4 (ST4) of the central processing board ZTB216-1 or ZTB216-2 and secure it to the case bottom part using the remaining two hexagon bolts.
- ◆ Plug the fire brigade interface additional board FWZ2-1 into the pin terminal ST2 of the fire brigade interface FWI2-1 provided for this purpose. Ensure that all 16 pins of the pin terminal are engaged in the connector and are not bent. When plugging in, support the fire brigade interface FWI2-1 from behind to avoid excessive mechanical load on the plug connection ST4.
- ◆ Secure the fire brigade interface additional board to the hexagon bolts using the three enclosed recessed head screws.



To ensure secure earth connection, adequately tighten the hexagon bolts and the mounting screws.

3.3.4 LED-display field LAB48-1

The LED-display field consists of two printed circuit boards, which are interconnected when delivered. These two printed circuit boards must be separated prior to installation. To do so, position the unit against a solid edge along the provided scored fracture line and break the unit over this edge using both hands. Ensure that the connection cable connecting the two printed circuit boards and the components mounted on the printed circuit boards are not damaged.



Prior to and during the work to be conducted on the printed circuit boards, static charges of the body must be reliably discharged by contacting an earthed metallic part.

Slide the enclosed plastic spacer tubes onto the 6 threaded pins in the interior of the case cover, fit each of the printed circuit boards onto 3 of the threaded pins and secure the printed circuit boards to the threaded pins using the enclosed nuts according to the following figure. Connect the flat cable to the connector ST2 of the display and operating board ABB216-1.

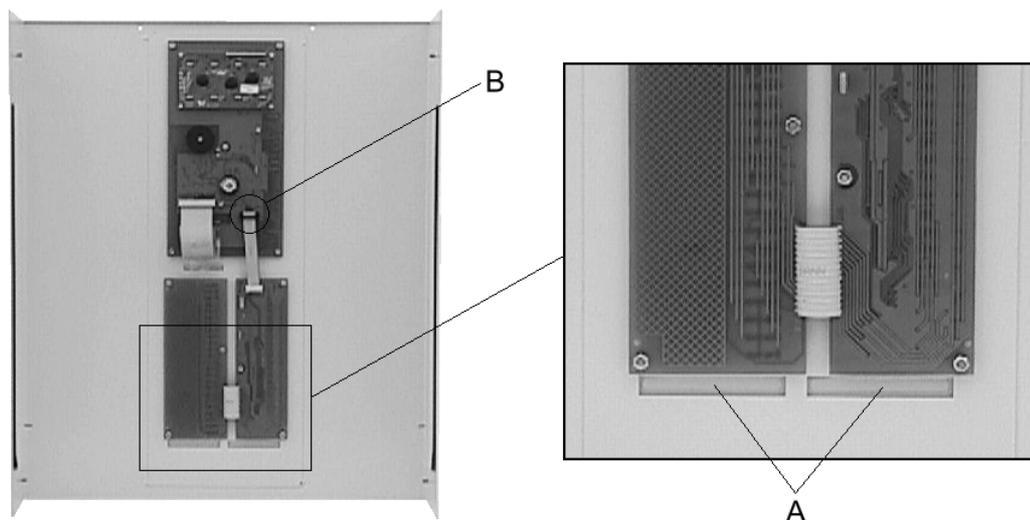


Figure 9: Installation of the LED-display field LAB48-1 in the cover of the fire detection control panel Series BC216.

Spacer tubes (not visible in the picture) are fitted onto the threaded pins between the printed circuit boards and the cover.

A ... Slots for accommodating insertable labels

B ... Connector ST2



Installation of the LED-display field LAB48-1 in a non-operatable BCnet sectional control panel (BC216-3) of a network fire detection control panel BCnet216 is not possible.

3.3.4.1 Insertable labels for LED-display field

When delivered, two insertable labels are affixed to the interior of the control panel. Depending on the side with which they are inserted, the insertable labels fulfil two purposes:

- ◆ If no LED-display field is used, the insertable labels are introduced with the evenly grey side in front. They cover both the transparent inscription field and also the transparent light-emitting diode passages.
- ◆ If the LED-display field is employed, the inscribed insertable labels are introduced with the grey/transparent side first.

Inscribe the insertable labels with suitable means, taking into account the position of the inscription to the lateral reference marks (see following figure). The inscription must be positioned to the right of the transparent part of the label! Subsequently slide the label behind the transparent field next to the light-emitting diodes from below, locate the label with adhesive tape and cut the excessive length with a pair of scissors.

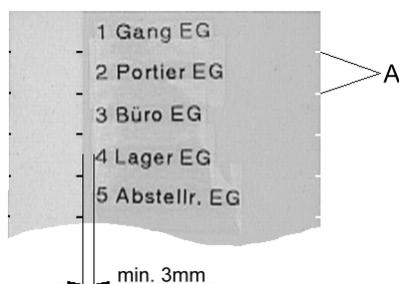


Figure 10: Inscription label for LED-display field LAB48-1

The inscription must be positioned to the right of the transparent part of the label. The reference marks (A) symbolise the lines, the inscription should be positioned central between two such lines.



You can also use a cardboard or paper label, which you previously printed with a laser printer instead of the plastic strip. Print examples for such insertable labels for use with some standard programmes can be found on the CD on which the parameter setup software PARSOFT-1 is delivered (file names: LEDBeschrift.wk4, LEDBeschrift.123, LEDBeschrift.xls). Ensure that the inserted strip does not cover the light-emitting diodes.



On no account should you use sharp or pointed tools to pull out an inserted strip. The surface of the keypad is highly sensitive to scratching on the inside and these scratches are also visible from the outside.

3.3.5 Serial interface modules

By using the enclosed hexagon bolts, install the serial interface modules SIM216-1 and SIM216-2 on the central processing board ZTB216-1 on the plug-in spaces ST6 or ST7 or on plug-in space ST6 when using the central processing board ZTB216-2 of a BCnet sectional control panel. Depending on the pin terminals to which you connect the interface module, the interface module will be addressed as "Serial interface 1" (ST6) or as "Serial interface 2" (ST7) during parameter setup.



With all BCnet sectional control panels of the fire detection control panel BCnet216, plug-in space ST7 of the central processing board ZTB216-2 is reserved for the connection to the GSSnet via the network interface NIF5-1.

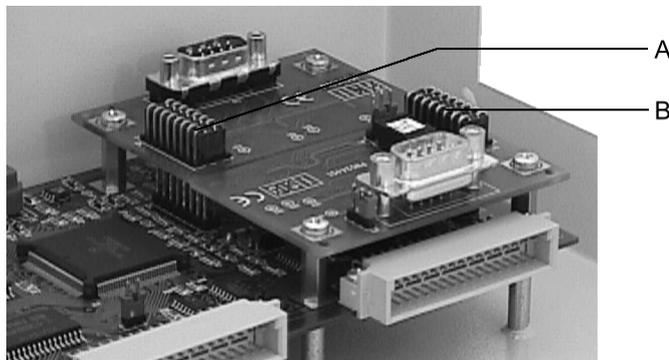


Figure 11: Arrangement of the serial interface modules SIM216-1 and SIM216-2 on the central processing board ZTB216-1 of the fire detection control panel BC216-1. The two plug-in spaces ST6 and ST7 are functionally identical.

A ... Plug-in space ST6, "Serial interface 1"

B ... Plug-in space ST7, "Serial interface 2"

Ensure that the control panel is de-energised. Reliably discharge static loads also during the following activities by touching the control panel case connected to the protective conductor.

- ◆ For the installation as "Serial interface 1" (plug-in space ST6), remove the two screws on the top right of the central processing board and screw in the enclosed hexagon screws instead.
- ◆ Plug the serial interface in the pin terminal ST6 of the central processing board provided for this purpose. Ensure that all 16 pins of the pin terminal are introduced and not bent.



Take care that the componentries are plugged-in as shown in the above figure (figure 11). The connection is not secured against wrong polarity, a componentry connected invertedly can cause considerable damage to the control panel.

- ◆ Secure the serial interface module to the hexagon bolts using the two screws you removed beforehand.



Under no circumstances connect a cable to a serial interface module unless the module is tightly screwed to the central processing board.

- ◆ The installation as "Serial interface 2" (plug-in space ST7) is admissible with the fire detection control panel BC216-1 only. It is carried out similarly to the installation on plug-in space ST6, but displaced by 180°: Remove the two screws from the right bottom of the central processing board and replace with the enclosed hexagon bolts. The further procedure is the same as above.

3.3.6 Network interface NIF5-1

The network interface NIF5-1 is necessary for every BCnet sectional control panel of a fire detection control panel BCnet216 for the connection to the network. With every BCnet sectional control panel it is installed as standard on plug-in space ST7 of the central processing board ZTB216-2 at delivery.

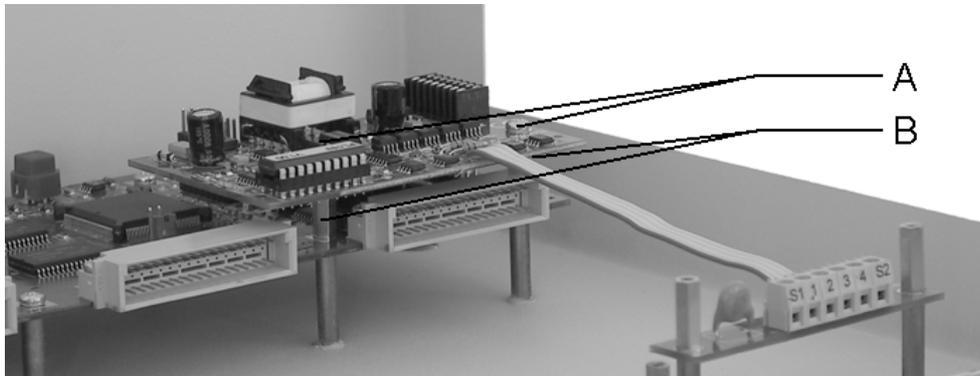


Figure 12: Arrangement of the network interface NIF5-1 on the central processing board ZTB216-2 of a BCnet sectional control panel (BC216-2 or BC216-3) of the fire detection control panel BCnet216.

A ... mounting screws of the ZTB216-2

B ... hexagon bolts of the enclosed packet of assembly material of the NIF5-1

When installing a network interface NIF5-1 supplementary, proceed as described in the following. Ensure that the control panel is de-energised. Reliably discharge static loads also during the following activities by touching the control panel case connected to the protective conductor.

- ◆ Replace the two screws (A) on the right lower part of the central processing board with the enclosed hexagon bolts (B).
- ◆ Plug the network interface NIF5-1 in the pin terminal ST7 of the central processing board provided for this purpose. Ensure that all 16 pins of the pin terminal are introduced and not bent.
- ◆ Secure the network interface to the hexagon bolts using the two screws you removed beforehand.
- ◆ The installation of the terminal board of the NIF5-1 is dependent on whether or not a function module is installed in installation space FM2 of the sectional control panel.

A function module is installed in installation space FM2:

Replace the two screws which secure the function module FM2 to the case bottom part with the enclosed hexagon bolts (B). Screw the terminal board of the network interface on the hexagon bolts of the FM2 using the two screws you removed beforehand.

Installation space FM2 is vacant:

Secure the terminal board of the network interface to the mounting bolts of installation space FM2 using the two enclosed hexagon bolts.

3.3.7 Relay modules RL58-1 and RL58-2

A mounting bracket to accommodate up to four relay modules is provided in the fire detection control panel. The modules are installed using the enclosed plastic spacers. Connection is by means of the flat cables enclosed with the relay modules. The first relay module RL58-1 is plugged to the connector 1 (ST1), the second relay module RL58-1 to the connector 2 (ST2) of the power unit NTB216-1.

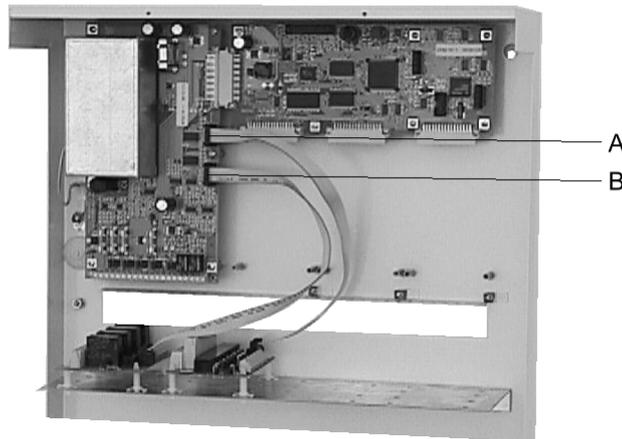


Figure 13: Installation of the relay modules RL58-1 in the standard mounting bracket and connection to the plug-in spaces ST1 and ST2 of the power unit NTB216-1.
 A ... Connector ST2
 B ... Connector ST1

Proceed in like manner for connecting relay modules of type RL58-2 taking into account the cascading possibility of two modules.



In addition to connecting with the flat cables, the relay modules must also be connected to the 24V supply voltage (see page 33 in Chapter 4.2.5: "Connection of relay modules RL58-1 and RL58-2").



After a possible removal of the mounting bracket, the bracket must be reinstalled in the original position (with the short leg downward, see the above figure).

3.3.8 Stand-by batteries

Place the stand-by batteries in the bottom part of the fire detection control panel case or the auxiliary case according to the following figure. Ensure that you do not short-circuit the battery terminals with the overhead mounting bracket when installing the batteries.



Figure 14: Position of installed stand-by batteries in the bottom part of the case



Connect the stand-by batteries to the power unit only when all cabling work has been completed!



Install the stand-by batteries in the case only when it has been permanently and securely mounted to the wall. The stand-by batteries are heavy, provisionally screwed in screws may be torn from the wall by that weight!



Under no circumstances must a fire detection control panel Series BC216 be transported with stand-by batteries installed!

3.4 Installation of the auxiliary case GEH216-4

The same instructions apply for the installation and the place of assembly of the auxiliary case GEH216-4 as for the control panel (see from page 17 in Chapter 3.1: "Place of assembly" and from page 18 in Chapter 3.2: "Panel installation"). Basically you should install the auxiliary case to the left or to the right of the control panel case in direct vicinity. It is ensured only then that

- ◆ the cables connecting the two cases are protected sufficiently against EMC and mechanical influences and
- ◆ the temperature conditions inside the two cases are approximately equal.



In order to refer to the two cases as "fire detection control panel", the control panel Series BC216 case and the auxiliary case GEH216-4 must be installed directly to one another.

3.4.1 Installation of the stand-by batteries

The same instructions and hints apply for the installation of the stand-by batteries in the auxiliary case GEH216-4 as for the installation in the control panel (see from page 25 in Chapter 3.3.8: "Stand-by batteries").

If you intend to install more than one battery set (consisting of 2 batteries of 12V/17Ah, max. 20Ah) in the auxiliary case GEH216-4 you have to install a battery bracket BK216-1, corresponding to the following figure. The assembly material necessary is enclosed to the battery bracket.



Figure 15: Auxiliary case GEH216-4 with installed battery bracket BK216-1



An auxiliary case GEH216-4 may under no circumstances be transported with stand-by batteries installed!

3.4.2 Installation of mounting brackets BW216-1

Thread bolts are arranged on the case bottom part to which up to 4 optional mounting brackets for additional componentries (mounting brackets BW216-1) can be installed, corresponding to the following figure. The assembly material necessary is enclosed to every mounting bracket BW216-1.



In a battery bracket already installed in the auxiliary case GEH216-4, only 1 mounting bracket BW216-1 can be installed additionally.



Figure 16: Auxiliary case with installed mounting brackets BW216-1

4 Connection

This chapter generally describes the connection of the usual components of a fire detection system to the fire detection control panel Series BC216. With the network fire detection control panel BCnet216 the connection hints are analogously valid for all BCnet sectional control panels.

Detailed connection and terminal assignment of detectors, signalling devices, transmitting devices, operating and display facilities, etc., are described in the respective equipment descriptions.

4.1 General instructions

The conductor cross section of the connection cables to the external components must be chosen as a function of the power consumption of the connected components and the length of the cables. In dimensioning the wires, pay special attention to the voltage drops on the connection cables of the signalling devices! To ensure adequate strength, adhere to the minimum core diameter of 0.6mm for the connection of external components.

If the number of connection terminals for the 24V supply of the external devices is inadequate, additional distribution terminals must be installed. On no account should several wires be connected to one terminal.

The wires must be pull-relieved in the control panel. A stamped bracket in the cable inlet area to which cables can be secured by means of cable straps serves this purpose.

If shielded cables are used for the installation, the shielding wires must be connected with the control panel case on one side. Terminal connections are provided for this purpose in the control panel case bottom part. The bare shielding wires must be insulated (e.g., by covering with an insulating tube) so that they cannot cause any short circuits. The shielding wires of an interrupted wiring (e.g., with a detector base) must be safely connected to avoid earth leakage at this point. In order to avoid induction loops, the shielding wire of one end of a circular wiring installation must only be connected to one of the earth connections of the control panel case (e.g., only at the beginning of the ring line), and the shielding wire of the other end of the ring line must be insulated.

Observe the installation regulations for fire alarm systems and the regulations for electrical installations! Connect the local equipotential connection carefully to the screw connection installed in the case bottom part to ensure that the protective measures are fully effective.

If you have dislocated components of the control panel (e.g., relay modules, other switching devices, batteries, etc.) to an auxiliary case, all protective measures (connection to protective earth, equipotential connection, etc.) must also be taken for the auxiliary case.

Ensure safe separation of the mains power wiring and the 24V low voltage lines.



Before starting any installation work, commissioning or maintenance, all actuation devices which may automatically be activated by the fire detection control panel (e.g., extinguishing systems) must be reliably taken out of service. Unintended activation of actuations may endanger human life or result in major damage to property. Establish contact with the responsible person (e.g., fire prevention officer, safety representative) to have the necessary mechanical or electrical switch-offs carried out.



All additional materials required for the installation, connection and commissioning are included in the package accompanying the fire detection control panel and the optional componentries. Keep the left-over material in the control panel case. This remaining material may come in handy for possible expansions or modifications.



Consider that with the network fire detection control panel BCnet216 the single GSSnet members are not galvanically interconnected but are completely electrically isolated from each other!

The components of the EMC protection circuits of the inputs and outputs are not shown in the following connection diagrams to improve clarity.

4.2 Power unit NTB216-1

The power supply connections, the line-monitored connections of the siren output, the INFO bus connections, the open collector NTB auxiliary outputs and the relay outputs for alarm and fault are arranged on the power unit NTB216-1.

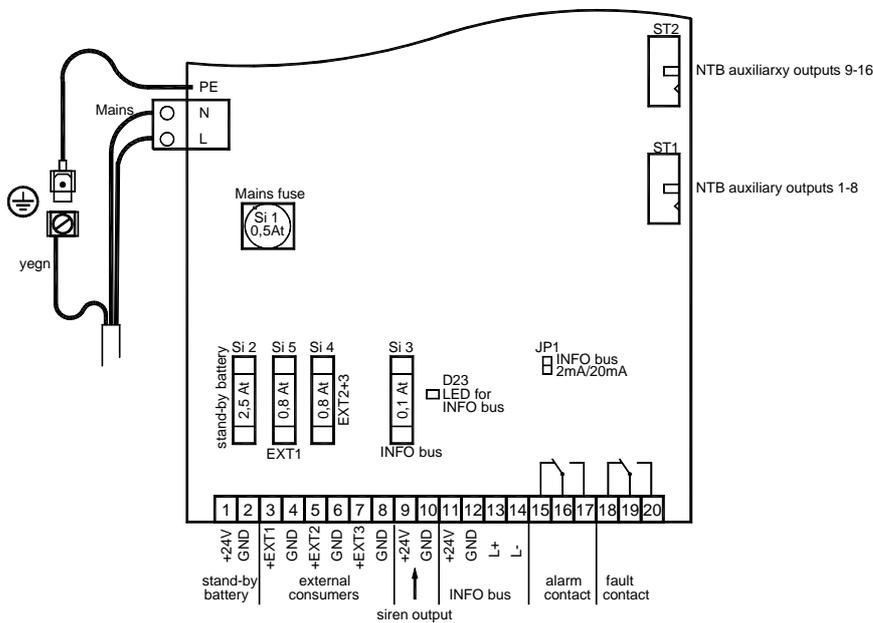


Figure 17: Position of connection elements and fuses on the power unit NTB216-1

4.2.1 Connection of mains power, the stand-by battery and the external devices

Perform the connection in accordance with the following connection diagram. Connect the yellow/green protective earth conductor cable of the NTB216-1 to the FASTON Tab in the case bottom part.

Do not connect the mains power or the stand-by battery to the NTB216-1 before the cabling of the entire system has been completed and carefully tested.

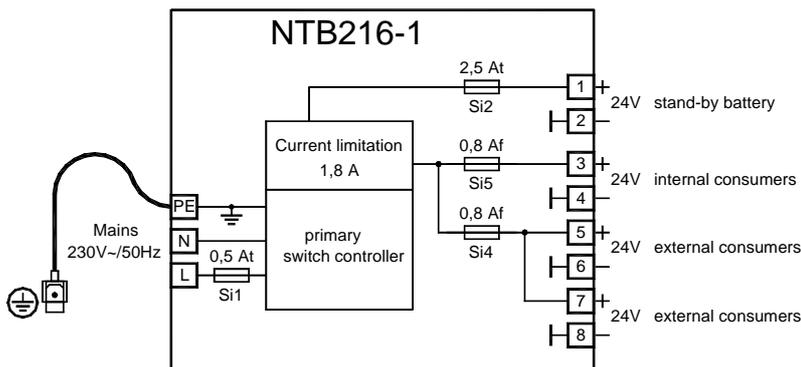


Figure 18: Connections for mains power, stand-by battery and devices to the NTB216-1

The power supply voltage available on terminals 3 and 4 is mainly intended for circuits that remain within the control panel or BCnet sectional control panel.

The supply voltage available on terminals 5, ..., 8 is intended for circuits which lead to external installations from the control panel or BCnet sectional control panel (e.g., to actuations, signalling devices, etc.).



The primary switch controller on the power unit NTB216-1 is protected by a metal covering hood. On no account should you remove this cover, as this would expose components carrying dangerous voltages. The module must neither be operated with mains voltage with the NTB216-1 removed from the control panel case since the high voltages are also accessible on the printed circuit board lower side and the protective earth connection is interrupted.



The mains voltage must be supplied by way of a separately fuse-protected and marked mains power circuit. No devices other than those belonging to the fire detection system must be connected to this circuit.

The cables for the connection of the stand-by battery set to the power unit NTB216-1 are included in the package accompanying the control panel. Use the red cable as positive connection and the black cable as negative connection.

If the stand-by battery is accommodated outside the control panel case (e.g., in an auxiliary case GEH216-4), at least cables of identical quality must be used for connecting.



Lay the cables inside or outside the control panel case in a way that no damage to the cable insulation can occur by sharp edges and fix the cable in the desired position (e.g., by means of cable binders, cable channels, etc.).



It is indispensable to ensure the correct polarity (red = "+", black = "-") when connecting the stand-by battery! Incorrect polarity causes considerable damage to the control panel!

If two stand-by battery sets have to be connected in parallel you require two additional connection cables and one link cable according to the original equipment. Use distribution terminals for connecting the two battery sets since only one connection cable each may be connected to the connection terminals for the stand-by battery of the NTB216-1 (terminals 1 and 2).



Under no circumstances the stand-by batteries or the consumer currents of different BCnet sectional control panels may be connected in parallel! The low-voltage side of the power supply of every BCnet sectional control panel must always be working separately without being connected to a further BCnet sectional control panel.

Two fuse-protected electrical circuits are available for the power supply of additionally connected devices (e.g., relay modules, signalling devices, etc.). It is recommended

- ♦ to connect the electrical circuits remaining in the control panel or BCnet sectional control panel to terminals 3(+) and 4(-) and,
- ♦ to connect the electrical circuits leading out of the control panel or BCnet sectional control panel (e.g., for external actuations, signalling devices, etc.) to the terminals 5(+) and 6(-) or the terminals 7(+) and 8(-).

This serves to ensure that during a short circuit affecting the circuits leading to the outside, the control current circuits within the control panel are not affected.



If a transmitting device is used for notifying the fire brigade, which has to be supplied with energy from the fire detection control panel, it is recommended to connect this device also to terminals 3(+) and 4(-). However, this line must be carefully installed and protected so that a short circuit on this line can be safely excluded. This approach serves to ensure that the transmitting device is uncoupled from the external installations connected to the terminals 5, ..., 8 and cannot be shut down by a short circuit in the external installation (e.g., through a defective actuation).



The failure of the fuses Si1, Si2, Si4 and Si5 is automatically recognised by the control panel and evaluated as a fault. Reference to the cause of the fault is made on the LC-display of the control panel.

4.2.2 Connection to the siren output

The siren output is primarily designated for the line-monitored activation of acoustic or optic signalling devices (sirens, flashlights, etc.). Usually this siren output is used as the primary alarming device but you can set the parameters of this output for other functions (e.g., as actuation, etc.) as well.



Every alarming device which is connected to the siren output of the NTB216-1 is designated as primary alarming device, provided that the siren output was set as alarming device. The primary alarming device is operated on the control panel with the operating and display elements of the field 'ALARM. DEVICE 1'. This alarming device is preferably constructed as a siren (or several sirens connected in parallel) for warning the endangered persons, but the connection of flashlights or other alarming devices is also possible.

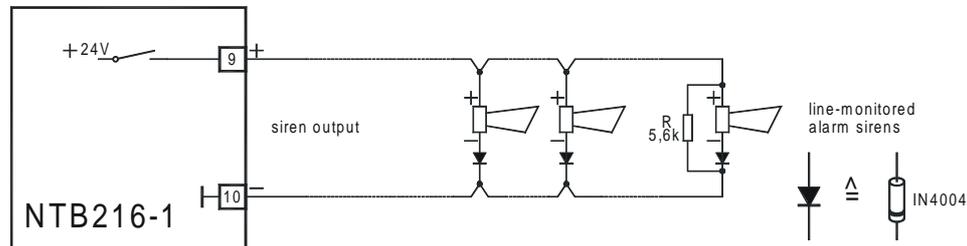


Figure 19: Connection of signalling devices to the siren output

The maximum permissible continuous load of the output is 150mA.

If signal elements are employed which are already equipped with an incorrect polarity protection diode, the diodes drawn in the diagram are not required.

Use 1N4004 or similar diodes.



Basically the parameters of the siren output of the NTB216-1 can be set freely. Therefore you can set this output also as actuation, transmitting device, etc. (see User Manual / Part C). The operating and displaying elements in the field 'ALARM. DEVICE 1' are only effective when the siren output was set as alarming device!



At a failure of the central computer of a fire detection control panel BC216-1 or of a BCnet sectional control panel BC216-2 the siren output will always be activated in case of alarm - independent from which functions its parameters were set for (see from page 39 in Chapter 4.6.2.1: "System fault / redundant alarm")!

Line monitoring is effected by a negative monitoring voltage (approximately -1.2V at 5.6kΩ end of line resistor) available on terminal 9 in normal condition. The drawn diodes block this negative voltage at each signalling device. In the event of an alarm the full supply voltage (+24V) is available current-limited and short-circuit proof on terminal 9.



The current limitation of this output operates dynamically: When the limit value is exceeded, the limitation switches off the output and thereafter attempts at short intervals to again switch on the output voltage.



Should several signalling devices be operated monitored on the siren output, they have to be connected in a chain similar to conventional detectors as shown in figure 19. With radial cabling, display of a line interruption is only possible for that part of the cable equipped with the end of line resistor. Please note the limited current capacity of this monitored output.

Under no circumstances the siren outputs of BCnet sectional control panels may be connected in parallel!

If no device is connected to the siren output, terminals 9 and 10 have to be closed with a 5.6kΩ resistor instead or set as "not defined" (see User Manual / Part C) to prevent that a fault is displayed on the control panel.



Resistors 5.6kΩ and diodes 1N4004 are included in the package accompanying the control panel



The colour code for a resistor with 5.6kΩ consists of the colour rings green-blue-red and the colour ring for the tolerance (e.g., gold = 5 %).

4.2.3 Connection of the INFO bus

Up to 8 signalling and display devices (e.g., fire brigade control units, fire brigade display facilities, signalling devices, remote indication units, etc.) can be coupled to the fire detection control panel

BC216-1 or to the BCnet sectional control panels BC216-2 and BC216-3 by way of the 2-core INFO bus.

A fuse-protected voltage to supply INFO bus devices is available from the power unit NTB216-1, terminals 11(+) and 12(-). If the current available there is not adequate to operate all connected INFO bus devices, you will either have to connect devices to the terminals for external devices (see from page 29 in Chapter 4.2.1: "Connection of mains power, the stand-by battery and the external devices") or install local power supply units. Please note the technical data (e.g., the supply voltage range or power consumption) of the devices to be connected.



The fuse Si3 is only monitored indirectly: A failure of this fuse is indicated on the control panel by a fault of the connected INFO bus devices.



For proper operation the number of the devices installed on the INFO bus must correspond with the parameterised number (see User Manual / Part C).

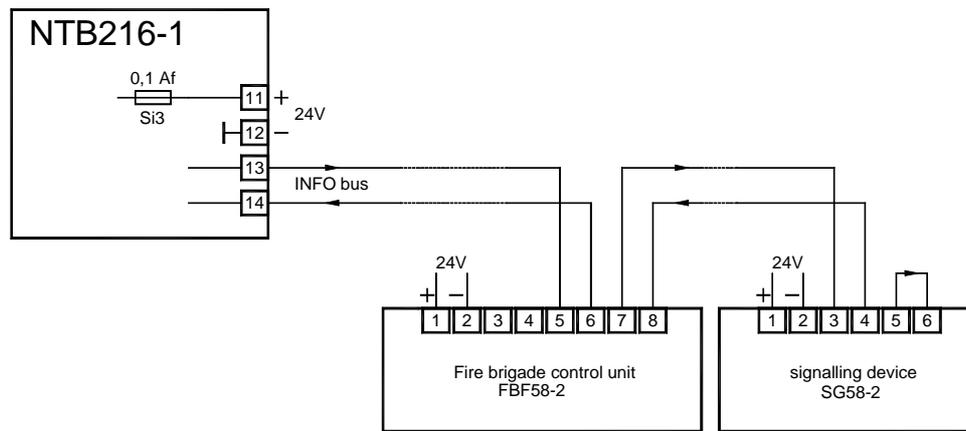


Figure 20: Connection of a max. of 8 INFO bus devices to the INFO bus, the fire brigade control unit FBF58-2 and the signalling device SG58-2 are shown as examples.

The sequence of the devices connected to the INFO bus need not correspond with the address number (1, ..., 8) to be set on each device.

Please note the direction of current flow on the INFO bus indicated by arrows.

Power supply of the devices is either by way of the connection terminals 11 (+) and 12 (-) from the NTB216-1 or locally by means of separate power supply units.

All INFO bus devices must be series-connected in a chain, i.e., the output of one device must be connected with the input of the following device. The two output terminals of the last device must be connected. Branch-offs in cabling or radial wiring are not permissible!



The INFO bus may only be operated on one fire detection control panel BC216-1 or on one BCnet sectional control panel BC216-2 or BC216-3 each. The connection of several control panels or BCnet sectional control panels to one INFO bus line is not permissible. Nevertheless you can connect a separate INFO bus line with up to 8 INFO bus devices to every BCnet sectional control panel.

The current value of the signal current on the INFO bus can be selected between 20mA and 2mA using the short-circuit connector JP1 arranged on the power unit NTB216-1. The works setting is 20mA (JP1 connected) and may not be changed by you.



You can observe the correct current flow on the INFO bus by means of the light-emitting diode D23 arranged on the NTB216-1 (see the general diagram of the NTB216-1 from page 29 in Chapter 4.2: "Power unit NTB216-1"). The light-emitting diode normally flickers or lights up depending on the set baud rate (see User Manual / Part C).

4.2.4 Connection of the contact outputs for summary alarm and summary fault

For passing on the operating conditions "Alarm" and "Fault", the control panel and every BCnet sectional control panel is equipped with a dry change-over contact each.

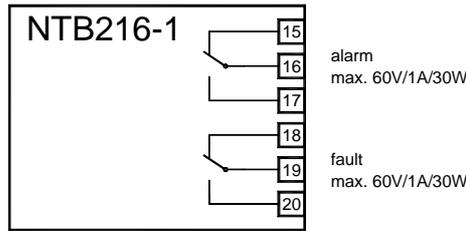


Figure 21: Connection of the dry contact outputs for summary alarm and summary fault. The relay contacts are shown with the relays in the de-energised state. With the control panel in normal condition, the fault relay is activated and the alarm relay is released.

4.2.5 Connection of relay modules RL58-1 and RL58-2

16 auxiliary outputs with free to set parameters (NTB outputs) on the power unit NTB216-1 are connected to two 10-pin flat cable connectors ST1 and ST2 to which the relay modules of type RL58-1 and RL58-2 can be connected.

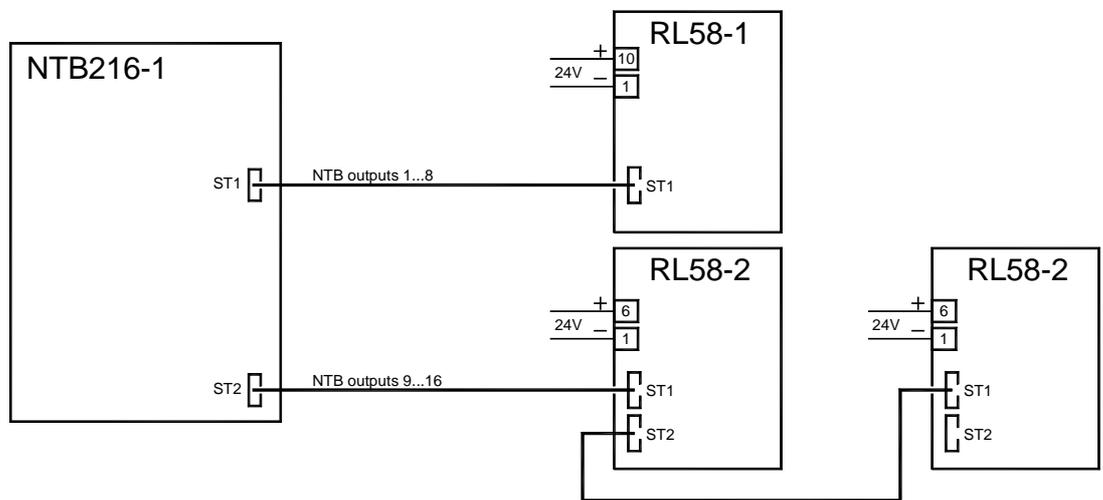


Figure 22 Connection of relay modules RL58-1 and RL58-2 to the auxiliary outputs (NTB outputs) of the power unit NTB216-1.

The supply voltage is not supplied via the flat cable connection, which is why you have to additionally connect the relay modules to the terminals for internal control panel devices (i.e., to terminals 3, 4 of the NTB216-1, see from page 29 in Chapter 4.2.1: "Connection of mains power, the stand-by battery and the external devices").

The figure is an example, you can connect either a relay module RL58-1 or two relay modules RL58-2 to each of the two flat cable connectors ST1 or ST2 of the power unit NTB216-1.



The supply voltage for the relay modules is not supplied via the flat cable connection, it must be supplied separately. To do so, use the voltage available on terminals 3 and 4 of the power unit NTB216-1 for internal control panel devices (see from page 29 in Chapter 4.2.1: "Connection of mains power, the stand-by battery and the external devices").



The outputs on ST1 or ST2 are only suitable for the connection of relay modules of types RL58-1 and RL58-2 or similar. On no account must wiring connected to these outputs be led out of the fire detection control panel case or the optional auxiliary case, installed directly beside the control panel case!



The flat cables required for connecting the relay modules to the NTB216-1 are enclosed with the relay modules. If the relay modules are installed in the auxiliary case you have to either convert the flat cable connectors ST1 or ST2 on the NTB216-1 to terminals (e.g., by using the plug converter board SUB58-2) and separately wire the relay modules or you have to use longer flat cables.



Do not connect relay modules and similar devices to a supply voltage which may be affected by a short-circuit in the wiring outside the control panel!

4.3 GSSnet wiring

The redundantly constructed GSSnet wiring combines all members of the GSSnet (e.g., the BCnet sectional control panels of a fire detection control panel BCnet216, remote display and operating units, gateways, etc.) to a Global Security System. The componentry "network interface NIF5-1" is installed in every BCnet sectional control panel as RS485 interface unit, to which the GSSnet wiring is connected. Also the short circuit recognition and the automatic disconnection of faulty line sections are executed via this interface unit. The wiring itself is constructed as a closed circle; a single line breakage or a short circuit in the GSSnet wiring will not lead to any impairment of the whole system.

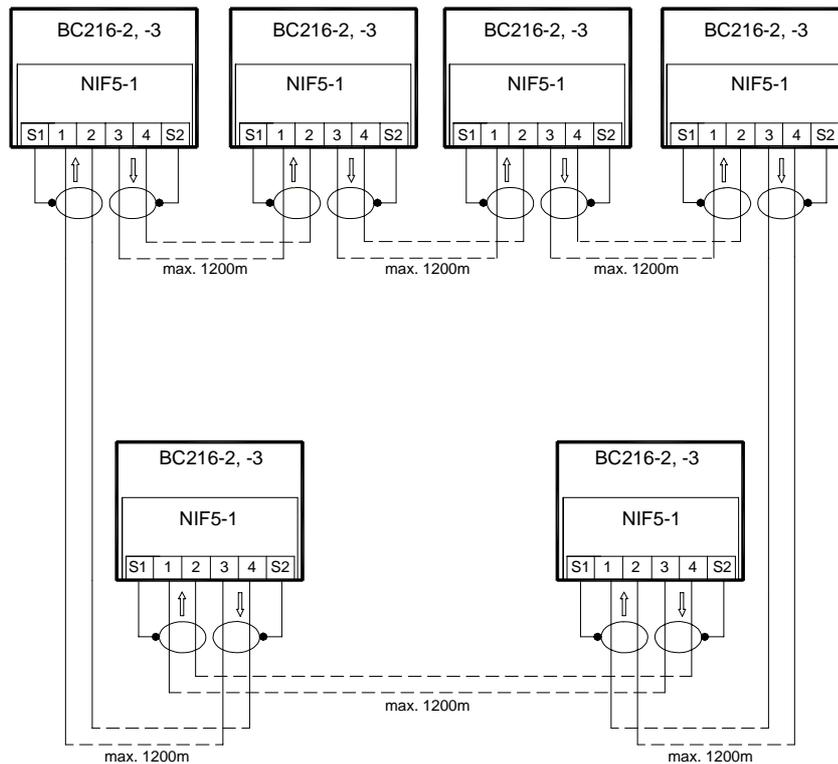


Figure 23: Wiring of a global security system, exemplarily shown for a fire detection control panel BCnet216, consisting of 6 BCnet sectional control panels. Each GSSnet output (terminals 3 and 4 of the NIF5-1, marked as: ↓) must be connected to the GSSnet input (terminals 1 and 2 of the NIF5-1, marked as: ↑) of the next GSSnet member; as a whole, a GSSnet circle is thereby created. The succession in which the BCnet sectional control panels are arranged in the circle has no influence on the function of the control panel.

A standard computer network cable (category 5) meeting the specifications stated from page 58 in Chapter 6.10: "Network cable" is to be used as connection cable.

The shielding wires of the incoming and outgoing network cable must be connected to the terminals displayed in figure 23 under any circumstances (i.e., the shielding wire of the incoming cable to terminal S1, the shielding wire of the outgoing cable to terminal S2). The shielding wires of the incoming and of the outgoing cable may not be interconnected! All unused cores of the network cable are to be insulated.

The cable length between two network members may not exceed 1200m. If larger distances are required, repeaters must be interposed.



It is indispensable that the GSSnet wiring is constructed as a simple, closed circle; no branch-offs (branch lines) or meshes may exist in the wiring!

Even if the control panel consists of only two BCnet sectional control panels arranged side by side, the GSSnet wiring must be constructed as a "circle" (i.e., consisting of separate incoming and outgoing lines)!

4.4 Conventional detector interface GIF8-1

8 zone ports for conventional detector zones are arranged on each conventional detector interface GIF8-1. As part of the AUTO-setup the fire detection control panel automatically recognises the number of conventional detector interfaces used and defines "Manual call point" as zone type for all zone ports located thereon. During the system parameter setup

- ◆ you determine a logic detector zone number for each zone port, which is used as definition number for all further processes. Generally, detector zone Nr. 1 is suggested for the zone port Nr. 1 of the first GIF8-1 and detector zone Nr. 9 is suggested for the zone port number 1 of the second GIF8-1, etc. However, you can also assign any number between 1 and 9699 to each individual zone port.
- ◆ you can adapt the zone type for each zone port to the specific requirements of the system.
- ◆ you assign a two-line display text for each detector zone or for each detector (this requires the installation of optional address modules).

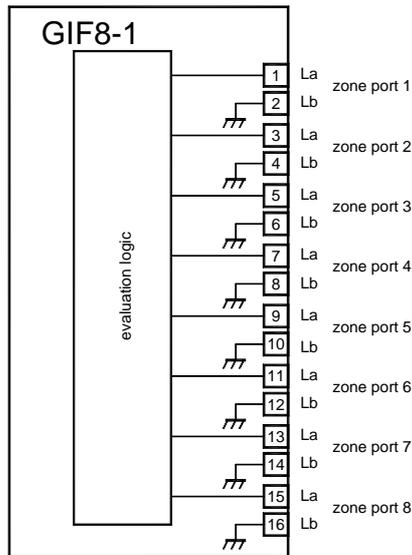


Figure 24: Connection terminals of the detector zones on the conventional detector interface GIF8-1 - overview
*La = positive zone connection,
 Lb = negative zone connection.*

The 8 zone ports of a conventional detector interface have identical electrical and functional structures. The functions of the connected detector zones are exclusively determined through parameter setup.



The maximum line resistance per core is 50Ω; this corresponds to a line length of approximately 1,400m with a core cross section of 0.5mm² between GIF8-1 and the last detector of the detector zone. For larger distances cables with a suitably larger core cross section must be installed.

If zone ports of a conventional detector interface are not used (e.g., spare zones), either the respective terminals of the conventional detector interface must be connected with an end of line resistor of 5.6kΩ (included in the package accompanying the conventional detector interface GIF8-1) or the zone type must be parameterised as "Not defined" (see User Manual / Part C).

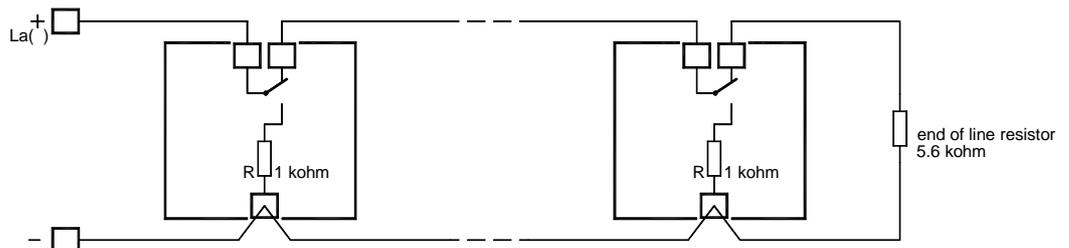


Figure 25: Typical detector connection of contact detectors (e.g., of manual call points) to the conventional detector interface GIF8-1.

The alarm resistor R ($1k\Omega$, min. $0.3W$) is to be installed with every contact detector, the end of line resistor ($5.6k\Omega$) must be installed with the last detector of the detector chain.

Notice the relevant LST documentations for the connection of conventional detectors.



The colour code for a resistor of

- $1k\Omega$ consists of the colour rings brown-black-red, and of

- $5.6k\Omega$ of the colour rings green-blue-red

and in each case additionally the colour ring for the tolerance (e.g., gold = 5%).



The identification of a line interruption of a detector line is only guaranteed when all detectors are connected in a chain and the end of line resistor is actually used at the end of the line, i.e., in the last detector of the chain. If branch-offs are present in the cabling a line interruption within this branch cannot be identified. Neither will a line interruption be identified when the end of line resistor was used with a detector situated before the last detector of the chain and the interruption occurred behind the resistor.



Practically all installation regulations for fire detection systems require that the failure of a detector due to a line interruption must be displayed on the control panel.

The detailed connection of the detectors to the conventional detector interface GIF8-1 is not further discussed in this manual. Please refer to the applicable LST documentation concerning the connection of conventional detectors.

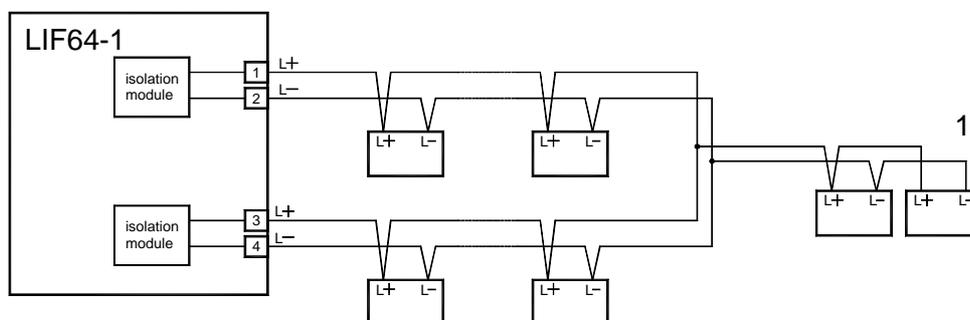


Every detector line from the conventional detector interface GIF8-1 must be of the 2-core type! Although the connections (Lb) are connected to negative supply voltage within the conventional detector interface, you should nevertheless refrain from connecting the Lb-wire of a detector line to a negative supply voltage, which happens to be available anywhere in the installation! Shunt-connecting the Lb-wires of several detector lines is not permissible either!

4.5 Loop interface LIF64-1

The loop interface LIF64-1 is intended for the connection of intelligent detectors or modules of the ADM or ADMPRO technology to a ring line. The 2-core connection line is installed so that it returns to the control panel from the last detector, in this way closing the loop. This line arrangement serves to ensure that in the event of a line interruption it is possible for the control panel to feed both parts of the loop so that all elements of the loop can be accessed by the control panel despite a line fault.

As part of the AUTO-setup the fire detection control panel automatically recognises the number of loop interfaces employed, the number, addresses and types of the detectors and modules installed on the loop. A zone number is automatically set for each loop (e.g., with a fire detection control panel BC216-1: 9701 for the function module FM1 and 9702 for the function module FM2). A number is also set automatically for each element of the loop (detectors, modules). These automatically set zone numbers must be changed to required values during setting the parameters.



1)...In the event of a line interruption in a branch line the elements of the branch line located behind the interruption are not attended by the control panel.

Figure 26: Typical connection of the loop elements (detectors, modules) to the loop interface LIF64-1. Please note that the installation according to regulations sometimes also requires the use of short-circuit isolators which are not shown here.

A line interruption anywhere in the cabling is immediately identified and displayed by the control panel. If the cabling is designed strictly as a loop without branches, not one single detector will be shut down through a line interruption. If the line configuration includes branch-offs, the detectors located behind the interruption in a branch-off can no longer be serviced during a line interruption, the failure of such elements is however signalled on the control panel as fault of these elements.



The maximum line resistance per core is 50Ω; this corresponds to a loop length of approximately 1,400m with a core cross section of 0.5mm². For larger loop distances, cables with suitably larger core cross section must be installed.

The detailed connections of the elements (detectors and modules) and the structure of a ring line is not further discussed in this manual. In this regard refer to the applicable LST documentation concerning the connection of detectors and modules of the ADM and ADMPRO technology.



The loop connections L+/L- must not be exchanged. It is indispensable that the 2-core line starts on terminals 1, 2 and ends on terminals 3, 4 as shown in figure 26! The lines of different loops must not be interconnected anywhere!

4.6 Fire brigade interface FWI2-1

The fire brigade interface offers the possibility of activating two transmitting devices as a connection to the designated alarm respondents (e.g., the fire brigade) by way of two separate dry relay contacts. 8 outputs and 9 inputs are additionally available which you can parameterize system-specific in the submenu [FWI2-1] of the menu point [Parameter settings] (see User Manual / Part C). An additional output that cannot be separately parameterized, serves to indicate a system fault.



The relay contacts are not limited to the activation of transmission facilities. You can select from a large number of possible functions for these two relay contacts during system parameter setup. However, take into account that, with a fire detection control panel BC216-1 or a BCnet sectional control panel BC216-2, the relay HM1 (usually parameterized as primary transmitting device) will be activated in the event of an alarm on failure of the central processing board (see from page 39 in Chapter 4.6.2.1: "System fault / redundant alarm").



The inputs and the open collector outputs of the fire brigade interface FWI2-1 are effectively protected against EMC effects, so that the connected lines may be installed outside the control panel - the relevant electrotechnical regulations must be observed.

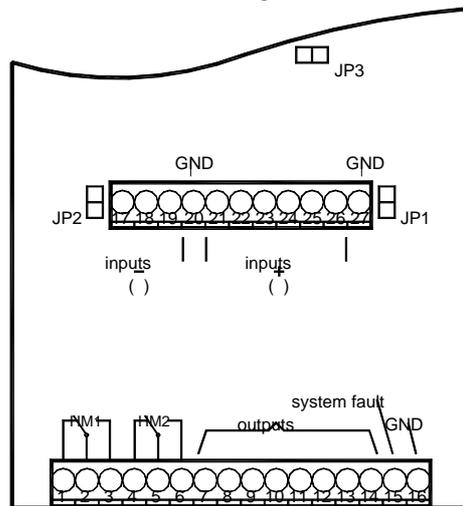


Figure 27: Overview of the connection terminals on the fire brigade interface FWI2-1

The function of the short-circuit connector

JP1 is explained from page 39 in Chapter 4.6.2.1: "System fault / redundant alarm", the function of the short-circuit connector

JP2 is explained from page 38 in Chapter 4.6.1: "Relay contacts on the FWI2-1" and the functions of the short-circuit connector

JP3 is explained from page 45 in Chapter 4.8.1.3: "Connection of the BCnet redundant alarm line".

4.6.1 Relay contacts on the FWI2-1

The two relays placed on the FWI2-1 are primarily intended to accomplish the dry activation of transmitting devices. If no such activations are required, these relay contacts can be used for any other task (e.g., actuations, etc.).

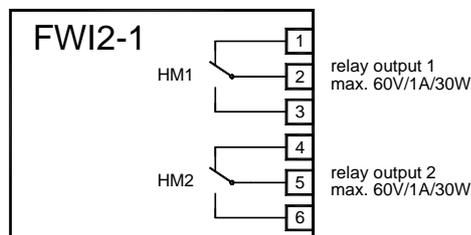


Figure 28: Connection of the contacts of the relays HM1 and HM2 on the fire brigade interface FWI2-1. The relay contacts are shown in the deactivated (=de-energised) state of the relays. During parameter setup the HM1 relay is referred to as "relay output 1" and the HM2 as "relay output 2".

As part of the AUTO-setup the fire detection control panel recognises that a fire brigade interface FWI2-1 has been installed and automatically defines the contact of the HM1 relay for activation of the primary transmitting device.



The primary transmitting device can be operated directly on the control panel keypad (field "TRANSM. DEVICE 1"). The use of the alarm delay procedure is possible for this transmitting device only.

The HM2 relay is not dealt with during AUTO-setup.

You can change this allocation during system parameter setup and assign a different transmitting device or a totally different task to the selected relay. You can also change type and characteristic of the transmitting devices or establish combinations with detector zones. In addition you can allocate a 2-line text as designation for the transmitting devices.

If the fire detection control panel is to monitor the line to the transmitting device the use of the fire brigade interface additional board FWZ2-1 is required in addition to the fire brigade interface FWI2-1 (see from page 20 in Chapter 3.3.3: "Fire brigade interface additional board FWZ2-1" and from page 41 in Chapter 4.7: "Fire brigade interface additional board FWZ2-1").



A total of up to 10 transmitting devices can be defined with the fire detection control panel BC216-1 or with every BCnet sectional control panel of the fire detection control panel BCnet216. The total number of transmitting devices defined in a network fire detection control panel BCnet216 is limited to 99.

Besides the above mentioned relays on the fire brigade interface FWI2-1 it is also possible to utilise the open collector outputs of the FWI2-1 and the auxiliary outputs (NTB outputs) of the power unit NTB216-1 for this task.

The HM1 relay has yet another special function: Upon failure of the central processing board ZTB216-1 the HM1 relay (usually parameterized as the primary transmitting device) will be activated in addition to the other display installations in the event of an alarm ("redundant alarm"). If the short-circuit connector JP2 is connected (see the overview figure from page 37 in Chapter 4.6: "Fire brigade interface FWI2-1") the HM2 relay will also be additionally activated in the event of "redundant alarm".

4.6.2 Open collector outputs of the FWI2-1

8 of the 9 available open collector outputs of the fire brigade interface FWI2-1 can be individually parameterised site-specific during system parameter setup. The outputs are primarily intended for the connection of standardised auxiliary components of the fire detection system (e.g., relay modules, fire

brigade control units, etc.). The ninth output is used for system fault display and cannot be parameterised (see from page 39 in Chapter 4.6.2.1: "System fault / redundant alarm").



For system parameter setup these 8 parameterizable outputs are defined by their terminal number (terminal 7, ..., terminal 14).



If a national version of a fire brigade control unit is adjusted during system parameter setup, the functions of the necessary inputs and outputs of the fire brigade interface FWI2-1 are automatically defined. Renewed setup of the inputs and outputs through subsequent parameter setup of the fire brigade control unit national version (and vice versa) is not prevented! A summary of the inputs and outputs required in the various fire brigade control unit national versions can be found from page 41 in Chapter 4.8: "Connection of country-specific fire brigade installations".

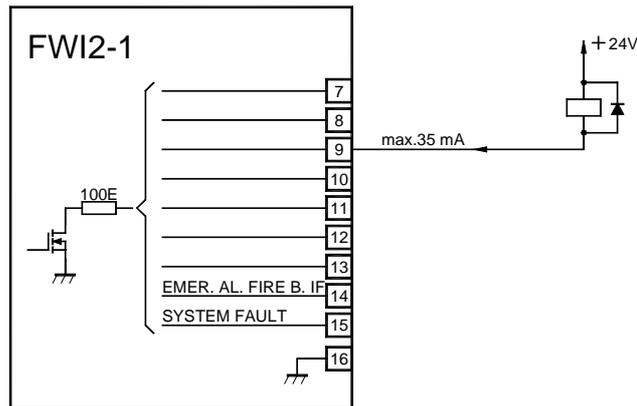


Figure 29: Open collector output connections on the FWI2-1

The function of the outputs terminals 14 and 15 is described from page 39 in Chapter 4.6.2.1: "System fault / redundant alarm".



The open collector outputs of the fire brigade interface FWI2-1 are effectively protected against EMC effects, the connected lines may therefore be installed also outside the control panel - the applicable electrotechnical regulations must be observed.



If an output activates an inductive load (e.g., a relay coil), a clamp diode (1N4004 or equivalent) in the shown polarity must be connected to the load itself.

No supply voltages from outside the system may be used for the supply of the devices controlled by the FWI2-1.



Please observe the determinations for the 24V supply of the connected devices made from page 29 in Chapter 4.2.1: "Connection of mains power, the stand-by battery and the external devices".

4.6.2.1 System fault / redundant alarm

The output "System fault" (terminal 15 of the FWI2-1) is activated (i.e., the output transistor is connected through) when the processor system of the central processing board ZTB216-1 has a partly or entire fault.



The variety of processor system faults ranges from "hardly any effect on the operation" (e.g., the fault of a software component required only for maintenance) to total shut down of the processor system! In any event, have any current fault immediately rectified by a specialist company!

"Redundant alarm" describes the alarm status, which arises through the activation of a detector on a properly operating conventional detector interface or loop interface during a system fault. In case of a redundant alarm,

- ◆ the word ALARM is shown on the LC-display,
- ◆ the field "ALARM" is illuminated,
- ◆ the siren output on the NTB216-1 (usually parameterized as the primary alarming device) is activated,
- ◆ the light-emitting diode "ALARM. DEVICE 1 activated" is activated,

- ◆ the HM1 relay on the fire brigade interface FWI1-2 (usually parameterized as the primary transmitting device) is activated (if available),
- ◆ the monitored output of the FWZ2-1 belonging to relay HM1 is activated (if available),
- ◆ the light-emitting diode "TRANSM. DEVICE 1 active" is activated,
- ◆ if JP1 is set on the FWI2-1 the output terminal 14 is activated,
- ◆ if JP2 is set on the FWI2-1, the relay HM2 and the relevant monitored output on the FWZ2-1 is activated.

Two possibilities can be determined for the output on terminal 14 on the FWI2-1:

- ◆ If the short-circuit connector JP1 on the FWI2-1 is not connected, the output terminal 14 can be parameterised freely.
- ◆ If the short-circuit connector JP1 on the FWI2-1 is connected, the output terminal 14 operates as "redundant alarm". In this case the output type must be set as "Not defined" or "act. on alarm" when parameterising the output.



The function "alarm delay" is not operational during a redundant alarm.



No redundant alarm is possible at failure of the central computer of a BCnet sectional control panel BC216-3 ("black box" - control panel).

4.6.3 Inputs of the FWI2-1

The 9 available inputs of the fire brigade interface FWI2-1 are preferably intended for the connection of standardised auxiliary components of the fire detection system (e.g., fire brigade control units, etc.). However, they can also be individually parameterised site-specific.



The inputs of the fire brigade interface FWI2-1 are effectively protected against EMC effects, the connected lines can therefore be installed also outside the control panel - observe the applicable electro-technical regulations.



These 9 outputs are defined by their terminal numbers (terminal 17, 18, 19, 21, ..., terminal 26) during system parameter setup.



If a national version of a fire brigade control unit is set during system parameter setup, this automatically defines the functions of the inputs and outputs of the fire brigade interface FWI2-1. Renewed setup of the inputs and outputs through subsequent parameter setup of the national version of the fire brigade control unit (and vice versa) is not prevented! A summary of the inputs and outputs required in the various fire brigade control unit national versions can be found from page 41 in Chapter 4.8: "Connection of country-specific fire brigade installations".

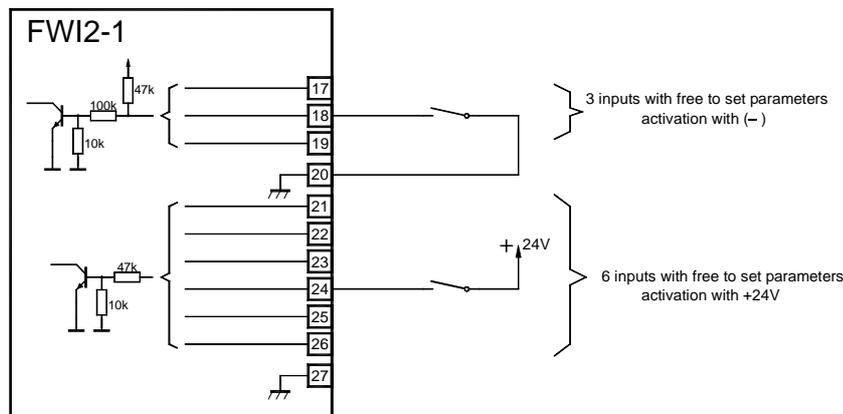


Figure 30: Input connections on the FWI2-1

The activation of input terminals 17, 18, 19 is effected by connecting (NO) and disconnecting (NC) of ground.

The activation of input terminals 21, ..., 26 is effected by connecting (NO) and disconnecting (NC) a positive voltage.)

The voltage values permissible for the activation are listed in the specifications from page 96 in Chapter 9.5: "Fire brigade interface FWI2-1".



With regard to the inputs activated with +24V, please observe the determinations made from page 29 in Chapter 4.2.1: "Connection of mains power, the stand-by battery and the external devices".

4.7 Fire brigade interface additional board FWZ2-1

The fire brigade interface additional board FWZ2-1 plugged onto the fire brigade interface FWI2-1 expands the fire brigade interface by two line-monitored outputs. Functionally, these outputs are shunt-connected with the two relay outputs of the FWI2-1 and have therefore the same functions.

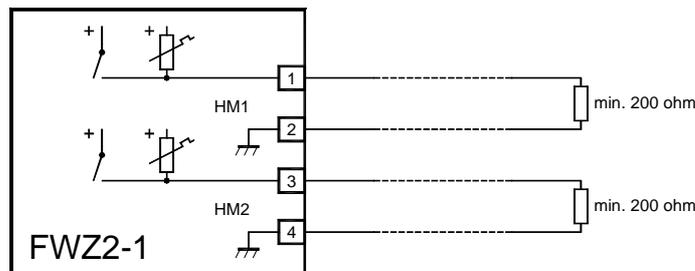


Figure 31: Connections of the fire brigade interface additional board FWZ2-1
Both outputs are designed short-circuit proof, the maximum permissible continuous output current for each output is 150mA.

Line monitoring is effected through a supervising current, the parameters of which can be set in three steps separately for each output, which continuously flows via the line to be monitored. The approximate values for these steps are: 4mA (=Low), 8mA (=Medium), 12mA (=High). The actual current flow is dependent on the level of the supply voltage and also on the resistance of the facility to be controlled.

The internal supply voltage of the control panel is switched to the corresponding output of the FWZ2-1 in activated condition (i.e., the relay HM1 or HM2, respectively is picked up on the fire brigade interface FWI2-1). The outputs are designed current-limited and short-circuit proof.



The current limitation of the two outputs operates dynamically: On exceeding the threshold value, the limitation switches off the voltage, subsequently re-attempting in short intervals to switch on the voltage again.



During AUTO-setup, the fire detection control panel automatically recognises that a fire brigade interface additional board has been installed and defines the supervising current for the output connected with relay output 1 as "Low". During AUTO-setup, the relay output 2 is set as "Not defined". If the relay output 2 is parameterised from "Not defined" to a function, the supervising current of this output is automatically adjusted to "Low" also. This setting can subsequently be changed for the output type "Transmitting device".



Is the relay HM1 or HM2 used, but the belonging supervised output of the FWZ2-1 is not needed, you have to connect the terminals of the output with an end of line resistor of 5.6kΩ and set the parameters for the supervising current to "Low".

4.8 Connection of country-specific fire brigade installations

The inputs and outputs of the fire brigade interface FWI2-1, pre-defined through the parameter setup of the fire brigade control unit national version, are identified in the following table.

Terminal, relay	Germany FBF900-1,2	Austria FBF58-1	Switzerland
7 (O)	FBCU	FBCU	FBCU
8 (O)	FBCU	FBCU	FBCU
9 (O)	FBCU		FBCU
10 (O)	FBCU	FBCU	
11 (O)	FBCU	AD800-1	

Terminal, relay	Germany FBF900-1,2	Austria FBF58-1	Switzerland
12 (O)	FBCU		
13 (O)	AD700		
14 (O)			
17 (I)	Transm. dev. 1	AD800-1	
18 (I)	FBCU	Exting. system	
19 (I)			
21 (I)	FBCU	FBCU	FBCU
22 (I)	FBCU	FBCU	FBCU
23 (I)	FBCU	FBCU	
24 (I)	FBCU		
25 (I)	FBCU		
26 (I)	AD700		
HM1	Transm. dev. 1	Transm. dev. 1	Transm. dev. 1
HM2		Flashlight	Flashlight

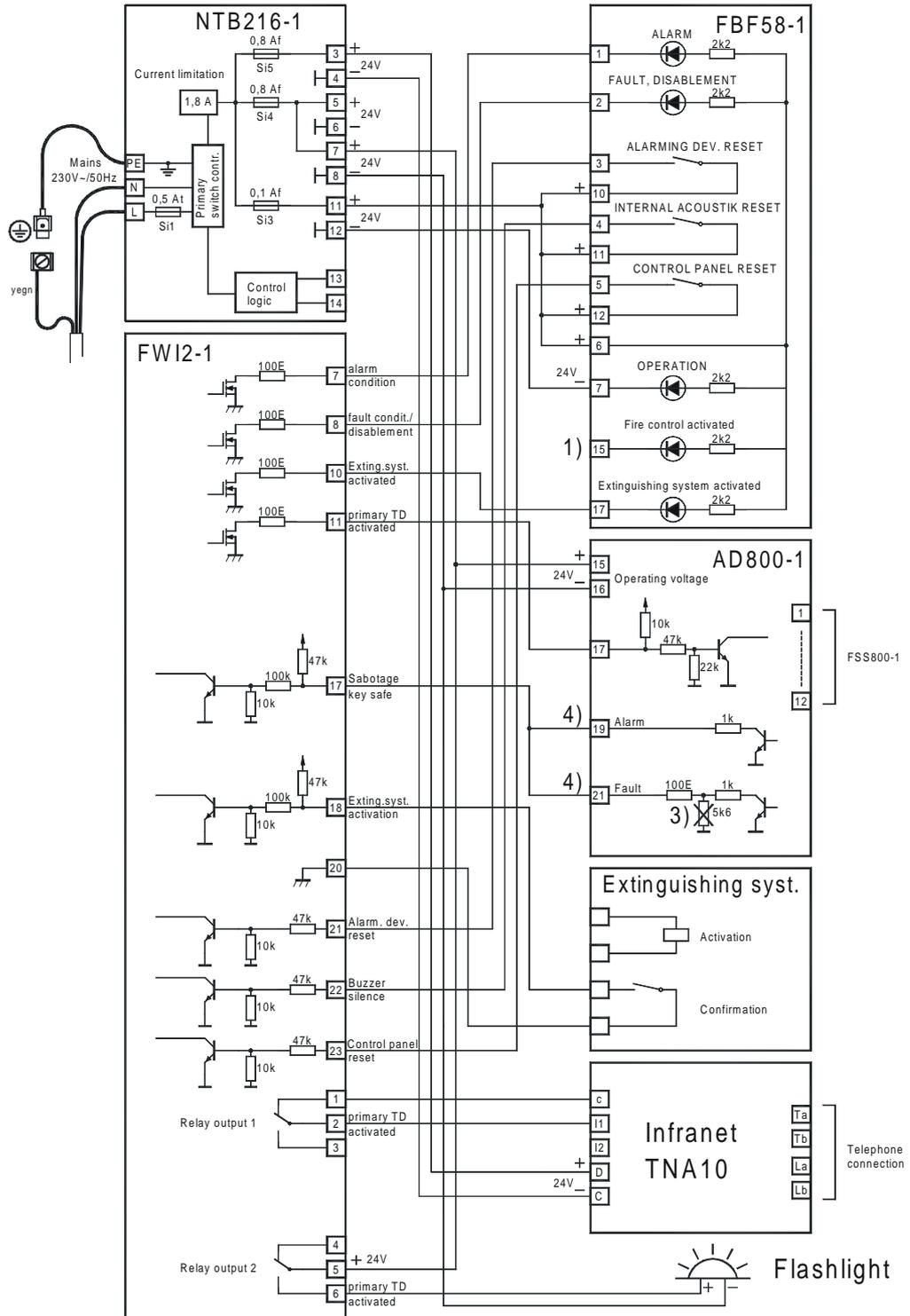
Table 1: Overview of the inputs (I) and outputs (O) of the fire brigade interface FWI2-1 used with the fire brigade control panel national versions (FBCU) or key safe adapters (ADxxx).

The assigned inputs and outputs are utilised for the activation of the country-specific fire brigade control unit or key safe adapters and are no longer available for general use after the parameter setup of the fire brigade control unit national version. The inputs and outputs not assigned in the above table can be parameterised for any other task.

4.8.1 Connection of the fire brigade installations / Austria

By parameter setup of the fire brigade interface FWI2-1 for the fire brigade control unit national version Austria the configuration of the inputs and outputs of the FWI2-1 for the connection of the fire brigade control unit FBF58-1 and the key safe adapter AD800-1 is set. The connection of the installations relevant for the fire brigade to the fire detection control panel Series BC216 is shown in the following plug charts.

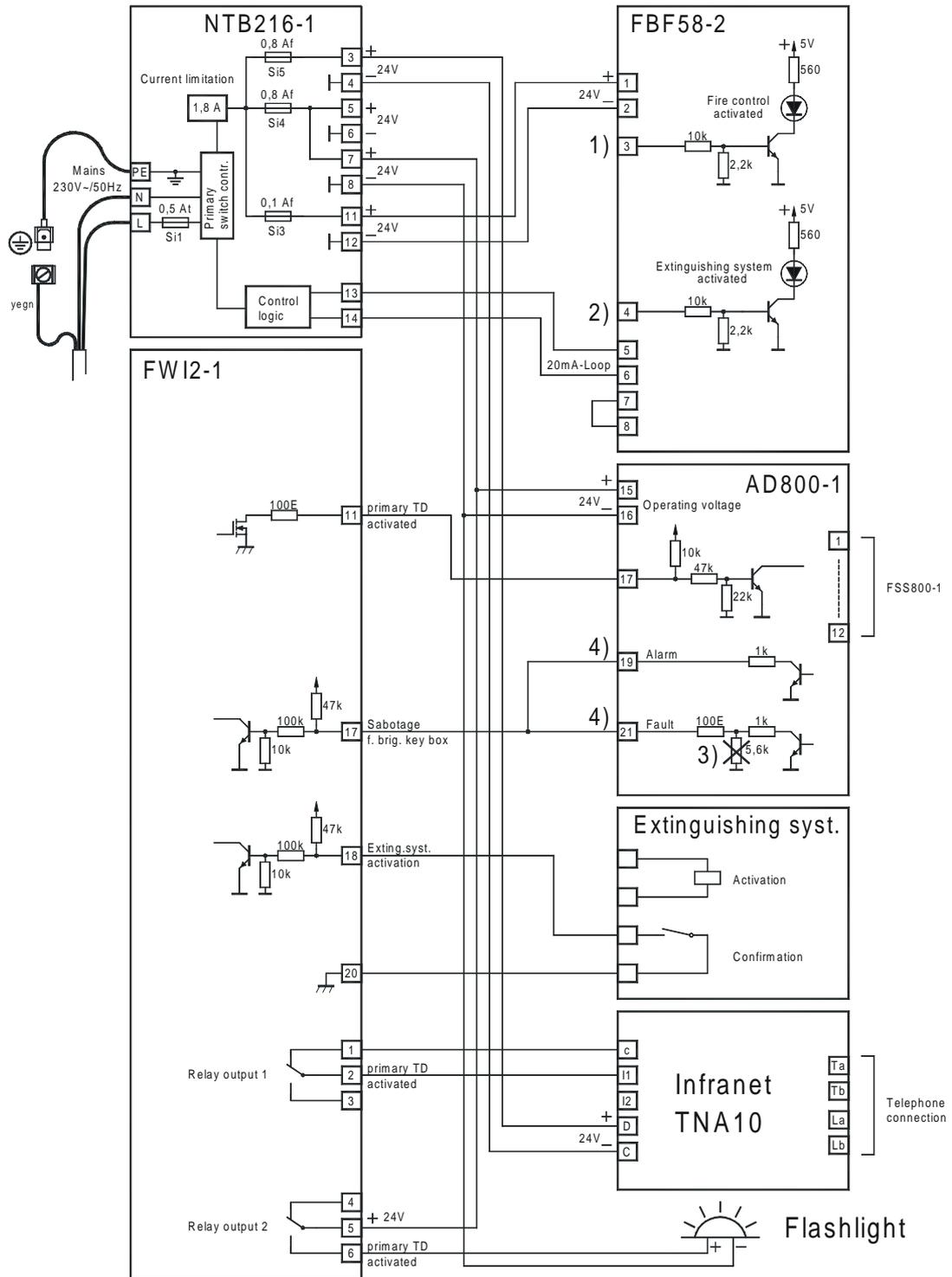
4.8.1.1 Connection of the fire brigade control unit FBF58-1, the key safe adapter AD800-1 and additional installations.



- 1)...The light-emitting diode "fire control activated" must be activated by the fire control.
- 3)...If burglar alarm and fault are jointly connected as "sabotage" to the fire brigade interface in the shown manner, the resistor 5.6kΩ on the printed circuit board of the AD800-1 must be removed (see manual AD800-1).
- 4)...The output "burglar alarm" is normally connected to a burglar alarm panel. The output "fault" of the AD800-1 can also be connected to a GIF8-1 as fault detector. If in this case the AD800-1 is not connected as the last "detector" of the fault detector zone, the resistor 5.6kΩ 3) must be removed.

Figure 32: Connection of the fire brigade control unit FBF58-1, the key safe adapter AD800-1 and additional installations to the fire detection control panel Series BC216

4.8.1.2 Connection of the fire brigade control unit FBF58-2, the key safe adapter AD800-1 and additional installations



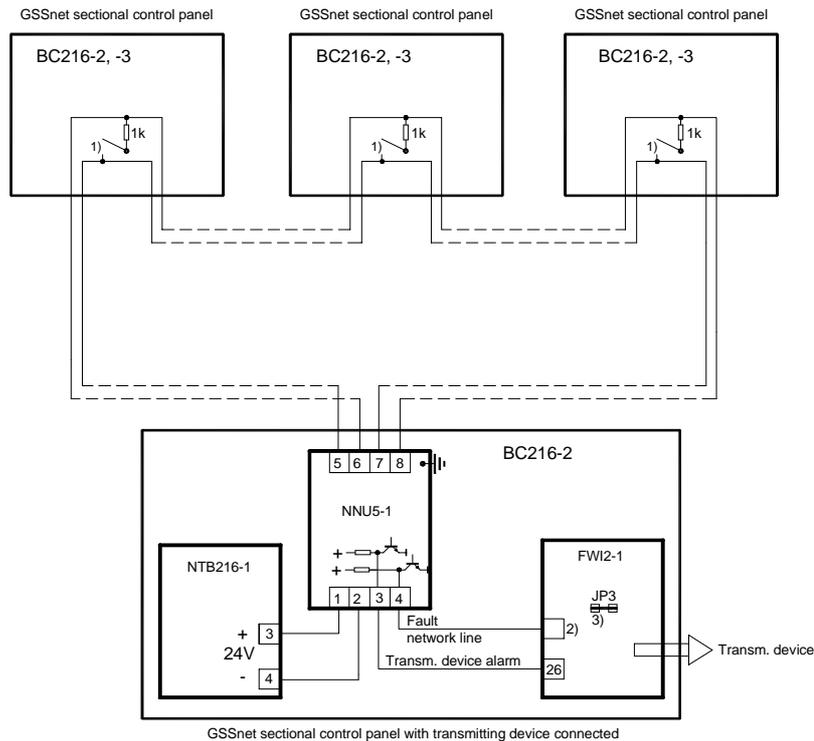
- 1)...The light-emitting diode "fire control activated" must be activated by the fire control.
- 2)...The light-emitting diode "extinguishing system activated" must be activated by the extinguishing system
- 3)...If burglar alarm and fault are jointly connected as "sabotage" to the fire brigade interface in the shown manner, the resistor 5.6kΩ on the printed circuit board of the AD800-1 must be removed (see manual AD800-1).
- 4)...The output "burglar alarm" is normally connected to a burglar alarm panel. The output "fault" of the AD800-1 can also be connected to a GIF8-1 as fault detector. If in this case the AD800-1 is not connected as the last "detector" of the fault detector zone, the resistor 5.6kΩ 3) must be removed.

Figure 33: Connection of the fire brigade control unit FBF58-1, the key safe adapter AD800-1 and additional installations to the fire detection control panel Series BC216

4.8.1.3 Connection of the BCnet redundant alarm line

In some cases, the Austrian Technical Guidelines for Preventive Fire Protection require network fire detection control panels to be able, even with two faults in the network wiring, to activate at least the transmitting device in case of alarm. In order to meet these requirement with the fire detection control panel BCnet216, besides the circular network wiring, a further line has to be laid via which the activation of the transmitting device can take place, even at a total failure of the network wiring.

The BCnet sectional control panel which the transmitting device is connected to must be equipped with the additional componentry "network redundant alarm converter NNU5-1" to which the BCnet redundant alarm line is connected. All installation elements necessary for mounting the componentry on the mounting bracket are enclosed to the componentry. The metallic hexagon bolt is screwed next to terminal 8; the protection elements of the componentry are conductively connected to control panel earth via this bolt.



- 1) ... depending on the equipment of the BCnet sectional control panel, either the alarm contact or the contact of the relay HM1, both connected in series with alarm resistor 1k Ω
- 2) ... input terminal of the FWI2-1 (one of terminals 21 ... 25). The parameters of the corresponding input of the FWI must be set to "Flt. BCnet redund al", see User Manual / Part C
- 3) ... the short-circuit connector JP3 on the FWI2-1 must be connected (see from page 37 in Chapter 4.6: "Fire brigade interface FWI2-1")

Figure 34 Connection of the BCnet redundant alarm line

The line resistance of the entire BCnet redundant alarm line (back and forth) may not exceed 1000 Ω .

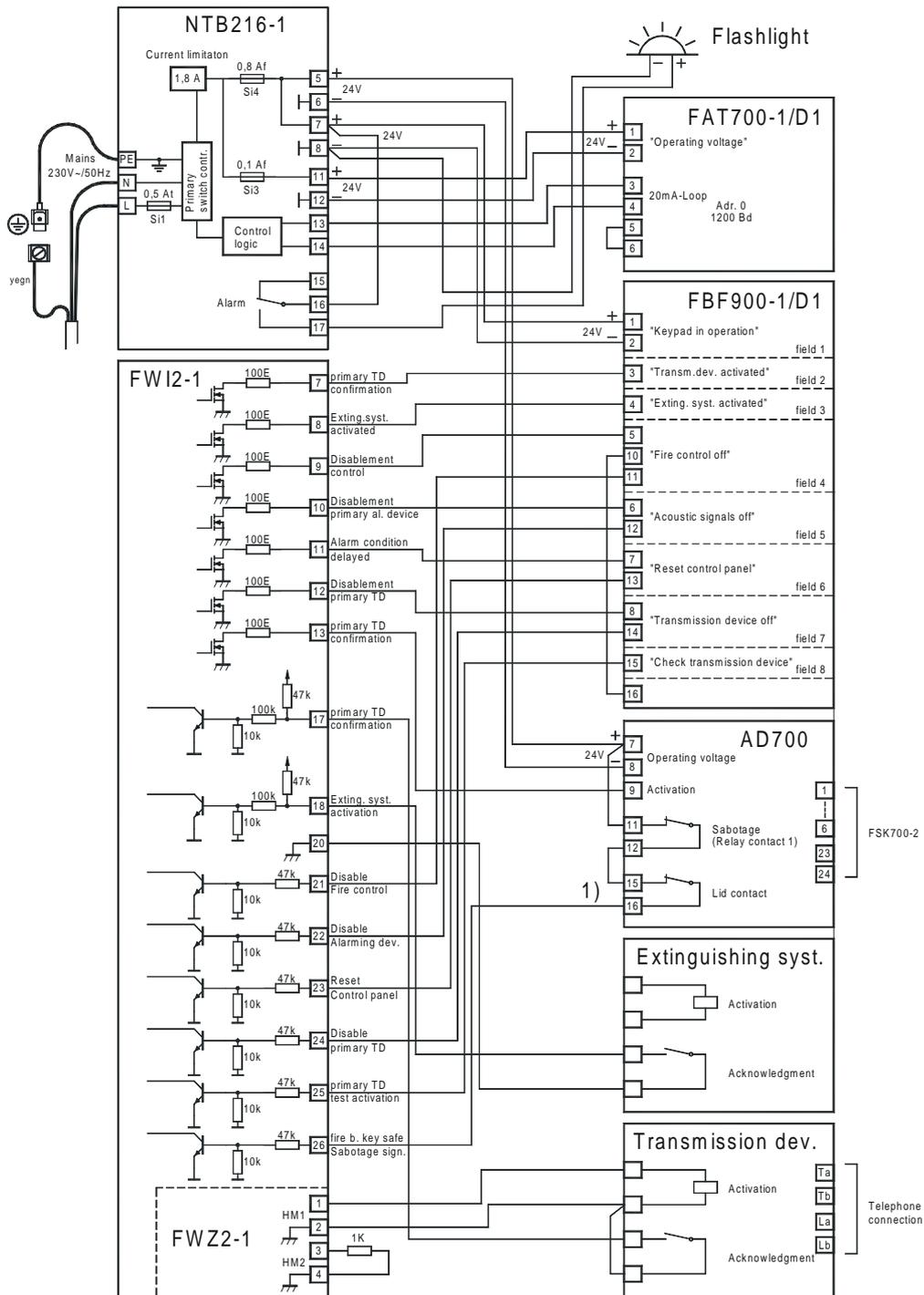


You can use a spare core pair of the GSSnet wiring as BCnet redundant alarm line.

4.8.2 Connection of the fire brigade installations / Germany

The inputs and outputs of the fire brigade interface FWI2-1 for connecting the fire brigade control unit FBF900-1, FBF900-2 and the key depot adapter AD700 are configured by the parameter setup of the FWI2-1 for the fire brigade control unit, national version Germany.

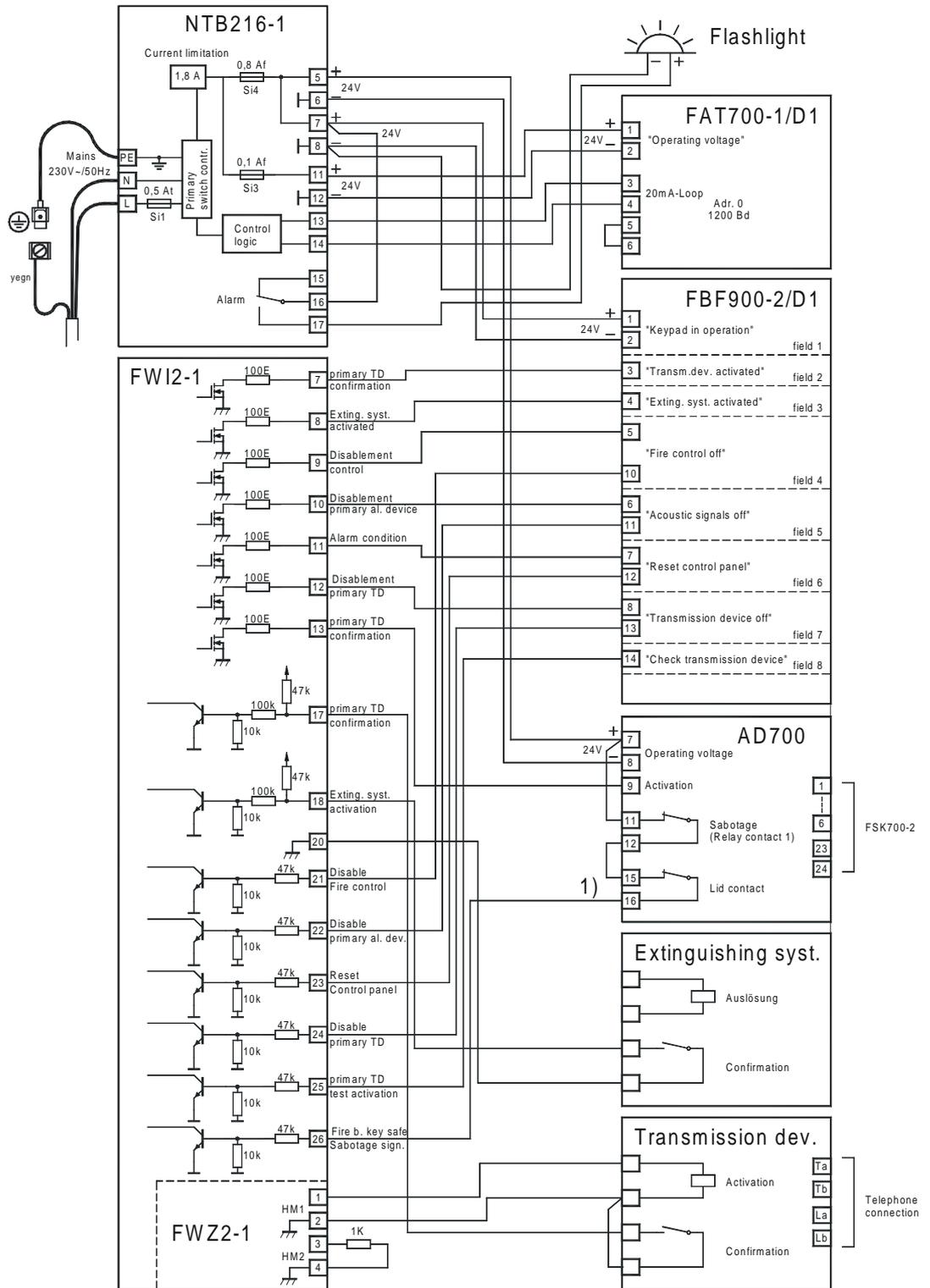
4.8.2.1 Connection of the fire brigade control unit FBF900-1, the key depot adapter AD700 and additional installations



1)...This connection must only be made if the sabotage message is not evaluated by a burglar alarm panel.

Figure 35: Connection of the fire brigade control unit FBF900-1, the key depot adapter AD700 and additional installations to the fire detection control panel Series BC216

4.8.2.2 Connection of the fire brigade control unit FBF900-2, the key depot adapter AD700 and additional installations.



1)...This connection must only be made if the sabotage message is not evaluated by a burglar alarm panel.

Figure 36: Connection of the fire brigade control unit FBF900-2, the key depot adapter AD700 and additional installations to the fire detection control panel Series BC216

4.9 Connection of a typical fire brigade control unit, Swiss version

The inputs and outputs of the fire brigade interface FWI2-1 for the connection of a typical Swiss fire brigade control unit are configured by the parameter setup of the FWI2-1 for the fire brigade control unit, national version Switzerland.

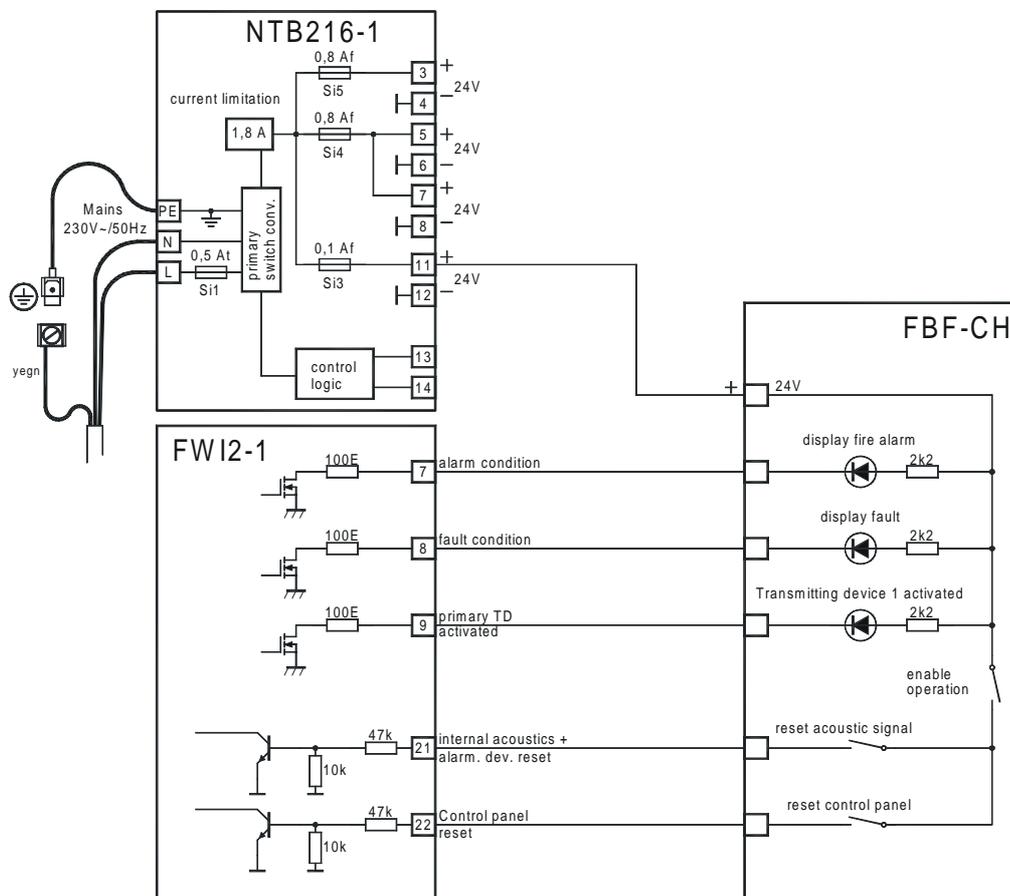


Figure 37: Connection of a typical fire brigade control unit in "Swiss" version to the fire detection control panel Series BC216

4.10 Connection of a printer or computer

The installation of the serial interface module SIM216-1 in the control panel is necessary for the data connection of a printer or computer. The connection to the control panel itself is by means of a commercially available serial cable (see from page 16 in Chapter 2.13.1: "Printer cable" or from page 16 in Chapter 2.13.2: "Connection cable between BC216-1, -2, -3 and a PC"). While a 9-pin SUB-D connector is necessary on the control panel side, the other side depends on the printer or computer employed. The cable length must not exceed 5m.

The fire detection control panels Series BC216 currently support two printers:

- ◆ Seiko DPU-414, Art. Nr. 0227003
- ◆ Epson LX-300, Art. Nr. 0227008

Both printers are supplied with mains power.

Although the fire detection control panel BC216-1 has two equivalent serial interfaces, only one single printer can be operated. On which of the two interfaces the printer is to be employed is freely settable by means of parameter setup.

With the fire detection control panel BCnet216, only one interface is available at every BCnet sectional control panel. Practically you can connect one printer or one different serially activated device each to every BCnet sectional control panel of a BCnet216.

The serial interface module SIM216-1 is designed with isolated potentials so that the printer or computer can be connected or disconnected during the operation of the fire detection control panel Series BC216 or a mains-operated printer can be switched on and off without impairing the function of the panel.

Nevertheless, you may never connect or disconnect the serial interface module SIM216-1 from the central processing board prior to eliminating all voltage on the control panel!



Be careful not to touch a voltage carrying part of the control panel with the metallic case of the 9-pin SUB-D connector when connecting and disconnecting. Thereby you may cause a short circuit which can considerably damage the control panel. Appropriately proceed with caution when connecting and disconnecting the printer cable (this is valid similarly for the connection cable to a PC). Always secure the printer cable inside the control panel case pull-relievedly by means of cable binders, so that the connector cannot be torn out inattentively.



Under no circumstances connect a cable to a serial interface module if it is not adequately secured to the central processing board. By an inadvertent pull on the cable, a module which is fixed by insufficiently tightened screws may be moved, which can lead to internal short circuits; this may cause considerable damage to the control panel.

5 Commissioning

This chapter is devoted mainly to providing general information aimed at facilitating rapid and successful commissioning of the fire detection control panel BC216-1 or of the BCnet sectional control panels BC216-2 and BC216-3 of the fire detection control panel BCnet216.



The major prerequisites for a successful commissioning are the expert installation and the correct connection of the external components of the fire detection system to the control panel.

5.1 Preparation

Prior to commissioning, follow the checklist below and check the following points on the basis of the existing control panel structure:

Central processing board ZTB216-1 and ZTB216-2:

- ◆ Is the flat cable of the display and operating board ABB216-1 securely plugged into plug ST1?

Power unit NTB216-1:

- ◆ Are the protective conductor and the equipotential busbar connected to the rear of the control panel case?
- ◆ Is the protective earth connection between mains terminal and rear of the control panel case established?
- ◆ Is the protective cover of the parts carrying high voltage firmly screwed on?
- ◆ Are all mounting screws of the unit securely tightened (protection is fully effective only then!)?
- ◆ Is the supply for external devices connected correctly?
- ◆ Is the monitored siren output (usually parameterized as the primary alarming device) properly wired or are the terminals equipped with an end of line resistor if no device is connected?
- ◆ Are the INFO bus and INFO supply lines connected properly?
- ◆ Is the current of the INFO bus set to 20mA (JP1 connected)?
- ◆ Are the alarm and fault relay contacts properly connected?
- ◆ Are the flat cables for the auxiliary outputs properly connected to the connectors ST1 and ST2?
- ◆ Are the stand-by batteries charged?

Network interface NIF5-1 (only with the fire detection control panel BCnet216):

- ◆ Are the incoming and the outgoing network cables connected correctly?
- ◆ Is the network cable as a whole laid as a circle without branch-offs?
- ◆ Are the shielding wires of the incoming and the outgoing network cable isolated from each other and connected to the correct terminals?

Fire brigade interface FWI2-1:

- ◆ Are the transmitting devices properly connected?
- ◆ Are inputs and outputs properly allocated and connected?

Fire brigade interface additional board FWZ2-1:

- ◆ Is the board properly connected and secured?
- ◆ Are the monitored transmitting devices properly connected?
- ◆ Is every unused monitored output for a transmitting device either equipped with an end of line resistor or parameterised as "Not defined"?

Conventional detector interface GIF8-1:

- ◆ Are the detector lines properly connected?
- ◆ Is the end of line resistor installed with the last detector of each detector line?
- ◆ Are all detectors in normal condition?
- ◆ Is every unused detector line of a conventional detector interface closed with an end of line resistor or set as "Not defined"?

Loop interface LIF64-1:

- ◆ Is the loop properly connected?

- ◆ Are all addresses on the devices connected to the loop correctly set?
- ◆ Are all detectors in normal condition?

LED-display field LAB48-1:

- ◆ Is the flat cable securely connected to the connector ST2 of the display and operating board ABB216-1?

Other additional modules:

- ◆ Is the module correctly plugged in and connected?

Recheck once again the earth-connection of the control panel case: Cover and bottom part must be electrically interconnected during operation.



Check if all mounting screws of the modules employed are securely tightened. This is particularly decisive for the effectiveness of the EMC measures taken for all modules!

If you have a PC keyboard at your disposal, connect this to the connector ST8 ("connector for PC keyboard") of the central processing board ZTB216-1 or ZTB216-2. As part of the commissioning, you can operate and set the parameters of the control panel with the PC keyboard.



If you wish to set the parameters by means of a PC (Notebook) using the parameter setup software PARSOFT, you must have a serial interface module SIM216-1 plugged onto the central processing board ZTB216-1 (on ST6 or ST7) and configure the interface with the control panel keypad to "PARSOFT". The PC must be connected with the SUB-D connector of the SIM216-1 (see from page 16 in Chapter 2.13.2: "Connection cable between BC216-1, -2, -3 and a PC").

In order to exclude undesired alarms and activation of actuators during commissioning, the alarming devices, the transmitting devices and the actuators must be disabled (e.g., by disconnecting the cables). In cases involving a greater safety risk (e.g., activation of extinguishing systems, disabling production lines, etc.) you should have additional mechanical and/or electrical safeguards installed by the persons responsible for these systems in order to prevent undesired activation or shut downs of these facilities.



Monitored outputs, which you disconnect for safety reasons, must be equipped with adequate replacement resistors during commissioning.



After completed commissioning, all previously disabled installations must be enabled again!

5.2 Power supply connection

Plug the mains power connector in the NTB216-1 and switch on the mains power. A short signal from the installed buzzer becomes audible and the control panel or BCnet sectional control panel starts to operate. The initialisation phase takes a few seconds, after which the light-emitting diode "OPERATION" is illuminated and a standard date (e.g., 01.01.2001 00:00) appears on the LC-display. Approximately 10 seconds later, the fault signal [ENERGY FAULT stand-by battery] is indicated since no stand-by batteries are connected at that stage.

Connect the stand-by batteries while ensuring correct polarity (positive = red, negative = black cable). No power supply faults must be active on the control panel after 10 seconds.



It is imperative to adhere to the sequence: First switch on the mains power, then connect the stand-by battery. The power unit of the fire detection control panel is current-limited and short-circuit proof. In the event of fault in the cabling of the fire detection system, the current limitation will limit the effects even in the event of a short-circuit. However, the stand-by battery is able to supply a very high current in the event of a short-circuit. This current will rapidly blow the fuses but considerable damage can be the result by that time.



Connecting the power supply does not influence the configuration parameters entered at an earlier stage.

5.3 Setting parameters and function tests

The fire detection control panel BC216-1 or the BCnet sectional control panels BC216-2 and BC216-3 of the fire detection control panel BCnet216 are supplied without module parameter setup from the factory. It is therefore indispensable as part of commissioning that you establish the necessary configuration by means of individual parameter setup (probably by means of a priorly executed AUTO-setup). Notice the hints given in User Manual / Part C.

Set the site-specific parameters of the control panel in accordance with the individual requirements of the fire detection system. The following basic options, which can also be combined, are available:

- ◆ **AUTO-setup:** By automatic setup you set the control panel parameters in accordance with the hardware configuration of the control panel to default values or adjust the existing control panel parameters merely to newly added hardware components automatically. Based on this standard configuration, you subsequently set the parameters to the individual values using one of the two following options.

With BCnet sectional control panels you have to execute the AUTO-setup individually on every sectional control panel via keypad or via connected PC keyboard. You can change the standard setup thereby established on the main operating unit by using PARSOFT-2.

- ◆ You set the parameters of the control panel via control panel keypad or via a connected PC keyboard.

Individual setting of parameters on every sectional control panel is possible only partially with BCnet sectional control panels and therefore is not recommended. For example, when setting the parameters on every BCnet sectional control panel, no compatibility test of the parameters of the single sectional control panels in accordance to the overall control panel is made. Nevertheless, the characteristics of the GSSnet members must be determined on the main operating unit by using a PC and software PARSOFT-2.

- ◆ You set the parameters of the control panel BC216-1 by means of PC and software PARSOFT-1. You set the parameters of the BCnet sectional control panels via PC and software PARSOFT-2 from the sectional control panel defined as main operating unit.

You can overwrite these parameters as often as you wish.

When setting the parameters on the control panel itself, all parameters entered by you will be saved in a temporary memory for the time being. The content of this memory will be transferred to the permanent memory of the control panel only on completion of the parameter setup. Should you press the reset-button or de-energise the control panel before completion of the parameter setup, the set parameter data will be lost!



You can also set the control panel parameters prior to the installation of the control panel. The set parameters are filed in a permanent semi-conductor memory and will be kept practically for an unlimited period of time even without power supply. Only the indication of date and time is dependent on the power supply and must therefore be reset after the power supply has been connected.

Before leaving the parameter setup mode, you have to change the initial value of the installer code (see User Manual Series BC216 / Part A) to your own personal value. This serves to prevent unauthorised and abusive manipulation of the fire detection control panel. Exiting the parameter setup mode without priorly changing the delivery value is not possible.



In the event of unauthorized or improper operation or parameter setup the entire fire detection system may malfunction or become entirely ineffective in extreme cases! It is also possible that automatic fire controls (even extinguishing systems - danger to life!) and alarming devices may be inadvertently activated and help personnel (fire brigade) may be called.

After the parameter setup, check all system functions carefully. Ensure that all system parts operate as you as specialist installer of fire detection systems determined during the project phase of the entire system.

If you have performed the parameter setup of a fire detection control panel BC216-1 without PC and parameter setup software PARSOFT-1 directly on the control panel, it is indispensable to print out the

entered data for documentation (see User Manual / Part C). Keep the print-out in a safe place - these configuration data are very important, e.g., in the event of a repair exchange.

5.4 Recalculation of the bridging time

Once you have ensured that all system parts are connected and are operating correctly, you must recalculate the mains failure bridging time of the system or of the system section surveilled by the BCnet sectional control panel. For this purpose the stand-by battery must be charged so that its voltage does not drop below 24V during the measuring process described in the following.

- ◆ Connect a suitable ampere-meter into the positive connection line (red cable) of the stand-by battery.
- ◆ Put the system in normal condition.
- ◆ Switch off the control panel power supply, wait until "Mains fault" is indicated (this can take up to 5 minutes!) and reset the built-in buzzer by pressing the button 'Silence buzzer'.
- ◆ Measure the current supplied by the stand-by battery for the entire system in the state of fault.
- ◆ Activate an alarm and measure the current in the case of alarm (with activated optical and acoustic signalling devices, activated key safe, etc.!) For system parts which you may not activate for testing (e.g., the activation of an extinguishing system), you will have to add the calculated current value of that system part to the measured power consumption.



You have to ensure priorly that the alarm activation is repected as "test alarm" from all persons concerned. Coordinate your work with the user of the fire detection system (e.g., with the fire prevention officer) and the fire brigade.

With the measured current values, recalculate the required capacity of the stand-by battery (see from page 14 in Chapter 2.8.1: "Determining the required capacity of the stand-by battery"). If the measured current essentially differs from the planned value calculated earlier, determine the reason for this. You must be able to safely exclude that the cause are faults in the cabling or faulty equipment.

With the fire detection control panel BCnet216 you have to carry out the proceedings written before for every BCnet sectional control panel separately. In this case, "system" refers to the system section which is surveilled by the corresponding BCnet sectional control panel.

5.5 Concluding activities

Clearly mark the stand-by batteries with the planned expiry date (defined by the battery manufacturer).

Instruct the user demonstrably on all functions of the control panel (and of course of the entire fire detection system) relevant to the user and enter all data in the system book.

Change the initial value of the user code (see User Manual Series BC216 / Part A) to the value requested by the user. This serves to prevent unauthorised and improper operation of the fire detection control panel.

Keep the user code in a place agreed with the help personnel (fire brigade) which is only accessible by that personnel (e.g., in the fire brigade control panel, in the fire brigade key safe, etc.).

5.6 Reconditioning

The control panel indicates all faults recognised by the control panel in text on the LC-display. Detailed additional information on any fault occurred can be called up for each fault by means of the 'INFO'-button. This information is generally sufficient for a trained specialist installer to rapidly correct the fault.



"Fault" means a fault in the installed fire detection system, but not the activation of a fault detector.

5.6.1 Lost installer code

It is not possible to read out an installer code from the control panel. Once the installer code saved in the control panel has been lost, access to authorisation level 3 can only be gained with the help of the manufacturer of the control panel or his national representative.

For this you have to press the '↑'-button in the menu point [Authorization code:] (i.e., in authorisation level 1). The following appears on the LC-display for 5 seconds:

- ◆ the date and time and
- ◆ a 5-digit key number.

The indicated date and key number must be given to the manufacturer or his representative who will determine a code number of the day from these two pieces of information. You then enter this code number of the day as installer code, by this automatically delete the forgotten installer code and, as first additional step, you have to establish a new installer code (see User Manual Series BC216 / Part A).



The code number of the day is only valid as entry code of this control panel on the day displayed as date on the control panel LC-display when reading out the key number.

6 Specifications

Please adhere to the absolute limit values for the load current of the control panel BC216-1 and the BCnet sectional control panels BC216-2 and BC216-3: The total current of all devices (detectors, signalling devices, actuations, etc.) supplied by the power unit of the corresponding (sectional) control panel including the (sectional) control panel itself

must not exceed the value of 1.8A at any time.

The automatic current limitation of the power supply unit is set to this value. This value must neither be exceeded in case of an alarm. Please take into account that the fire detection system must also work without restrictions in the event of a stand-by battery failure, even peak output currents (e.g., for alarming devices) must be covered by the power unit on its own without the help of the energy stored in the stand-by battery.

6.1 Fire detection control panel BC216-1/xx, BC216-2/xx, BC216-3/xx

Case	
Installation	Wall installation, surface type
Material	Steel sheet, 1mm, powder coated
Colour	Grey-white, RAL 9002
Protection class	IP30
Dimensions w × h × d	420 × 520 × 120 (mm)
Panel power consumption from the 24V stand-by battery upon mains failure, without function modules, fault relay released, without FWI, without SIM216	
BC216-1:	90mA
BC216-2 (including NIF5-1):	125mA (active network)
BC216-3 (including NIF5-1):	90mA (active network)
Number of function modules	2
Number of detector zones, total	Max. 144, depending on the function modules used
Weight without battery	Approx. 6kg
Ambient temperature	-5°C to +50°C
Relative humidity of air	95% (not condensing)
Approvals	
Austria BC216-1/A1	FT 14/147/1/99
Germany BC216-1/Dx	VdS G 201017
Hungary BC216-1/H1	EMILABS 85/2000

6.2 Power unit NTB216-1

Mains	
Mains voltage	230VAC +10/-15 %, 50Hz
Connected load	60VA
Power consumption	Max. 0.26A
Rated output voltage	Typically 28VDC
Peak output current total	Max. 1.8A
Stand-by battery	
Rated voltage	24V
Final charge voltage at 25°C	27.3V
Charge current	Max. 1.7A, current limited
Capacity	Max. 34Ah
Connection	2.5A slow-blow fuse protected
Connection internal/external devices	2 × 0.8A fast blow fuse, separately protected 0.1A fast blow fuse protected for INFO bus devices etc.
Connection type	Screw terminals
Wire cross section	Max. 1.5mm ²
Dimensions w × h × d	120 × 230 × 50 (mm)
Weight	500g

6.2.1 Primary alarming device

Line monitoring	By negative voltage in the normal condition, ca. -1.2V
Maximum continuous load	150mA, short-circuit proof
Maximum peak current	0.4A

6.2.2 INFO bus

Number of connected devices	8
Interface	20mA-current loop
Baud rate	600, 1200 (standard), 2400 baud, parameterizable
Line resistance (total)	Number of devices Maximum value
	1 1000Ω
	2 860Ω
	4 620Ω
	6 400Ω
	8 160Ω

6.2.3 Contact outputs for alarm relay and fault relay

Contact type	1 dry change-over contact each
Contact load	60V/1A/30W

6.2.4 NTB auxiliary outputs

Number	2 × 8
Contact type	Open collector outputs
Switching current	Max. 35mA
Connection type	Flat cable connector, corresponding to the relay module RL58-1 and RL58-2. Note: These outputs are not permitted for controlling external devices!

6.3 Conventional detector interface GIF8-1

Power consumption at 24V	Typically 50mA
Line voltage	Typically 20V
Number of detector lines and detector zones	8
Detector addressing	0, ..., 63
Line current	Typically 3.7mA
End of line resistor	5.6kΩ
Line resistance	Max. 50Ω per core
Connection type	Screw terminals
Wire cross section	Max. 1.5mm ² (single wire)
Ambient temperature	-5°C to +50°C
Dimensions l × w × h	132 × 74 × 10 (mm)
Weight	80g

6.4 Loop interface LIF64-1

Power consumption at 24V (w/o detectors, modules)	Typically 25mA
Number of detector zones	Max. 128
Number of detectors, modules	
ADM technology	Max. 198 elements (99 detectors + 99 modules)
ADMPRO technology	Max. 126 elements
Loop quiescent current	Typically 300μA (per connected detector or module)
Loop total current (detectors, modules, sirens, etc.)	Max. 130mA (at reduced line resistance)
Loop quiescent voltage	Typically 26V (ADMPRO) or 29V (ADM)
Loop line	2-core twisted, shielded or not shielded
Line resistance	Max. 50Ω per core
Line capacity	Max. 400nF
Connection type	Screw terminals
Wire cross section	Max. 2.5mm ² (single wire)
Ambient temperature	-5°C to +50°C

Dimensions l × w × h	132 × 74 × 10 (mm)
Weight	80g
6.5 Fire brigade interface FWI2-1	
Power consumption at 24V	Typically 4mA (both relays released) +20mA per activated relay
Relay outputs	2
Switching capacity per contact	60V/1A/30W
Contact service life	3 × 10 ⁵
Open collector outputs	9
Switching current	Max. 35mA
Switching voltage	Max. voltage for external devices
Inputs, activated with earth	3
Input voltage	Activated (NO): Max. 3V Not activated (NO): At least 12V
Inputs, activated with +24V	6
Input voltage	Activated (NO): At least 12V Not activated (NO): Max. 3V
Inputs with impulse triggering	Impulse duration min. 1 second
Connection type	Screw terminals
Wire cross section	Max. 1.5mm ² (single wire)
Ambient temperature	-5°C to +50°C
Dimensions l × w × h	132 × 74 × 10 (mm)
Weight	70g
6.6 Fire brigade interface additional board FWZ2-1	
Power consumption at 24V	Typically 4mA (both monitored outputs not connected) Max. 28mA (both monitored outputs connected)
Monitored outputs	2
Maximum continuous load per output	150mA, short-circuit proof
Maximum peak current per output	0.4A
Monitoring current at 24V	4 / 8 / 12mA (approximate values), jointly parameterizable for both outputs
Connection type	Screw terminals
Wire cross section	Max. 1.5mm ² (single wire)
Ambient temperature	-5°C to +50°C
Dimensions l × w × h	117 × 74 × 10 (mm)
Weight	70g
6.7 LED-display field LAB48-1	
Power consumption at 24V	Typically 2mA, without active light-emitting diode 0.25mA per active light-emitting diode
Ambient temperature	-5°C to +50°C
Dimensions l × w × h	176 × 120 × 15 (mm)
Weight	60g
6.8 Serial interface module SIM216-1	
Power consumption at 24V	Typically 10mA
Interface	RS232-C, galvanically isolated
Lines	RxD, TxD, CTS/DTR
Baud rate	1200, 2400, 4800, 9600, 38400, 57600 baud
Connection type	D-SUB connector, 9-pin
Ambient temperature	-5°C to +50°C
Dimensions l × w × h	70 × 45 × 20 (mm)
Weight	50g

6.9 Network interface NIF5-1

Power consumption at 24V	Typically 25mA
Interface	RS485, galvanically separated
Cable length between two NIF5-1	Max. 1200m
Connection type	Screw terminals
Wire cross section	Max. 2.5mm ² (single wire)
Ambient temperature	-5°C to +50°C
Dimensions l × w × h	95 × 70 × 25 (mm)
Weight	50g

6.10 Network cable

Computer network cable, core number 4×2×AWG24/1 S/FTP, category 5, twisted in pairs, polyolefine isolated, with following technical specifications:

Loop resistance	Max. 16.8Ω/100m at 20°C
Mutual capacitance	4.9nF/100m at 1kHz
Impedance	100 ± 15Ω at 1kHz
Attenuation (50MHz)	Max. 14dB/100m
Jacket	FR-PVC/FR-LSØH
Outer diameter	6.50 mm
Minimum bending radius	52 mm
Maximum tensile strength	25 kg
Wire cross section	0.51mm
Shield	Alu-polyester foil + Cu interlacing
Ambient temperature	-20°C to +75°C
Weight	51kg/km

6.11 Auxiliary case GEH216-4

Installation	Wall installation, surface type
Material	Steel sheet, 1mm, powder coated
Colour	Grey-white, RAL 9002
Protection class	IP30
Dimensions w × h × d	420 × 520 × 120 (mm)
Weight without installations	Approx. 2kg

6.12 Battery bracket BK216-1

Material	Steel sheet, 1mm, powder coated
Colour	Grey-white, RAL 9002
Dimensions l × w × h	380 × 175 × 90 (mm)
Weight	Approx. 90g

6.13 Mounting bracket BW216-1

Material	Steel sheet, 1mm, galvanized
Dimensions l × w × h	380 × 100 × 20 (mm)
Weight	Approx. 30g

7 Index

- Alarm resistor, 36
- Alarming device
 - primary, 30
- Approvals, 55
- Auto-setup, 52
 - FWI, 38
 - GIF8-1, 35
 - LIF64-1, 36
 - supervising current, 41
- Auxiliary case GEH216-4, 15
 - installation, 26
- Auxiliary outputs
 - connection, 33
- Basic version, 9
- Battery bracket BK216-1, 15, 26
- Case, 9
- Central processing board
 - ZTB216-1, ZTB216-2, 10
- Commissioning, 50
- Componentries
 - installation, 19
- Connection, 28
 - conductor cross section, 28
 - conventional detector interface, 35
 - external devices, 29
 - fire brigade interface additional board FWZ2-1, 41
 - fire brigade interface FWI2-1, 37
 - INFO bus, 31
 - loop interface, 36
 - mains power, 29
 - relay modules, 33
 - shielded cables, 28
 - signalling devices, 30
 - stand-by battery, 29
 - summary alarm, 32
 - summary fault, 32
- Conventional detector interface
 - GIF8-1, 11
 - connection, 35
 - installation, 20
- Display and operating board
 - ABB216-1, 11
- Earth leakage
 - monitoring, 11
- External devices
 - connection, 29
- Fire brigade control unit, 12
- Fire brigade interface additional board FWZ2-1, 12
 - connection, 41
 - current limitation, 41
 - installation, 20
 - line monitoring, 41
- Fire brigade interface FWI2-1, 12
 - connection, 37
 - installation, 20
- Fire brigade key depot, 12
- Fire brigade key safe, 12
- Function module, 11
- Function tests, 52
- GSSnet wiring, 34
- INFO bus, 10
 - connection, 31
- Installation, 17
 - auxiliary case, 26
 - important hints, 7
 - panel case, 18
 - place of assembly, 17
- Installer code
 - code number of the day, 54
 - lost, 54
- Interface
 - RS232-C, 13
- Key depot, 12
- Key safe, 12
- LED-display field LAB48-1, 13
 - designation, 22
 - installation, 21
- Loop, 12
- Loop interface LIF64-1, 12
 - connection, 36
 - installation, 20
- Mains power
 - connection, 29
- Mains shut-down
 - bridging time, 14, 53
- Measured value
 - print-out, 16
- Mounting bracket BW216-1, 11, 15, 26
 - installation, 26
- Network interface NIF5-1
 - installation, 24
- Network redundant alarm converter NNU5-1, 45
- PC connection cable, 16
- PC keyboard, 51
- Power supply, 51
- Power unit NTB216-1, 10
- Printer, 15
 - connection, 48
 - Epson LX300, 15
 - event printer, 15
 - printer cable, 16
 - Seiko DPU-414, 15
 - service printer, 16
- Reconditioning, 53
- Redundant alarm line, 45
- Relay module
 - connection, 33
 - installation, 24
- Scope of delivery, 8
- Serial interface module
 - SIM216-1, 13
 - installation, 23
- Serial interface module
 - SIM216-2, 13
 - installation, 23
- Service print-out, 16
- Setting parameters, 52
- Settings print-out, 16
- Shielded cables, 18, 28
- Signalling devices
 - connection, 30
- Siren output, 30
 - current limitation, 31
 - line monitoring, 31
- Software
 - version number, 7
- Specifications, 55
- Stand-by battery
 - capacity, 14, 53
 - connection, 29
 - connection cable, 30
 - expiry date, 53
 - installation, 25, 26
 - installation position, 13
 - installation space, 13
 - parallel-connecting, 13, 30
 - total discharge, 11
- Summary alarm
 - connection, 32
- Summary fault
 - connection, 32
- Transmitting device
 - connection, 12
 - primary, 38
- User code, 53
- Version number, 7

Fire Detection Control Panel BC216-1

User Manual - Part C

Parameter setup - Maintenance

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Contents

1	Introduction	5
1.1	General	5
1.2	Symbols and type fonts	5
1.3	Important notes	5
2	Parameter setup by means of control panel keypad	7
2.1	Hints	7
2.2	Using the PC keyboard	8
2.2.1	Function keys	8
2.2.2	Editing functions	9
2.2.3	Other keys	9
2.3	Main menu point [Parameter settings]	9
2.3.1	Parameter setup of the global settings of the control panel - [Global settings]	10
2.3.2	Parameter setup of the function modules - [Function modules]	12
2.3.2.1	Parameter setup of a conventional detector interface GIF8-1	12
2.3.2.2	Parameter setup of a loop interface LIF64-1	13
2.3.3	Basic possibilities of parameter setup for the control panel outputs	18
2.3.3.1	Output types	19
2.3.3.2	Signal types	20
2.3.4	Parameter setup of the fire brigade interface - [FWI2-1]	21
2.3.4.1	Parameter setup of the fire brigade interface - relay outputs - [FWI relay outputs]	22
2.3.4.2	Parameter setup of the national version of the fire brigade control unit [FBCU country version]	23
2.3.4.3	Parameter setup of the fire brigade interface inputs [FWI inputs]	24
2.3.4.4	Parameter setup of the fire brigade interface open collector outputs [FWI oc-outputs]	26
2.3.5	Parameter setup of the auxiliary outputs and of the siren output - [NTB outputs]	27
2.3.6	Parameter setup of the LED-display field LAB48-1 - [LAB48-1]	28
2.3.7	Parameter setup of the detector zones - [Zone settings]	29
2.3.8	Parameter setup of actuations [Actuation settings]	31
2.3.9	Parameter setup of transmitting devices - [Transm. device set.]	32
2.3.10	Parameter setup of alarming devices [Alarming device set.]	34
2.3.11	Parameter setup of the interfaces - [Interfaces]	36
2.3.12	Automatic setup of the System configuration - [AUTO-setup]	37
2.4	Description of logic combinations	37
2.4.1	General	38
2.4.2	Logic combinations for transmitting devices and alarming devices	38
2.4.3	Logic combinations for actuations and actuation elements	39
2.4.4	Entering logic combinations	40
2.5	Standard parameter setup with AUTO-setup	42
2.6	Settings print-out	44
3	Parameter setup by means of PC and software PARSOFT-1	45
3.1	Installation of the parameter setup software PARSOFT-1	45
3.2	Functions of the parameter setup software PARSOFT-1	46
3.2.1	Menu bar	47
3.2.1.1	File management - menu point [File]	47
3.2.1.2	Data transfer - menu point "Communication"	48
3.2.1.3	Check settings and project information - menu point "Project"	49

3.2.1.4	Arrange windows - menu point "Window"	50
3.2.1.5	Information - menu point "Info"	50
3.2.2	Configuration window (system tree)	50
3.2.3	Parameter setup windows	50
3.2.4	Information window	51
3.3	Typical parameter setup process with PARSOFT-1	51
4	Maintenance, reconditioning	52
4.1	Maintenance	52
4.1.1	Checking the final charge voltage	52
4.1.2	Checking the stand-by batteries	52
4.1.3	Earth leakage monitoring	53
4.1.4	Function check	53
4.1.5	Maintenance support for loop elements	53
4.1.5.1	Maintenance support on the LC-display	54
4.1.5.2	Maintenance support on the printer	54
4.1.5.3	Replacement of an ADM- or ADMPRO-detector	55
4.1.6	Loading a new software version PL149	56
4.2	Reconditioning	57
4.2.1	Lost installer code	57
5	Index	58

1 Introduction

1.1 General

The present third part of the User Manual (Part C) of the fire detection control panel BC216-1 provides the competent installer with the information necessary for parameter setup and maintenance of the control panel. This part of the manual is directly based on Part A and B of the User Manual. The determinations, remarks and explanations provided there will not be repeated in the present part of the manual. It is therefore indispensable that you familiarise yourself with the contents of Part A and B of the User Manual before starting parameter setup and maintenance jobs.

1.2 Symbols and type fonts

Particularly important text passages of this manual are marked with symbols as in Part A. The following symbols are used:



Means **DANGER!** Failure to observe the instructions may threaten life and health.



Means **ATTENTION!** Failure to observe the instructions may lead to malfunctioning of the system or damage to property.



Means **TIP!** The text passage contains descriptive information facilitating the operation of the fire detection control panel and adds to better understanding of the correlations.



Means that the country- and/or site-specific demands of the **approvals** of the fire detection control panel must be observed.

Menu points and LC-display contents within the descriptive text are enclosed with brackets, e.g., [Alarms]. In overview presentations the display text will be presented in special font without brackets.

1.3 Important notes

Fire detection systems and devices must always be planned, installed and commissioned by trained specialists. The specific training for the functions of the fire detection control panel BC216-1 must be provided by Labor Strauss Sicherungsanlagenbau Ges.m.b.H. Wien (LST) or by persons expressly authorised by LST for this purpose.



Prior to opening the case, switch off the mains voltage and secure to prevent switching on!

Please note that with the case open, components are exposed which carry **dangerous voltages** with the mains switched on! The protective cover of these components must not be removed.



When working on the fire detection control panel and when handling componentries, observe the usual protective measures for the discharge of static charges: Before and during the work to be performed on the circuit boards it is necessary to reliably discharge static charges of the body by contacting an earth-connected metallic part. It is indispensable for mains-operated tools (e.g., soldering iron) to be connected with protective earth or expressly approved for use on static sensitive installations. The usual **protective insulation is not sufficient**.



During installation, maintenance and reconditioning, observe the applicable laws, standards and guidelines for the installation and maintenance of fire alarm systems!

For all levels of parameter setup written in this part of the User Manual it is presupposed that the control panel has been completely connected corresponding to the information of the User Manuals Series BC216 / Part A and Part B and is working correctly.

Always keep in mind that incorrectly entered parameters or incorrectly connected devices may lead to unintentional activation of system parts while doing commissioning and parameter setup jobs or during the concluding test activities. Thereby, severe damage to property (e.g., by activating an extinguishing system) may result, emergency personnel may be alarmed or other undesired actuation procedures may be activated. Therefore, reliably disable all parts (e.g., by disconnecting the actuation line), which can cause damage by inattendent activation during commissioning of the fire detection system. Make sure that these disabled parts are not re-enabled without your prior consent. Nevertheless, do not forget to re-enable the disabled parts after ensuring the proper functioning of all system parts when finishing commissioning.

2 Parameter setup by means of control panel keypad

The parameter setup establishes the system-specific functions of the fire detection control panel. The manifold possibilities offered by this control panel conversely require the definition of a very large number of parameters. You establish all parameters by means of a clear menu control. The menu control itself is described in detail in User Manual Series BC216 / Part A.

2.1 Hints

This chapter describes the parameter setup of the fire detection control panel at the technological level of the operating software with version number PL149 V4.11 (the version number of the software is displayed in the menu [System] - [Hardware components], see User Manual Series BC216 / Part A). Devices using software of older or later issuing level may differ, regarding their parameter options, from the scope of functions described here.

Parameter setup of the control panel is only possible in authorisation level 3. To gain access, you have to enter your 5-digit installer code. In the state as delivered, the control panel installer code number "99999" is set as default. You must change the code as delivered before leaving the parameter setup menu.



You have 5 consecutive attempts of correctly entering the installer code at your disposal. After the fifth unsuccessful attempt, the control panel disables the entry of the installer code for 15 minutes for safety reasons.



With unauthorised or improper operation or parameter setup, the entire fire detection system may malfunction or become entirely ineffective in extreme cases! Therefore, in your own interest, make sure that only few persons of your confidence are familiar with the installer code.

Please note that important system parts (e.g., a transmitting device) may be disabled automatically in authorisation level 3. Inform the user on this effect.

You end the parameter setup process by confirming the main menu point [Exit authorization?] with the '↵'-button. The control panel checks the newly entered parameters for reasonableness and subsequently replaces the previous parameters with the new values. The new parameters will become effective from that time on. An automatic restart is subsequently performed by the control panel during which all current messages will be reset as well.



Restart is only performed when parameters were changed during the preceding parameter setup.



All entered parameters are filed in a temporary memory for the time being. The contents of this memory is transferred to the permanent memory of the control panel only upon proper completion of the parameter setup (menu point [Exit authorization?]), in which the data is kept as long as desired even with the system de-energised. Should you press the reset-button or de-energise the control panel before ending the parameter setup, the new parameter setup data will be lost and the original parameters remain effective!

Following the end of the parameter setup process it is indispensable to print out a parameter setup record (see from page 44 in Chapter 2.6: "Settings print-out"). This is the only way to keep clear and permanent records of the multitude of parameters of the fire detection control panel BC216-1 for future changes, maintenance and reconditioning tasks.

You can repeat the parameter setup process as often as you wish, the memory employed is practically not limited with regard to the number of saving processes.

You can also change only parts of an existing parameter setup, it is not necessary that you go through all parameter operations. However, when changing a parameter setup, ensure that no senseless parameter situations (e.g., the parameters of an alarming device have been set but the activating event can no longer occur since it has been removed by way of the parameters entered) are inadvertently created.



If you have set up a fire brigade interface relay output as a transmitting device which you subsequently put out of function by selecting [Not defined], all combinations and other settings of this transmitting device will be deleted.

Events occurring during authorisation level 3 are received, processed and indicated by the control panel as usual, taking into account the existing (not yet changed) parameter setup and the automatic disablement of system parts in authorisation level 3. Only for the time while new parameters are being installed (on completion of parameter setup) the control panel is not operational for approximately 5 seconds.



If you perform changes on a "live" fire detection system it is possible - while the control panel operates at authorisation level 3 - that important system parts (e.g., the transmitting devices) are automatically disabled depending on the current parameter setup. During a fire alarm such system parts will not be activated!

On switching back to authorisation level 1, all active alarm messages among other things will be reset during the following restart of the control panel.



Do not leave the control panel in authorisation level 3 for longer than absolutely necessary for parameter setup! After completion of the parameter setup, immediately switch back to authorisation level 1 in order to re-enable the disabled system parts.



You can automatically configure the works settings in the menu point [Parameter settings] - [AUTO-setup] either for the entire control panel or only for newly added hardware components of the control panel (see from page 37 in Chapter 2.3.12: "Automatic setup of the System configuration - [AUTO-setup]").

2.2 Using the PC keyboard

The control panel keypad is mainly designed for the user to operate the control panel. In general you can also perform the parameter setup - except for text inputs - by using the keypad. However, parameter setup is performed much easier and more comfortably by means of a standard PC keyboard connected to connector ST8 of the central processing board ZTB216-1 (see User Manual Series BC216 / Part B).



It is not necessary to de-energise the control panel for connecting and disconnecting the PC keyboard. However, safely discharge static charges by touching an earth-connected metallic part beforehand.



PC keyboards are produced by different manufacturers world-wide with a variety of specifications. Basically, the fire detection control panel BC216-1 should be able to process signals of all PC keyboards on the market; nevertheless, now and then it may occur that single keyboards are not entirely compatible to the fire detection control panel BC216-1. Therefore, always pay attention to the characters displayed on the LC-display when entering via a PC keyboard!

2.2.1 Function keys

Special functions depending on the current authorisation level shown in the following table are assigned to the PC keyboard function keys F1, ..., F12.

Key	Function in authorization level		
	1	2	3
F1	Info	Info	Info
F2	Silence buzzer / Display test	Silence buzzer / Display test	Silence buzzer / Display test
F3	Info	Info	Parameterize function modules
F4	Info	Info	Parameterize fire brigade interface inputs
F5	Info	Info	Parameterize detector zones
F6	Info	Info	Parameterize actuations
F7	Info	Info	Parameterize transmitting devices
F8	Info	Info	Parameterize alarming devices

Key	Function in authorization level		
	1	2	3
F9	Info	Info	Parameterize fire brigade interface relay outputs
F10	Info	Info	Parameterize fire brigade interface open collector outputs
F11	Info	Info	Parameterize power unit outputs
F12	Info	Info	Parameterize serial interface modules
Shift+F1	Info	Componentries	Componentries
Shift+F2	Info	Event memory	Event memory
Shift+F3	Info	Event counter	Event counter
Shift+F4	Info	Exit authorization	Exit authorization
Shift+F5	Info	Operate detector zones	Operate detector zones
Shift+F6	Info	Operate actuations	Operate actuations
Shift+F7	Info	Operate transmitting devices	Operate transmitting devices
Shift+F8	Info	Operate alarming devices	Operate alarming devices
Shift+F9	Info	Info	Info
Shift+F10	Info	Info	Info
Shift+F11	Info	Info	Info
Shift+F12	Info	Info	Info

Table 1: Function of PC function keys depending on the current authorisation level

2.2.2 Editing functions

Editing text inputs is supported on the PC keyboard with the keys

- ◆ '← →' for moving the cursor,
- ◆ 'Del' for the deleting of the sign over the cursor and moving up of the remaining characters,
- ◆ 'Backspace' for the deletion of the sign in front of the cursor and moving up of the remaining characters, and
- ◆ 'Shift+Backspace' for the deletion of the entire line.

2.2.3 Other keys

The 'Element'-button of the keypad of the fire detection control panel BC216-1 is copied with the '÷'-key of the numeric key pad.

2.3 Main menu point [Parameter settings]

In authorisation level 3, the installer has all menu points of authorisation levels 1 and 2 at his disposal while the main menu point [Parameter settings] with the sub-menu points listed below is enabled in addition.

- ◆ [Global settings] - global control panel settings
You establish the control panel name, the control panel number, the type of the address module evaluation and the evaluation of power supply faults.
- ◆ [Function modules] - function modules
You define the function modules plugged into the function module ports, determine their characteristics and define all elements connected to the module.
- ◆ [FWI2-1] - fire brigade interface module FWI2-1
You establish the functions of the inputs and outputs provided for the connection of transmitting devices, fire brigade control units, etc.

- ◆ [NTB outputs] - parameter setup of the 16 auxiliary outputs and of the siren output
You determine the functions of the auxiliary outputs and of the siren output of the power unit NTB216-1.
- ◆ [LAB48-1] - parameter setup of the LED-display field LAB48-1
You determine the event, which activates the light-emitting diode displays.
- ◆ [Zone settings] - parameter setup of detector zones
You determine the indication texts for the detector zones and elements. Before defining these values it is necessary that the detector zones have been determined in the menu point [Function modules].
- ◆ [Actuation settings] - parameter setup of actuations
You define the display text of the actuations and elements, the characteristics of the actuations, the events activating these actuations and the logic combinations of the events. Before you can define these values, it is necessary that the allocation of the actuations to physical outputs has been determined in the menu points [Function modules], [FWI2-1] and [NTB outputs].
- ◆ [Transm. device set.] - parameter setup of the transmitting devices
You define the display text of the transmitting devices, the characteristics of the transmitting devices, the events activating these transmitting devices and the logic combinations of the events. Further, the parameters for the alarm delay (reaction time, delay time, alarm delay timer) are determined here. Before you can define these values, it is necessary that the allocation of the transmitting devices to physical outputs has been determined in the menu points [FWI2-1] and [NTB outputs].
- ◆ [Alarming device set.] - parameter setup of the alarming devices
You define the display text of the alarming devices, the events activating these alarming devices and the logic combinations of the events. Before you can define these values, it is necessary that the allocation of the alarming devices to physical outputs has been determined in the menu points [Function modules], [FWI2-1] and [NTB outputs].
- ◆ [Interfaces] - parameter setup of serial interfaces
You determine the characteristics of the serial interfaces and the data printed on a connected printer.
- ◆ [AUTO-setup]
You reset all parameters to the basic setting of the installed modules. Once completed, you have to exit the menu point [Parameter settings] to make these parameters effective through the initiated restart of the control panel.

The sub-menu points are listed in detail in the following paragraphs.



Note for all sub-menu lists:

The lists must be read from the top downwards: When accessing a sub-menu, the menu point written in the first place will always be shown. If a selection list follows instead of a sub-menu, the currently entered parameter will be shown.

The default values of the selection lists are displayed during initial parameter setup. If individual values have already been entered, these will be displayed.

For reasons of clarity, selection lists which are not self-explanatory (such as numerical inputs) are also shown in form of a menu point.



Observe the notes and footnotes included in the following lists!

For reasons of clarity special hints on dangerous situations in these lists are no longer marked with the symbols used in other chapters of this manual!

2.3.1 Parameter setup of the global settings of the control panel - [Global settings]

In this menu point you

- ◆ enter the control panel name and the control panel number,
- ◆ adjust the address module evaluation to the encoding of the installed address modules, and
- ◆ influence the evaluation of a mains fault, battery fault and earth leakage.



With a standard application you need not treat these parameters, you can jump this menu point. The global parameters in this menu point need not be changed except in the case of special requirements on the control panel functions.

Global settings

Name of panel	<p>Default value: Blank</p> <p>Value range: 20 alphanumerical characters</p> <p>Any name may be entered here (the PC keyboard is required for this purpose). This name is printed on the configuration print-out.</p>
Number of panel	<p>Default value: 0</p> <p>Value range: 0, ..., 127</p> <p>The control panel number is significant for the network system technique (GSSnet) only. With the fire detection control panel BC216-1 the control panel number 0 must be maintained.</p>
Detector addr. mode	<p>Default value: Binary</p> <p>Value range: Binary, BCD</p> <p>The conventional detector interfaces GIF8-1 of the control panel are adjusted to the address module coding of existing systems in which the control panel is changed to a fire detection control panel of type BC216-1¹⁾. For new systems it is recommended to code the address modules in binary form.</p>
Mains fault eval. ²⁾	<p>Default value: Evaluate</p> <p>Value range: Evaluate, Ignore</p> <p>You can select if a mains fault is indicated on the control panel or ignored³⁾.</p> <p>The standard setting may only be changed in exceptional cases and after consultation with the responsible authorities. Please observe the country-specific regulations!</p>
Battery fault eval. ²⁾	<p>Default value: Evaluate</p> <p>Value range: Evaluate, Ignore</p> <p>You can choose if the failure of the stand-by batteries is indicated on the control panel or ignored⁴⁾.</p> <p>The standard setting may only be changed in exceptional cases and after consultation with the responsible authorities. Please observe the country-specific regulations!</p>
Earth fault eval.	<p>Default value: Evaluate</p> <p>Value range: Evaluate, Ignore</p> <p>You can choose if an earth leakage of the fire detection installation is indicated on the control panel or not⁵⁾.</p> <p>If you connect a part of the system with the local equipotential busbar as required by the authorities (e.g., in an ex-i area), the earth leakage monitoring must be disabled.</p>

- ¹⁾ The address modules NG58-1 and NG60-1 used for addressing conventional detectors are - dependent on the originally employed control panel type - coded either binary (1, ..., 63) or BCD (1, ..., 39). When changing a control panel to a fire detection control panel BC216-1, you have to set the same coding that was used by the replaced control panel. The selected setting applies jointly to both possible conventional detector interfaces GIF8-1.
- ²⁾ A mains fault or battery fault is recognised and evaluated approximately 10 seconds after a control panel restart, a check is performed at 5 minute intervals during the running operation. These intervals are reduced to approximately 10 seconds in case of a fault, termination of a mains fault is therefore recognized within approximately 10 seconds.
- ³⁾ With suppressed mains fault evaluation, a mains fault or a fault of the power unit is not indicated on the control panel or passed on. If the emergency power supply through the stand-by batteries fails in addition, a total shut down of the entire fire detection system occurs without any further acoustic or optical warning.
- ⁴⁾ With suppressed battery failure evaluation, the failure of the stand-by battery (or its fuse) is not indicated on the control panel. If the mains or the control panel power unit fails in addition, the entire fire detection system is subject to total failure without any further acoustic or optical warning.
- ⁵⁾ An earth leakage at a point of the fire detection installation does not generally impair the functions. However, an additional earth leakage at another point of the installation may well lead to a failure of parts of the fire detection system, which is reported as a fault! If the earth leakage control is disabled, this must be taken into account through extended checks as part of the maintenance (see from page 52 in Chapter 4.1: "Maintenance"). The applicable European standards do not require earth leakage monitoring.

2.3.2 Parameter setup of the function modules - [Function modules]

This menu point serves to determine the function modules plugged into the function module ports ST2 and ST3 of the central processing board ZTB216-1 and their characteristics.

When the menu point [AUTO-setup] has been called up, the control panel recognises what function module is employed on each port. If you wish to define the functions of a module port not yet fitted with a function module, you will have to determine the type of the function module yourself in the menu point [Type].



The terms "physical address", "logic address" and "loop position number" are used in this and further chapters. These initially confusing designations can be easily explained:

Physical addresses are determined by the equipment hardware or through adjusting elements: The zone places 1, ..., 8 constitute physical addresses, which are unchangeably provided on the GIF8-1. A loop element (e.g., a detector) possesses the physical address, which has been set on the detector by means of the adjusting switch.

Logic addresses are assigned to physical addresses by the configuration.

You can for instance assign the logic address 11 to the GIF8-1 zone place with the physical address Nr. 3: An alarm of the zone place Nr. 3 will then be indicated on the LC-display as alarm of zone 0011 (the logic address).

You can assign the logic address "detector zone 75 / detector number 15" to the LIF64-1 - loop element with the physical address 80 (which was set or saved on the element): An alarm of the loop element 80 will then be indicated on the LC-display as an alarm of detector 15 of detector zone 75 (0075/015).

Loop position numbers show the sequence in which the loop elements are arranged on the loop. The loop position number is used in order to localise the fault during a line fault in the loop and for displaying on the LC-display.

2.3.2.1 Parameter setup of a conventional detector interface GIF8-1

You determine the zone type (e.g., manual call point, automatic detector, etc.) and the logic address of each zone for each of the 8 zone ports of the conventional detector interface GIF8-1.

Function modules	Default value: 1 Value range: 1, 2 You select the function module FM-z to be processed. (FM-1 = connector ST2, FM-2 = connector ST3)
FM-z Type ¹⁾	Default value: No module installed Value range: No module installed, GIF8-1, LIF64-1 You have to define the type of function module. If you select [No module installed] a module installed in this port will not be further processed, all priorly made settings (e.g., zones, elements, combinations, etc.) will be deleted for this module.
FM-z: GIF8-1 Detection lines: x	Default value: 1 Value range: 1, ..., 8 You select the zone place of the selected conventional detector module to be processed.
FM-z GIF-line Zone type	Here you define the function to be performed by the selected conventional detector zone place Nr. x.
Not defined	Zone place will not be used.
Man. call point zone	Detector zone for manual call points.
Automatic zone	Detector zone for automatic fire detectors.
Aut. zone, verified	Detector zone for automatic detectors with alarm verification.
Technical message	Detector zone for technical messages.

Tech.mess. self-res.	Detector zone for technical messages with self-resetting (once the cause of the activation has been eliminated, the detector zone returns automatically into normal condition).
Fault detection zone	Detector zone for fault detectors.
FM-z GIF-line x Zone number	Default value: The lowest vacant number, starting with 1 Value range: 1, ..., 9699 Here you determine the logic detector zone number, which is the zone number that will be shown on the display in the event of detection. In general you can specify any numbers within the permissible value range which need not be in order.

¹⁾ If the correct function module has already been adjusted, you can skip this menu point. If the connector is still vacant, all of its parameters can nevertheless be set provided that you define which function module you will plug into this connector.

After you have defined all desired parameters of the first function module, return to the menu point [Function modules] by pressing the 'esc'-button and set the parameters of the second function module (if available) in the same manner.



A zone of a conventional detector zone always includes all detectors of one GIF8-1 zone port.



If you change an existing zone number already included in a combination, this might have profound influence on the combinations. Please note the determinations made from page 40 in Chapter 2.4.4: "Entering logic combinations".

2.3.2.2 Parameter setup of a loop interface LIF64-1

With a loop interface LIF64-1 you define after the basic choice of the detector system for each loop element (detectors and modules), i.e. for every occupied physical address on the loop,

- ◆ to which kind the element belongs to (e.g., an optical detector, manual call point, control module, etc.),
- ◆ to which detector or actuation zone the element belongs to (or in case of an actuation module parameterized as alarming device, the number of the alarming device),
- ◆ which logic address and which loop position number the element owns and
- ◆ in case of a detector, to which interdependence of two detectors the detector belongs to.



With detector manufacturer System Sensor, manual call points are parameterized as modules.

Detectors connected to a loop interface LIF64-1 (including modules which are used for integrating contact detectors) can be arranged in up to 128 detector zones; nevertheless, the total number of detector zones of the fire detection control panel BC216-1 may not exceed 144.

Control modules on the loop can be parameterized as actuations or alarming devices only. The fire detection control panel BC216-1 permits a maximum of 128 actuations which are activated via hardware outputs of the control panel (e.g., FWI-outputs, NTB-outputs) or via control modules on the loop. The control modules on the loop can be combined to different actuation zones, a maximum of 128 actuation zones are permitted. The number of alarming devices is limited to 10 per control panel independent from whether it is activated via loop elements or via hardware outputs of the control panel.



Are two loop interfaces LIF64-1 installed in the fire detection control panel which are parameterized for the same detector system, you can also form loop overlapping detector zones. In this case, one zone can include detectors of the first loop as well as detectors of the second loop. Theoretically, one detector zone could include all detectors of both loops.



The number of detectors and modules which may be combined to one detector zone is limited by country specific regulations.



Zones of actuation elements are restricted to one loop each, loop overlapping actuation zones are not possible.

Furthermore you define the zone type (e.g., detector zone for automatic detectors, detector zone for fault detectors, etc.) for every LIF64-1 detector zone.

Interdependencies of two detectors are marked by their interdependence of two detectors-number (freely selectable between 1 and 99). You define, which detectors are to form an interdependence of two detectors by entering the same number as interdependence of two detectors-number for the detectors of the corresponding interdependence of two detectors. Also more than just two detectors can be included in an interdependence of two detectors. However, alarm condition occurs if at least two detectors with the same interdependence of two detectors-number are in the state of alarm.

You add a detector to an already existing interdependence of two detectors by entering the corresponding interdependence of two detectors-number for this detector during setting the parameters. If you are entering the value "0" as interdependence of two detectors-number for a detector, this detector is removed from the interdependence of two detectors.

You can define a total of 99 interdependence of two detectors-numbers.



The interdependencies of two detectors are always restricted to one detector zone each.



In order to completely delete the contents of an interdependence of two detectors-number you have to enter the value "0" as new interdependence of two detectors-number for all detectors included in this interdependence of two detectors.



Only automatic fire detectors (usually only smoke detectors) may be used for forming interdependencies of two detectors. It is indispensable to note the regarding country-specific regulations for forming interdependencies of two detectors!



All entered interdependencies of two detectors are printed out assortedly in the configuration print-out. Detailed information on interdependencies of two detectors can be found in User Manual Series BC216 / Part A.

Function modules	Default value: 1 Value range: 1, 2 You select the function module FM-z to be processed. (FM-1 = connector ST2, FM-2 = connector ST3)
FM-z Type ¹⁾	Default value: No module installed Value range: No module installed, GIF8-1, LIF64-1 You have to define the type of function module. If you select [No module installed] a module installed in this connector will not be further processed, all priorly made settings (e.g., zones, elements, combinations, etc.) will be deleted for this module.
FM-z: LIF64-1 Detector manufact.	Default value: Apollo Value range: Apollo, System Sensor Here you define which detector system should be employed.
FM-z: LIF64-1 Detectors/modules AP address: yyy	Detector parameter setup was selected for Apollo. Default value: 1 Value range: 1, ..., 126 Here you select the physical address yyy for an element of the loop interface.
FM-z: address yyy Address point type	Here you define the type of element with the physical address yyy.
Not defined	The data transferred to the control panel by the element will not be evaluated.
Ionization detector	The element will be defined as ionisation detector.
Optical detector	The element will be defined as optical smoke detector.
Max-therm detector	The element will be defined as maximum temperature detector.

Diff-therm detector	The element will be defined as rate-of-rise temperature detector.
Multisensor Dis.	The element will be defined as Multisensor Discovery.
Manual call point	The element will be defined as manual call point.
Conventional module	The element will be defined as module for the connection of conventional detectors.
Monitor mod. Mini	The element will be defined as monitor module for the connection of dry contacts.
Monitor mod. spec.	The element will be defined as monitor module for the connection of special detectors.
Ctrl.module no spv	The element will be defined as control module with dry contact for activating an actuation without supervision.
Ctrl.module with spv	The element will be defined as control module for activating an actuation or alarming device with supervision.
FM-z address yyy Output type	Here you define the type of output of a control module. This menu point appears only when you have selected a control module in the menu [Address point type].
Actuation	The control module is used for an actuation.
Alarm. dev.	The control module is used for an alarming device.
FM-z address yyy Zone/element Nr.	Default value: The lowest zone number of the parameter setup Value range: 0001/001, ..., 9699/999 ⁵⁾ Here you determine the zone and element number for the element with the physical address yyy ³⁾ . You have to enter as well the zone as the element number, separated by "/" ²⁾ . This menu point appears only when you have selected a fire detector, a conventional detector module or a monitor module in the menu [Address point type].
FM-z address yyy Actuat./element Nr.	Default value: The lowest actuation number of the parameter setup Value range: 0001/001, ..., 9699/999 ⁵⁾ Here you determine the control and element number for the control module with the physical address yyy. You have to enter as well the zone as the element number, separated by "/" ²⁾ . This menu point appears only if you have selected a control module in the menu [Address point type] and an actuation in the menu [Output type].
FM-z address yyy Alarming device Nr.	Default value: The lowest parameterized alarming device Value range: 01, ..., 99 ⁵⁾ Here you determine the number of the alarming device for the control module with the physical address yyy. This menu point appears only if you have selected a control module in the menu [Address point type] and an alarming device in the menu [Output type].
FM-z address yyy Loop position	Default value: The lowest vacant value, starting with 1 Value range: 1, ..., number of presently parameterized elements of the loop (max. 126) Here you determine the loop position for the element with the physical address yyy ⁴⁾ .
FM-z address yyy Interdep. group Nr.	Default value: 0 Value range: 1, ..., 99 Here you insert the element with the physical address yyy in the selected group of interdependence of two detectors ⁶⁾ .
FM-z: LIF64-1 Detectors SYS.SENSOR address: yy	Detector parameter setup was selected for System Sensor. Default value: 1 Value range: 1, ..., 99 Here you select the physical address yy for one detector element of the loop interface. Hint: With System Sensor, manual call points are not parameterized as detectors but as modules.

FM-z address yy Address point type	Here you define the type of the element with the physical address yy.
Not defined	The data transferred from the element to the control panel is not evaluated.
Ionization detector	The element will be defined as ionisation detector.
Optical detector	The element will be defined as optical smoke detector.
Beam detector	The element will be defined as beam smoke detector.
Max-therm detector	The element will be defined as maximum temperature detector.
Diff-therm detector	The element will be defined as rate-of-rise temperature detector.
Opt./therm. detector	The element will be defined as combined optical smoke detector/temperature detector.
Laser detector lev.1	The element will be defined as laser detector with sensitivity level 1 (0.02%/ft.).
Laser detector lev.5	The element will be defined as laser detector with sensitivity level 5 (0.2%/ft.).
Laser detector lev.9	The element will be defined as laser detector with sensitivity level 9 (2%/ft.).
FM-z address yy Zone/element Nr.	Default value: The lowest zone number of the parameter setup Value range: 0001/001, ..., 9699/999 ⁵⁾ Here you determine the zone and element number for the element with the physical address yy ³⁾ . You have to enter as well the zone as the element number, separated by "/" ²⁾ .
FM-z address yy Loop position	Default value: The lowest vacant value, starting with 1 Value range: 1, ..., number of presently parameterized elements of the loop (max. 198) Here you determine the loop position for the element with the physical address yy ⁴⁾ .
FM-z address yy Interdep. group Nr.	Default value: 0 Value range: 0, ..., 99 Here you insert the element with the physical address yy in the selected group of interdependence of two detectors ⁶⁾ . By entering "0" you delete the element yy from a group of interdependence of two detectors.
FM-z: LIF64-1 Modules SYS.SENSOR address: yy	Module parameter setup was selected for System Sensor. Default value: 1 Value range: 1, ..., 99 Here you define the physical address yy for a module element of the loop interface. Hint: Manual call points are parameterized in this menu point also.
FM-z: Address yy Address point type	Here you define the type of element with the physical address yy.
Not defined	The data transferred to the control panel by the element will not be evaluated.
Monitor module	The element will be defined as a monitor module for the connection of dry contacts.
Mon. mod./man. c. P.	The element will be defined as a monitor module for the connection of manual call points.
Conventional module	The element will be defined as a module for the connection of conventional detectors.
Ctrl.module with spv	The element will be defined as a control module for activating an actuation or alarming device with supervision.
Ctrl.module no spv	The element will be defined as a control module with dry contacts for activating an actuation or an alarming device without supervision.

FM-z address yy Output type	Here you define the type of output for a control module. This menu point appears only if you have selected a control module in the menu [Address point type].
Actuation	The control module is used for an actuation.
Alarm. dev.	The control module is used for an alarming device.
FM-z address yy Zone/element Nr.	Default value: The lowest parameterized zone number. Value range: 0001/001, ..., 9699/999 ⁵⁾ Here you determine the zone and element number for the element with the physical address yy. You have to enter as well the zone as the element number, separated by "/" ²⁾ . This menu point appears only if you have selected a monitor module for the connection of manual call points, a monitor module for the connection of dry contacts or a conventional detector module in the menu [Address point type].
FM-z address yy Actuat./element Nr.	Default value: The lowest actuation number of the parameter setup Value range: 0001/001, ..., 9699/999 ⁵⁾ Here you determine the control and element number for the control module with the physical address yy. You have to enter as well the zone as the element number, separated by "/" ²⁾ . This menu point appears only if you have selected a control module in the menu [Address point type] and an actuation in the menu [Output type].
FM-z address yy Alarming device Nr.	Default value: The lowest vacant value Value range: 01, ..., 99 ⁵⁾ Here you determine the number of the alarming device for the control module with the physical address yy. This menu point appears only if you have selected a control module in the menu [Address point type] and an alarming device in the menu [Output type].
FM-z address yy Loop position	Default value: The lowest vacant value, starting with 1 Value range: 1, ..., number of presently parameterized elements of the loop (max. 198) Here you determine the loop position for the element with the physical address yy ⁴⁾ .
FM-z address yy Interdep. group Nr.	Default value: 0 Value range: 0, ..., 99 Here you insert the element with the physical address yy in the selected interdependence of two detectors group ⁶⁾ . By entering "0" you delete the element yy from a group of interdependence of two detectors.
FM-z: LIF64-1 Zones	Detector zones
Zone: xxxx	Default value: the lowest parameterized detector zone number Value range: 0001, ..., 9699 Here you select a LIF detector zone.
FM-z zone xxxx type	Here you define the function to be performed by the selected LIF detector zone Nr. xxxx.
Not defined	LIF detector zone is not used (deletion of the entire detector zone).
Man. call point zone	Detector zone for manual call points.
Automatic zone	Detector zone for automatic fire detectors.
Techn. message	Detector zone for technical messages.
Tech.mess. self-res.	Detector zone for technical messages with self resetting (the detector zone automatically returns to normal condition once the cause of activation has been eliminated).
Fault detection zone	Detector zone for fault detectors.

- 1) If the correct function module has already been adjusted, you can skip this menu point. If the connector is still vacant you have to define which function module you will plug into this connector.
- 2) The "÷"-button of the PC keyboard has the same function as the "Element"-button on the control panel key pad.
- 3) Detector zones on loop interfaces LIF64-1 can also be parameterized loop-overlappingly. Required for this is that both LIF64-1 are parameterized for the same detector system (Apollo or System Sensor).
- 4) In case you enter a loop position number which is already occupied, the new entry is inserted before the old entry with the same number and all entries behind are newly numbered. If you delete (parameterize as "Not defined") an element of the loop, this element is also removed automatically from the position numbers, all elements behind are newly numbered.
- 5) Observe the maximum permitted total number of detector zones, elements, actuation zones, actuation elements and alarming devices (see from page 13 in Chapter 2.3.2.2: "Parameter setup of a loop interface LIF64-1").
- 6) The control panel does not predecide whether the selected detector or module is permitted to be included in an interdependence of two detectors on basis of country specific regulations!

After you have defined all desired parameters of the first function module, return to the menu point [Function modules] by pressing the 'esc'-button and set the parameters of the second function module (if available) in the same manner.



If you change an existing zone number already included in a combination, this might have profound influence on the combinations. Please note the determinations made from page 40 in Chapter 2.4.4: "Entering logic combinations".

2.3.3 Basic possibilities of parameter setup for the control panel outputs

The control panel has the following individual outputs in the basic version:

- ◆ 1 siren output (usually used as the primary alarming device and
- ◆ 16 general auxiliary outputs,

all arranged on the power unit NTB216-1.

With the optional fire brigade interface FWI2-1 these outputs are expanded by

- ◆ 2 relays each with one dry change-over contact and
- ◆ 8 open collector (transistor) outputs.

These outputs are available for the connection of fire brigade devices and to accomplish actuations, transmitting devices, alarming installations and a series of special tasks (a summary of the options can be found from page 19 in Chapter 2.3.3.1: "Output types"). An additional open collector output of the FWI2-1 has the function "System fault", the parameters of which cannot be set.

With the optional fire brigade interface additional board FWZ2-1 used in addition to the FWI2-1 the outputs are expanded by

- ◆ 2 line surveilled outputs which are connected in parallel to the relay outputs of the FWI2-1.

Parameter setup is performed in three steps:

The first step of the parameter setup process of the outputs consists in assigning a task to each of the aforementioned physical outputs. This is done by determining the type of output, a summary of the possible output types can be found from page 19 in Chapter 2.3.3.1: "Output types". Please note that each individual output can only assume one of these tasks.



Conversely, actuations, transmitting devices and alarming devices are only represented by one single output. You can set the 7th auxiliary output as transmitting device Nr. 3. As a consequence, both the 7th auxiliary output as well as the transmitting device Nr. 3 are occupied and no longer available for any other task.

All other output types can also be applied to several outputs. It is possible, e.g., to set both the auxiliary output Nr. 8 and Nr. 9 as output type [Earth fault].

With the output types actuation, transmitting device and alarming device you have to additionally specify a definition number of the respective installation. You can define a total of 128 actuations (or actuation zones), 10 transmitting devices and 10 alarming devices for the whole control panel. These numbers already contain actuations and alarming devices which are realized by loop elements (i.e., by control modules).

The kind of effect of the activated output will be determined in the second step of the parameter setup process. A number of options are available (e.g., as continuous signal, delayed, pulsed signal, intermittent signal, etc.). A summary of these can be found from page 20 in Chapter 2.3.3.2: "Signal types". The first two parameter setup steps are shown from page 21 in Chapter 2.3.4: "Parameter setup of the fire brigade interface - [FWI2-1]" and from page 27 in Chapter 2.3.5: "Parameter setup of the auxiliary outputs and of the siren output - [NTB outputs]".

In the third step of the parameter setup process, among other things, the message texts are determined, the operating characteristics are determined and the combinations are fixed for the defined actuations, transmitting devices and alarming devices.



With these combinations you determine through which detector zone events the respective output is to be activated (which has been defined as actuation, transmitting device or as alarming device).

This step is described from page 31 in Chapter 2.3.8: "Parameter setup of actuations [Actuation settings]", from page 32 in Chapter 2.3.9: "Parameter setup of transmitting devices - [Transm. device set.]" and from page 34 in Chapter 2.3.10: "Parameter setup of alarming devices [Alarming device set.]", while the combinations themselves are shown from page 37 in Chapter 2.4: "Description of logic combinations".

2.3.3.1 Output types

The following table is a summary of the possible functions which can be accomplished by the outputs of the fire detection control panel BC216-1.

Output type/list of options	Description
Not defined	The output will not be used.
Actuation	The output will be parameterized as actuation the number of which has to be defined in the later menu point [Actuation number].
Transmitting device	The output is parameterized as transmitting device the number of which has to be defined in the later menu point [Transm.device number].
Alarming device	The output will be parameterized as alarming device the number of which has to be defined in the later menu point [Alarm. device number].
Alarm	The output is activated for as long as the alarm condition prevails.
Alarm (delayed)	The output is activated for as long as the alarm condition prevails. After quitting the alarm condition by resetting on the fire detection control panel, the output returns to normal condition after 15 minutes. After resetting the control panel from the fire brigade control unit, the output is immediately returned to normal condition (special function for the fire brigade control unit Germany).
P-al.device active	The output is activated for as long as the primary alarming device (siren output on the NTB216-1) is activated.
P-trans.dev active	The output is activated for as long as the primary transmitting device is activated.
P-trans.dev disabled	The output is activated for as long as the primary transmitting device is disabled.
P-trans.dev confirm.	The output is activated for as long as the confirmation signal is present on the input of the fire brigade interface, parameterized for the function "Confirm. P-trans.dev". The output is activated as soon as the impulse shaped confirmation signal arrives at the input of the fire brigade interface, parameterized for the function "Conf. P-tr.dev pulse". The output stays activated till the reset of the fire detection control panel.
System fault	The output is activated for as long as the system fault is present. A prerequisite for activating this output, however is that the system fault itself does not prevent the activation.
Fault condition	The output is activated for as long as the fault condition prevails.
Mains fault	The output is activated for as long as the mains fault is indicated.
Battery fault	The output is activated for as long as the fault of the stand-by battery is indicated.
Earth fault	The output is activated for as long as earth leakage is indicated.
Alarm/fault	The output is activated for as long as the alarm or fault condition prevails.

Output type/list of options	Description
Alarm/fault/disabl.	The output is activated for as long as the alarm, fault or disablement condition prevails.
Disablement	The output is activated for as long as the disablement condition prevails.
Fault/disablement	The output is activated for as long as the fault or disablement condition prevails.
Zone disablement	The output is activated for as long as detector zones are disabled.
Trans.device disabl.	The output is activated for as long as transmitting devices are disabled.
Zone/tr.dev. disabl.	The output is activated for as long as detector zones or the transmitting devices are disabled.
P-Al.device disabl.	The output is activated for as long as the primary alarming device is disabled.
Actuation disabled	The output is activated for as long as actuations are disabled.
Test condition	The output is activated for as long as the test condition prevails.
Exting.system activ.	The output is activated for as long as the signal "Exting.system active" is present on the input of the fire brigade interface, parameterized for the information "Exting.system active".
Parallel delay-LED	The output is activated for as long as the light-emitting diode "Alarm delay" is activated.
Control panel reset	The output is activated for 8 seconds when the button "Panel reset" on the fire detection control panel or on a fire brigade control unit is pressed.
Intermitting signal	The output is continuously clocked in the control panel-internal flash cycle.
Buzzer signal	The output operates analogue to the buzzer signal (flashes during a fault, is continuous during an alarm).

Table 2: Summary of the possible output types for the outputs of the power unit NTB216-1 and of the fire brigade interface FWI2-1.

Each individual output of the fire detection control panel (relay or open collector outputs on the FWI2-1 and auxiliary outputs on the NTB216-1) can only accomplish one of the aforementioned tasks. A combination of several tasks for one output is not possible.



Outputs of control modules which are connected to a loop can be parameterized as actuation or as alarming device only (see from page 13 in Chapter 2.3.2.2: "Parameter setup of a loop interface LIF64-1").

2.3.3.2 Signal types

All switching possibilities that can be set for a single output of the NTB216-1 or of the FWI2-1 are summarised in the following table. Consider that restrictions exist for signal types, depending on the output type!

The following commitment applies:

- ◆ An output is "switched" when the output relay is activated or the output transistor is switched through (i.e. the output is connected to ground (-)).
- ◆ An output is "switched off" when the output relay is released (i.e., out of power) or the output transistor is open (i.e. the output is not connected to any defined potential).

Signal type/selection list	Description
Continuous signal	The activated output is switched and remains switched for as long the criteria is connected.
Cont. sign., delayed	The output is switched with delay and remains switched for as long as the criteria is connected. The delay time is determined in the menu point [Activation delay].
Cont. sign., invert.	The output is switched in normal condition and is switched off by activation. It remains switched off for as long as the criterion is connected.
Cont. sign., del/inv	The output is switched in normal condition and is switched off by activation with delay. It remains switched off for as long as the criteria is connected. The delay time will be determined in the menu point [Activation delay].

Signal type/selection list	Description
Pulsed signal	The output is switched briefly and subsequently switched off again. The impulse duration will be determined in the menu point [Pulse width].
Puls. sign., delayed	The output is switched briefly after the delay and subsequently switched off again. The delay time and the impulse duration will be determined in the menu points [Activation delay] and [Pulse width].
Puls. sign., retrigger.	The output is switched briefly and subsequently switched off again. During a subsequent activation it is switched again and remains switched for as long as the activation criteria is available (function: Transmitting device Nuremberg). The impulse duration is determined in the menu point [Pulse width].

Table 3: Summary of the possible signal types of the outputs arranged on the NTB216-1 and the FWI2-1.

The combination possibilities of output- and signal types are restricted as described in the following:

- ◆ The output is determined as a transmitting device:
Permissible signal types are: Continuous signal, continuous signal inverted, pulsed signal, pulsed signal retriggered.
- ◆ The output is determined as an actuation or alarming device:
Permissible signal types are: All signal types except for pulsed signal retriggered.
- ◆ The output is determined as
Alarm (delayed),
Parallel delay-LED (activation as delay-LED)
Control panel reset (activated for approx. 8 seconds during control panel reset),
Intermitting signal (condition is changed with internal flash frequency),
Buzzer signal (condition corresponds to buzzer activation):
The only permissible signal type for these output types is continuous signal, which is defined automatically by this output type and is therefore not settable.
- ◆ All other outputs:
Permissible signal types are: Continuous signal, continuous signal delayed, continuous signal inverted, continuous signal delayed/inverted.



Only the signal type possibilities are proposed during parameter setup which are permissible for the respective output type.



The inverted signal types [Cont. sign. invert.] and [Cont. sign. del/inv] are primarily intended for summary fault messages or mains failure messages. In these cases it is more favourable to make the activated device de-energised in case of an event (e.g., the stand-by battery is not additionally loaded with the current of a connected relay coil during mains failure).

Only one of the aforementioned signal types can be selected for an output of the fire detection control panel (relay or open collector outputs on the FWI2-1 and the auxiliary outputs on the NTB216-1).



The outputs of control modules connected to a loop are dealt with from page 31 in Chapter 2.3.8: "Parameter setup of actuations [Actuation settings]" and from page 34 in Chapter 2.3.10: "Parameter setup of alarming devices [Alarming device set.]".

2.3.4 Parameter setup of the fire brigade interface - [FWI2-1]

The fire brigade interface FWI2-1 plugged into the connector ST4 of the central processing board is primarily provided for connecting the transmitting and display and operating devices required for the alarm transmission to the fire brigade.

- ◆ 2 independent relay outputs with dry change-over contacts,
- ◆ 9 inputs and
- ◆ 8 open collector outputs

which are freely programmable, are available on the fire brigade interface for this purpose. All inputs and outputs not required for fire brigade purposes can basically be used for any other task.



If your installation does not include a fire brigade interface module FWI2-1, you can skip all related parameter setup points.

If the optional fire brigade interface additional board FWZ2-1 is plugged onto the fire brigade interface FWI2-1, two line-monitored actuations (primarily for transmitting devices) are available in addition. These will be activated by the same signals, which also drive the two relay outputs. The supervising current of the line monitoring can be selected in three stages - depending on the local transmission system - the values can be retrieved from the specifications in User Manual Series BC216 / Part B.

Special groupings of outputs and inputs were formed at the factory for different standard fire brigade control units and other fire brigade installations that can be selected in a separate sub-menu. Fire brigade control units not corresponding to this pre-programmed standard must be individually parameterized by you.

The parameters of the fire brigade interface FWI2-1 (with the plugged-on fire brigade interface additional board FWZ2-1) are set in the following sub-menu points of the menu [FWI2-1].

FWI2-1	
FWI configuration	You decide whether a fire brigade interface is installed and which.
No FWI installed	No fire brigade interface is installed.
FWI2-1	The FWI2-1 is installed.
FWI2-1 and FWZ2-1	The FWI2-1 with plugged-on FWZ2-1 is installed.
FWI relay outputs ¹⁾	You determine the functions to be fulfilled by the two relay outputs of the FWI2-1 and the two monitored outputs of the FWZ2-1.
FBCU country version ¹⁾	You set the configuration predefined at the factory to suit the respective national fire brigade control unit and other fire brigade installations.
FWI inputs ¹⁾	You determine the functions to be performed by the 9 inputs of the FWI2-1.
FWI oc-outputs ¹⁾	You determine the functions to be performed by the 8 parameterizable open collector outputs of the FWI2-1.

¹⁾ This menu point is only displayed if the input of a value is efficient on the basis of the preceding menu entries.

For standard applications you need only determine the national fire brigade control unit, all other parameters of the fire detection control panel which were factory set can be left as they were. However, compare the standard parameters written from page 42 in Chapter 2.5: "Standard parameter setup with AUTO-setup" with the requirements of your system.

2.3.4.1 Parameter setup of the fire brigade interface - relay outputs - [FWI relay outputs]

In this parameter setup area you determine the "output type" (i.e. the event to which the relay reacts) and the "contact type" (i.e. how does the relay react to the event) separately for the two relay outputs. The selection possibilities for the "output type" are described from page 19 in Chapter 2.3.3.1: "Output types" and the selection possibilities for the "signal type" are described from page 20 in Chapter 2.3.3.2: "Signal types".

The two line monitored outputs of the fire brigade interface additional board FWZ2-1 are controlled by the same signals which also activate the relays and react therefore exactly as you have determined for the relays.

You also determine the value of the supervising current required for the line monitoring in this menu point.



The output "Terminal 1+2" of the FWZ2-1 corresponds to the relay HM1 of the FWI2-1, the output "Terminal 3+4" of the FWZ2-1 corresponds to the relay HM2 of the FWZ2-1.

FWI2-1	
...	
FWI relay outputs	Default value: 1 Value range: 1, 2 You select the relay output of the board FWI2-1. Relay output 1 (HM1): Terminals 1, 2, 3 Relay output 2 (HM2): Terminals 4, 5, 6
FWI relay output x Output type ¹⁾	You determine the output type (i.e. the event when the relay should switch) for the chosen relay output Nr. x.
FWI relay output x Signal type ¹⁾²⁾	Here you define how the activated relay output should react.
FWI relay output x FWZ superv. current ²⁾³⁾	Default value: Low Value range: Low, Medium, High When using the fire brigade interface additional board FWZ2-1 you can select three current values for the line supervising current.
FWI relay output x Actuation number ²⁾	Default value: The lowest free value, starting with 1 Value range: 1, ..., 9699 ⁴⁾ Here you determine the number of the actuation formed by the relay output (provided you have selected the value [Actuation] in the menu [Output type]).
FWI relay output x Transm.device number ²⁾	Default value: The lowest free value, starting with 1 Value range: 1, ..., 99 ⁴⁾ Here you determine the number of the transmitting device formed by the relay output (provided you have selected the value [Transmitting device] in the menu [Output type]).
FWI relay output x Alarm. device number ²⁾	Default value: The lowest free value, starting with 1 Value range: 1, ..., 99 ⁴⁾ Here you determine the number of the alarming device formed by the relay output (provided you have selected the value [Alarming device] in the menu [Output type]).
FWI relay output x Pulse width ²⁾	Default value: 1 second Value range: 1, ..., 30 seconds Determination of the impulse time provided the function of an impulse contact was selected in the menu [Signal type].
FWI relay output x Activation delay ²⁾	Default value: 1 second Value range: 0:00:01, ..., 1:59:59 (Hrs:Min:Sec.) Determination of the delay time provided a value with delay was selected in the menu [Signal type].
...	

¹⁾ The selection possibilities for the output type are described from page 19 in Chapter 2.3.3.1: "Output types" and the selection possibilities for signal type are described from page 20 in Chapter 2.3.3.2: "Signal types".

²⁾ This menu point is only displayed if the input of a value is efficient on the basis of the preceding menu entries.

³⁾ This menu point is supported for transmitting devices only.

⁴⁾ You can define up to 128 actuations (or actuation zones), 10 transmitting devices and 10 alarming devices for the entire control panel, including the actuations and alarming devices formed by means of loop elements.

After you have defined the first relay output, return to the menu point [FWI relay outputs] by pressing the 'esc'-button and set the parameters of the second relay output in the same manner.



The inverted signal types [Cont. sign. invert.] and [Cont. sign. del/inv] are primarily intended for summary fault messages or mains failure messages. In these cases it is advantageous if the relay is released in the event of a fault (e.g., the stand-by battery is not additionally loaded with the current drawn by the relay coil during a fault signal caused by mains failure).

2.3.4.2 Parameter setup of the national version of the fire brigade control unit [FBCU country version]

In this parameter setup area you determine the national version of the fire brigade control unit to be connected. In this way the required inputs and outputs of the fire brigade interface FWI2-1 are preset to works settings.



The resulting assignment of the inputs and outputs of the fire brigade interface FWI2-1 can be found in User Manual Series BC216 / Part B, chapter "Connection of country-specific fire brigade installations".

All parameters of the inputs and outputs of the FWI2-1 not required for the chosen fire brigade control unit can be freely set to suit individual purposes.

FWI2-1	
...	
FBCU country version	
User definable	The input and output parameters can be set freely
Austria	Fire brigade control unit according to ÖNORM F3031 type A
Germany	Fire brigade control unit according to DIN 14661
Switzerland	Fire brigade control unit according to SN 054002
Netherlands	Standard connection see NL documentation
others ¹⁾	
...	

¹⁾ This menu point is not supported in the current software version PL149 V4.11.

2.3.4.3 Parameter setup of the fire brigade interface inputs [FWI inputs]

In this parameter setup area you determine the desired functions for each of the 9 inputs of the fire brigade interface FWI2-1. If you have already set the parameters for the inputs and outputs of a fire brigade control unit national version, you may only treat the inputs not used by the fire brigade control unit here, otherwise the fire brigade control unit will not work correctly.



The possibility that the parameters of a part, which were already set for a fire brigade control unit, can individually be changed is not prevented. This applies also conversely: If you select a national version of the fire brigade control unit, individual previous parameter settings of inputs and outputs will be overwritten.

The assignment of the inputs and outputs of the country specific fire brigade interfaces is displayed in User Manual Series BC216 / Part B, chapter "Connection of country-specific fire brigade installations".

Since these inputs have mainly been designed for the control of the control panel from a fire brigade control unit, the function of the inputs is not dependent on the current authorisation level of the control panel.

In general, the inputs of the fire brigade interface module have equivalent rank with command inputs via the control panel keypad. The most recent command will be executed in each case unless the detail description determines otherwise.



For instance the parameters of an input are set for "disabling an actuation":

Depending on the signal which is connected to this input the actuation will be disabled or enabled - independent of which command was last given via the menu control.

The actuation can also be disabled and enabled by using the menu control - as well independent of what signal happens to be connected to the input.

The inputs are defined by their terminal number on the componentry.



Activation of the input terminals 17, 18 and 19 is made by connecting to ground (-), the activation of the input terminals 21, ..., 26 by connecting a positive voltage, see specifications in User Manual Series BC216 / Part B.



The inputs of the fire brigade interface FWI2-1 are effectively protected against EMC effects, the connected lines can therefore also be installed outside the control panel over any distances - the applicable electrotechnical regulations must be observed.

FWI2-1

...

FWI inputs	Default value: Term. 17 Value range: Term. 17, 18, 19, 21, ..., Term. 26 Here you determine the functions for each input of the fire brigade interface FWI2-1. You select the appropriate input by scrolling the list of terminal numbers.
FWI input term. xx Input type	You select the function type for the chosen input (terminal xx) according to the following selection list. The activation type (i.e. the definition for "activated") is determined further below in the menu point [Contact type].
Not defined	The input is not processed by the control panel, signals of this input are ignored.
Al.devices reset	All alarming devices controlled by the control panel are reset via this input.
Al.devices disable	All alarming devices controlled by the control panel are disabled via this input.
Al.devices dis+lock	All alarming devices controlled by the control panel are disabled via this input. For as long as the input remains active, re-enabling via the keypad is locked.
Buzzer silence	The internal control panel buzzer is reset via this input.
Buz+al.dev silence	The internal control panel buzzer and all alarming devices are reset via this input.
Control panel reset	The fire detection control panel is reset via this input.
Confirm. P-trans.dev pulse	The impulse shaped signal "confirmation" of the primary transmitting device is connected to this input ²⁾ . The pulse duration must be at least 1 second.
Confirm. P-trans.dev cont.	The continuous signal "confirmation" of the primary transmitting device is connected to this input ²⁾ .
Mode alarm delay	Day and night operation is changed over for the delay via this input ³⁾ .
Start alarm delay	The exploring time for the delay is started via this input ³⁾ .
Mode+start al. delay	The delay between day and night operation is changed over and the exploring time is started as well via this input (same function as the button 'delay/exploring' on the control panel keypad) ³⁾ .
P-trans.dev disable	The primary transmitting device is disabled via this input.
P-trans.dev test act	The primary transmitting device is activated via this input (test activation for special fire brigade control units).
Fire contr. sys. dis	All actuations activated in the event of a fire will be disabled via this input.
Fault activation	The fault message of the line monitoring of an actuation (e.g., a control line module SLM1-2) is connected to this input. The number of the actuation must be determined further down in the menu point [Actuation number].
Fault alarm. device	The fault signal of the line monitoring of an alarming device is applied via this input (which is e.g., connected by means of the siren supervising module SZ58-2). The number of the alarming device must be determined further below in the menu point [Alarm. device number].
Fault exting. system	The fault of an extinguishing system interface is signalled via this input. This information is processed as a fault.
Exting.system active	Extinguishing system activation is signalled via this input. This information is processed as a technical message.
Sabotage key safe	The sabotage of a fire brigade key box (or key safe) is signalled via this input. This information is processed as a technical message.

FWI input term. xx Contact type	Default value: NO-contact Value range: NO-contact, NC-contact Here you determine the activation type for the selected input xx.
NO-contact	The input is "active" when a positive voltage or ground (-) is connected to the input depending on the terminal number. The input is not active if no potential is connected to the input.
NC-contact	The input is not active if either a positive voltage or ground (-) is connected to the input depending on the terminal number. The input is "active" if no potential is connected to the input.
FWI input term. xx Actuation number ¹⁾	Here you determine the actuation, which is to act on the chosen input (terminal xx) (provided you have selected a value concerning an actuation in the menu [Input type]).
FWI input term. xx Alarm. device number ¹⁾	Here you determine the alarming device, which is to act on the chosen input (terminal xx) (provided you have selected a value concerning an alarming device in the menu [Input type]).

...

- ¹⁾ This menu point is only displayed if the input of a value is efficient on the basis of the preceding menu entries.
- ²⁾ Please retrieve information on what signal type is supplied for confirmation by the transmitting device used from the manuals of the transmitting device.
- ³⁾ These inputs act only on the primary transmitting device.

Following the parameter setup of an input return to the menu point [FWI inputs] by pressing the 'esc'-button, select the next input by scrolling with the '↑↓'-buttons in the list of terminal numbers and set the parameters in the same manner.

2.3.4.4 Parameter setup of the fire brigade interface open collector outputs [FWI oc-outputs]

In this parameter setup area you determine the "output type" (i.e. which event does the output react to) and the "signal type" (i.e. how does the output react on the event) for each of the 8 open collector outputs of the fire brigade interface FWI2-1. The selection possibilities for the "output type" are described from page 19 in Chapter 2.3.3.1: "Output types", the selection possibilities for the "signal type" are described from page 20 in Chapter 2.3.3.2: "Signal types".

If you have already set the parameters for the inputs and outputs for a fire brigade control unit national version you may only treat the outputs not used by the fire brigade control unit. Otherwise the fire brigade control unit will not operate properly.



The possibility that the parameters of a part, which were already set for a fire brigade control unit, can individually be changed is not prevented. This applies also conversely: If you select a national version of the fire brigade control unit, individual previous parameter settings of inputs and outputs will be overwritten.

The assignment of the inputs and outputs of the country specific fire brigade interfaces is displayed in User Manual Series BC216 / Part B, chapter "Connection of country-specific fire brigade installations".

The outputs are defined by their terminal number on the board.



The open collector outputs of the fire brigade interface FWI2-1 are effectively protected against EMC effects, the connected lines can therefore be installed also outside the control panel over any distances - the applicable electrotechnical regulations must be observed.

FWI2-1

...	
FWI oc-outputs	Default value: Term. 7 Value range: Term. 7, ..., 14 You select the desired open collector output of the FWI2-1 by scrolling the list of terminal numbers.
FWI oc-oupt. term. xx Output type ¹⁾	You determine the output type (i.e. the event upon which the output is to be activated) for the chosen output (terminal xx).

FWI oc-outp. term. xx Signal type ¹⁾	Here you define how the activated output is to act.
FWI oc-outp. term. xx Actuation number ²⁾	Default value: The lowest free value, starting with 1 Value range: 1, ..., 9699 ³⁾ Here you determine the actuation formed by the open collector output (provided you have selected the value [Actuation] in the menu [Output type]).
FWI oc-outp. term. xx Transm.device number ²⁾	Default value: The lowest free value, starting with 1 Value range: 1, ..., 99 ³⁾ Here you determine the number of the transmitting device formed by the open collector output (provided you have selected the value [Transmitting device] in the menu [Output type]).
FWI oc-outp. term. xx Alarm. device number ²⁾	Default value: The lowest free value, starting with 1 Value range: 1, ..., 99 ³⁾ Here you determine the number of the alarming device formed by the open collector output (provided you have selected the value [Alarming device] in the menu [Output type]).
FWI oc-outp. term. xx Pulse width ²⁾	Default value: 1 second Value range: 1, ..., 30 seconds Determination of the impulse time (provided the function of a pulsed signal was selected in the menu [Signal type]).
FWI oc-outp. term. xx Activation delay ²⁾	Default value: 1 second Value range: 0:00:01, ..., 1:59:59 (Hrs:Min:Sec) Determination of the delay time (provided a value with delay was selected in the menu [Signal type]).

- ¹⁾ The selection possibilities for the output type are described from page 19 in Chapter 2.3.3.1: "Output types", the selection possibilities for the signal type are described from page 20 in Chapter 2.3.3.2: "Signal types".
- ²⁾ This menu point is only displayed if the input of a value is efficient on the basis of the preceding menu entries.
- ³⁾ You can define up to 128 actuations (or actuation zones), 10 transmitting devices and 10 alarming devices, including the actuations and alarming devices formed by means of loop elements, for the entire control panel.

After you have defined an open collector output, return to the menu point [FWI oc-outputs] by pressing the 'esc'-button, select the next open collector output by scrolling down the list with the '↑↓'-buttons and set the parameters in the same manner.



The output terminal 14 can be hardware-configured by setting the short circuit connector JP1 on the fire brigade interface FWI2-1 as "redundant alarm"-output (i.e. alarm during system fault). If this is the case, the parameters for the output type on terminal 14 must be set either as "Not defined" or "Alarm" (see from page 19 in Chapter 2.3.3.1: "Output types").

2.3.5 Parameter setup of the auxiliary outputs and of the siren output - [NTB outputs]

The supervised siren output and 16 open collector outputs allowing free setting of parameters are arranged on the power unit NTB216-1. The siren output is intended for the connection of the primary alarming device but, like with other outputs, its parameters can be set for other functions.

The auxiliary outputs are exclusively intended for connecting relay modules or similar components which have to be accommodated within the case of the fire detection control panel or the optional auxiliary case.



On no account must wires connected to auxiliary outputs be led out of the case of the fire detection control panel or the optional auxiliary case in order to control external installations!

In this parameter setup area you determine individually the "output type" (i.e. which event does the output react to and the "signal type" (i.e. how does the output react on the event) for each of these 16 auxiliary outputs and the siren output. The selection possibilities for the "output type" are described from page 19 in Chapter 2.3.3.1: "Output types" and the selection possibilities for the "signal type" are described from page 20 in Chapter 2.3.3.2: "Signal types".

NTB outputs	Default value: Output 1 Value range: Output 1, ..., 16, Siren output You select the desired open collector auxiliary output or the siren output of the power unit NTB216-1 by scrolling the list of outputs.
NTB output xx Output type ¹⁾	You select the output type (i.e. the event upon which the output is to be activated) for the chosen output xx. "xx" stands for 01, ..., 16, or siren.
NTB output xx Signal type ¹⁾	Here you define how the activated output is to act.
NTB output xx Actuation number ²⁾	Default value: The lowest free value, starting with 1 Value range: 1, ..., 9699 ³⁾ Here you determine the actuation formed by the output (provided you have selected the value [Actuation] in the menu [Output type]).
NTB output xx Transm.device number ²⁾	Default value: The lowest free value, starting with 1 Value range: 1, ..., 99 ³⁾ Here you determine the number of the transmitting device formed by the output (provided you have selected the value [Transmitting device] in the menu [Output type]).
NTB output xx Alarm. device number ²⁾	Default value: The lowest free value, starting with 1 Value range: 1, ..., 99 ³⁾ Here you determine the number of the alarming device formed by the output (provided you have selected the value [Alarming device] in the menu [Output type]).
NTB output xx Pulse width ²⁾	Default value: 1 second Value range: 1, ..., 30 seconds Determination of the impulse time provided the function of a pulsed signal was selected in the menu [Signal type].
NTB output xx Activation delay ²⁾	Default value: 1 second Value range: 0:00:01, ..., 1:59:59 (Hrs:Min:Sec) Determination of the delay time provided a value with delay was selected in the menu [Signal type].

- ¹⁾ The selection possibilities for the output type are described from page 19 in Chapter 2.3.3.1: "Output types", the selection possibilities for the signal type are described from page 20 in Chapter 2.3.3.2: "Signal types".
- ²⁾ This menu point is only displayed if the input of a value is efficient on the basis of the preceding menu entries.
- ³⁾ You can define up to 128 actuations (or actuation zones), 10 transmitting devices and 10 alarming devices for the entire control panel, including the actuations and alarming devices formed by means of loop elements.



You establish an output, which is to be activated in the event of an alarm of a detector zone by defining one of the 16 auxiliary outputs in the preceding menu branch as actuation. Parameterize the characteristic of this actuation to [No op. poss+self-res], see from page 31 in Chapter 2.3.8: "Parameter setup of actuations [Actuation settings]". As dependence, logically combine the actuation with the desired detector zone.

After you have defined an output, return to the menu point [NTB outputs] by pressing the button 'esc', select the next output by using the '↑↓'-buttons and set the parameters in the same manner.

2.3.6 Parameter setup of the LED-display field LAB48-1 - [LAB48-1]

48 light-emitting diode pairs (one red and one yellow light-emitting diode each pair) are arranged on the optional LED-display field LAB48-1. In this parameter setup area you determine the event on which each light-emitting diode pair is to be activated.



The activating events (detector zones, actuations, etc.,) must be defined before you can assign them to a light-emitting diode pair.

LAB48-1

Lab type	You determine if a display field is installed and which.
No LAB installed	No LAB is installed.
LAB48-1	A LAB48-1 is installed.

LAB settings ¹⁾	Default value: 1 Value range: 1, ..., 48 You select the desired light-emitting diode pair of the display field by entering the number or by means of the '↑↓'-buttons.
LED pair xx Type	You define the function type for the selected LED pair.
Not defined	The selected light-emitting diode pair will not be used.
LED for zone	The selected light-emitting diode pair will be used as indicator of a detector zone. The zone number will be determined further below in the menu point [Zone number].
LED for actuation	The selected light-emitting diode pair will be used as indicator of an actuation. The number of the actuation will be determined further below in the menu point [Actuation number].
LED for trans.device	The selected light-emitting diode pair will be used as indicator of a transmitting device. The number of the transmitting device will be determined further below in the menu point [Transm.device number].
LED for alarm.device	The selected light-emitting diode pair will be used as indicator of an alarming device. The number of the alarming device will be determined further below in the menu point [Alarm. device number].
LED pair xx Zone number ¹⁾	Default value: The lowest parameterized zone number Value range: 1, ..., 9699 Here you determine the detector zone, which the light-emitting diode pair should indicate (provided you have selected the value [LED for zone] in the menu [Type]).
LED pair xx Actuation number ¹⁾	Default value: The lowest parameterized actuation number Value range: 1, ..., 9699 Here you determine the actuation, which the light-emitting diode pair should indicate (provided you have selected the value [LED for actuation] in the menu [Type]).
LED pair xx Transm.device number ¹⁾	Default value: The lowest parameterized transmitting device number Value range: 1, ..., 99 Here you determine the transmitting device, which the light-emitting diode pair should indicate (provided you have selected the value [LED for trans.device] in the menu [Type]).
LED pair xx Alarm. device number ¹⁾	Default value: The lowest parameterized alarming device number Value range: 1, ..., 99 Here you determine the alarming device, which the light-emitting diode pair should indicate (provided you have selected the value [LED for alarm.device] in the menu [Type]).

¹⁾ This menu point is only displayed if the input of a value is efficient on the basis of the preceding menu entries.

In general it is determined that

- ◆ the red light-emitting diode is illuminated in alarm condition or activation condition and
- ◆ the yellow light-emitting diode is illuminated in disablement condition and flashes in fault condition.

Once you have defined a light-emitting diode pair, return to the menu point [LAB settings] by pressing the 'esc'-button, select the next light-emitting diode pair by entering the light-emitting diode pair number or by using the '↑↓'-buttons and set the parameters in the same manner.

2.3.7 Parameter setup of the detector zones - [Zone settings]

In this parameter setup area you determine the text lines for each detector zone and - if available - for each element of this detector zone.

You can file two text lines for each detector zone and one text line for each element of the detector zone. The maximum length of each text line is 20 characters. In case of an event, the first zone text will be displayed in the second line of the LC-display of the control panel and either the element text (if available) or the second zone text will be displayed in the third display line. The information will also be printed on

the optional printer and sent to the optional external display devices, main control panels or building management systems.



If you use external display installations, which can only show 16 characters (e.g., the signalling device SG58-1) you should select texts in such a way that the unambiguity of the information or the information itself is not lost if the last 4 characters are suppressed. When reading out the event memory on the LC-display, the texts in the third display line are also shortened to 16 characters (see User Manual Series BC216 / Part A) for space reasons.



For entering and processing the texts, a PC keyboard must be connected to the connector ST8 of the central processing board ZTB216-1. The input texts can be edited with the '←', '→', 'Del', 'Backspace' and 'Shift+Backspace' keys.



The detector zone must already be defined in the menu point [Function modules] (see from page 12 in Chapter 2.3.2: "Parameter setup of the function modules - [Function modules]") before you can allocate texts in this menu point. Detector zones may be fire detector zones, fault detector zones or detector zones for technical messages.

Zone settings	Default value: The lowest parameterized zone number Value range: 1, ..., 9699 You select the desired detector zone by entering the number or with the '↑↓'-buttons.
Zone xxxx Text 1	With the PC keyboard, you enter the first detector zone text for the selected detector zone and confirm with the '↵'-key.
Zone xxxx Text 2 ¹⁾	With the PC keyboard, you enter the second detector zone text for the selected detector zone and confirm with the '↵'-key ¹⁾ .
Zone xxxx ²⁾ Elements GIF	Default value: 0 Value range: 1, ..., 63 (with BCD coding: 39) You select the number of the element of the selected detector zone for which you wish to define the element text by entering the number or using the '↑↓'-buttons. With a GIF element, the logic and physical element address are the same.
Zone xxxx/yy Element text	With the PC keyboard, enter the element text of the selected element (yy) and confirm with the '↵'-key. By subsequently pressing 'Esc' you can select the next element of the same zone. Repeat this process for all required elements of the selected detector zone.
Zone xxxx ³⁾ Elements LIF	Default value: The lowest parameterized element number Value range: 1, ..., 999 Select the desired element of the selected detector zone by entering the number or using the '↑↓'-buttons.
Zone xxxx/yyy Element text	With the PC keyboard, enter the element text of the selected element (yyy) and confirm with the '↵'-key. By subsequently pressing 'Esc' you can select the next element of the same zone. Repeat this process for all required elements of the selected detector zone.

¹⁾ This text is only displayed if no element text is available in case of an event (either because no element text has been entered or since no element text is possible because of the detector technology employed). Otherwise the element text overwrites the second zone text (text 2).

²⁾ This menu point is only displayed if the selected detector zone is assigned to a GIF8-1.

³⁾ This menu point is only displayed if the selected detector zone is assigned to a LIF64-1.



The allocation of the logic zone number to the physical componentry or zone number is displayed when pressing the 'Info'-button. With a LIF element, the physical element address is displayed additionally.

After you have entered the texts of a detector zone, return to the menu point [Zone settings] by pressing the 'Esc'-key, select the next detector zone by entering the zone number or using the '↑↓'-keys and enter the texts in the same manner.

2.3.8 Parameter setup of actuations [Actuation settings]

In this menu point you can

- ◆ enter the texts for the actuations and the elements of the actuations
- ◆ define the type and characteristics of the actuation and
- ◆ parameterize combinations of detector zones and zone elements in AND and OR combinations.

You can file two text lines for each actuation and one text line for each element of the actuation. The maximum length of each text line is 20 characters. In case of an event, the first actuation text will be displayed in the second line of the LC-display of the control panel and either the element text (if available) or the second actuation text will be displayed in the third line. The information will also be printed on the optional printer and sent to the optional external display devices, main control panels or building management systems.



If you use external display installations, which can only show 16 characters (e.g., the signalling device SG58-1) you should select texts in such a way that the unambiguity of the information or the information itself is not lost if the last 4 characters are suppressed.



For entering and processing the texts, a PC keyboard must be connected to the connector ST8 of the central processing board ZTB216-1. The input texts can be edited with the '←', '→', 'Del', 'Backspace' and 'Shift+Backspace' keys.



An output must have already been defined as actuation with an actuation number before you can assign texts, combinations, etc., in this menu point.

Actuation settings	Default value: The lowest parameterized actuation number Value range: 1, ..., 9699 You select the desired actuation by entering the number or with the ↑↓-buttons.
Actuation xxxx Text 1	Enter the actuation text on the PC keyboard which should be displayed in the second line of the LC-display and confirm with the '↵'-key.
Actuation xxxx Text 2 ¹⁾	Enter the actuation text on the PC keyboard which is to be displayed in the third display line and confirm with the '↵'-key ¹⁾ .
Actuation xxxx Elements	Default value: The lowest parameterized element number Value range: 1, ..., 999 Select the desired element of the selected actuation by entering the number or using the ↑↓-buttons.
Actuation xxxx/yyy Element text	Use the PC keyboard to enter the element text and confirm with the '↵'-key. By subsequently pressing the 'esc'-key you can select the next element of the same actuation. Repeat this process for all required element texts of the selected actuation.
Actuation xxxx/yyy Combinations ²⁾	You can enter a maximum of 99 different combinations of detector zones or zone elements for the chosen actuation ²⁾ .
Actuation xxxx/yyy Type	Here you determine the type of the selected actuation.
Act. on alarm	The actuation is activated by alarms from detector zones.
Act. on alarm+fault	The actuation is activated by alarms or faults from detector zones.
Act. on al.+flt.+dis	The actuation is activated by alarms, faults or disablements of detector zones.
Act. on alarm+pre-al	The actuation is activated by alarms or pre-alarms.
Act. on flt.	The actuation is activated by faults of detector zones.
Act. on dis	The actuation is activated by disablements of detector zones.
Act. on flt.+dis	The actuation is activated by faults or disablements of detector zones.
Act. by fault zone	The actuation is activated by triggered fault message zones.
Act. on tech.msg.	The actuation is activated by triggered technical detector zones.

Actuation xxxx Combinations ²⁾³⁾	You can enter a maximum of 99 different combinations of detector zones and zone elements for the chosen actuation
Actuation Properties	Here you determine the properties of the selected actuation.
Operation possible	The actuation can be operated via the menu, the activation test is disabled.
Op./test possible	The actuation is operable via the menu, the activation test is possible
Op.possible+aut.dis	The actuation can be operated via the menu, the activation test is disabled. The actuation is automatically disabled in authorisation level 2, 3 and 4.
Op/test poss+aut.dis	The actuation can be operated via the menu, the activation test is possible. The actuation is automatically disabled in authorisation level 2, 3 and 4.
No op.poss+self-res.	The actuation cannot be operated manually. After the cause of the activation has been eliminated, the actuation is automatically reset to normal condition.
Op/aut.dis/exting.	The actuation can be operated via the menu, the activation test is locked. The actuation is disabled automatically in authorization level 2, 3 and 4. The activation is blocked during emergency operation. These properties are important for the actuation of extinguishing systems.

¹⁾ This text is only displayed if no element text is available in case of an event. Otherwise the element text overwrites the second zone text (text 2).

²⁾ The process of entering combinations is described from page 37 in Chapter 2.4: "Description of logic combinations", where you will also find examples of combinations. It is indispensable that you enter one or several combinations so that an actuation is activated by events from detector zones or elements.

³⁾ This menu point is invisible in case of an actuation on a loop (function module FM1 or FM2). Parameters of combinations are only settable for single actuation elements but not for whole actuation zones.



The output to which the actuation is allocated is displayed by pressing the 'Info'-button. The function module and the physical detector address are displayed with a LIF element.

After you have entered the parameters of an actuation, return to the menu point [Actuation settings] by pressing the 'esc'-button, select the next actuation by entering the actuation number or using the '↑↓'-buttons and set the parameter in the same manner.

2.3.9 Parameter setup of transmitting devices - [Transm. device set.]

In this menu point you can

- ◆ enter the texts,
- ◆ define the type of transmitting device
- ◆ set combinations of detector zones and zone elements in AND and OR combinations,
- ◆ determine the transmitting device characteristics and the delay time and
- ◆ determine which of the 10 transmitting devices should work as primary transmitting device for each of the 10 possible transmitting devices.

It is possible to file two lines of text with a maximum of 20 characters each for every transmitting device. These texts are displayed on the LC-display of the control panel in the second and third display line in case of an event. The information will also be printed on the optional printer and sent to the optional external display devices, main control panels or building management systems.



If you use external display installations, which can only show 16 characters (e.g., the signalling device SG58-1) you should select texts in such a way that the unambiguity of the information or the information itself is not lost if the last 4 characters are suppressed.

You can configure one of the 10 transmitting devices as primary transmitting device for fire messages [Primary transm.dev.]. This transmitting device has a special position compared with the other 9 possible transmitting devices:

- ◆ It can be directly operated with the buttons of the display and operating board of the fire detection control panel (in addition to the operation via the menu).
- ◆ The alarm delay acts only on the primary transmitting device.
- ◆ The inputs with setable parameters of the fire brigade interface FWI2-1 for delay, disabling of transmitting device, etc., act only on the primary transmitting device.

The number of the primary transmitting device as well as the belonging physical output (NTB or FWI outputs) are - like for the further 9 transmitting devices - freely setable in predefined limits.



You should preferably parameterize the transmitting device which acts on the relay HM1 of the fire brigade interface as primary transmitting device. Also see the information in User Manual Series BC216 / Part B.



For entering and editing the texts, a PC keyboard must be connected to the connector ST8 of the central processing board ZTB216-1. The input texts can be edited with the '<', '>', 'Del', 'Backspace' and 'Shift+Backspace' keys.



An output must have already been defined as transmitting device with a transmitting device number before you can assign texts, combinations, etc., in this menu point.

Transm. device set.	Default value: The lowest parameterized transmitting device number Value range: 1, ..., 99 Select the desired transmitting device by entering the number or with the '↑↓'-buttons.
Transm. device xx Text 1	On the PC keyboard, enter the text of the transmitting device which is to be displayed in the second display line and confirm with the '↵'-key.
Transm. device xx Text 2	On the PC keyboard, enter the text of the transmitting device which is to be displayed in the third display line and confirm with the '↵'-key.
Transm. device xx Type	Here you determine the type of the selected transmitting device.
Primary transm.dev.	The transmitting device is defined as the primary transmitting device, it is activated by fire alarms.
Transm.dev. - fire	The transmitting device is activated by fire alarms.
Transm.dev. - fault	The transmitting device is activated by all fault messages.
Transm. device Combinations ¹⁾	You can enter a maximum of 99 different combinations of detector zones and zone elements for the chosen transmitting device for fire alarms ¹⁾ . No combinations are possible for transmitting devices for fault messages.
Transm. device xx Properties	Here you determine the properties of the selected transmitting device.
No delay	The transmitting device is not enabled for alarm delay procedure.
Delay ³⁾	The transmitting device is enabled for alarm delay procedure.
No delay, aut.dis	The transmitting device is not enabled for alarm delay procedure. In authorisation levels 2, 3 and 4 the transmitting device is automatically disabled.
Delay, aut.dis ³⁾	The transmitting device is enabled for alarm delay procedure. In authorisation levels 2, 3 and 4 the transmitting device is automatically disabled.
Del., aut.dis, act/flt ³⁾	The transmitting device is enabled for alarm delay procedure. In authorisation levels 2, 3 and 4 the transmitting device is automatically disabled. During the delay time the fault of a fire detector zone also results in the activation of the transmitting device.

Transm. device xx Reaction time ²⁾	Default value: 30 seconds Value range: 20, ..., 120 seconds Here you determine the reaction time of the alarm delay procedure for the primary transmitting device for fire alarms. Please observe the specific national regulations!
Transm. device xx Alarm delay time ²⁾	Default value: 5 minutes Value range: 1, 2, ..., 8 minutes You adjust the alarm delay time for the primary transmitting device for fire alarms in steps of minutes. Please observe the specific national regulations!
Transm. device xx Alarm delay timer ²⁾	The timer will expose a time window for the day operation of the alarm delay procedure on every week day. Value range: Sunday, ..., Saturday
Enable time	Default value: **:** (= deleted) Value range: 00:00, ..., 23:59, 99 = delete ⁴⁾
Disable time	Default value: **:** (= deleted) Value range: 00:00, ..., 23:59, 99 = delete ⁴⁾

- ¹⁾ The process for entering combinations is described from page 37 in Chapter 2.4: "Description of logic combinations", where you will also find examples of such combinations. If no combination is entered for a transmitting device, this transmitting device will be activated by every fire alarm of a detector zone. This menu point does not appear when setting the parameters for "Transm.dev. - fault".
- ²⁾ This menu point appears only when parameterizing as primary transmitting device and when the alarm delay was additionally enabled in the menu [Property].
- ³⁾ This selection option appears only with the primary transmitting device.
- ⁴⁾ By deleting one of the two switching times of a day by entering 99 as hourly value, the second switching time of the day is also deleted. On the LC-display, this will be confirmed with the message [Timer entries deleted]. A deleted time is indicated by "**:**". Switching times can be deleted on the PC keyboard also by using the 'Del'-key.

Notice the following special cases when entering the times of the alarm delay timer:

- ◆ The switching times of a day are deleted: the alarm delay is generally enabled for this day, switching between day and night operation is possible at any time.
- ◆ The switching times of a day are defined but exactly equal (e.g., enable time = 00:00, disable time = 00:00): the alarm delay is generally locked for this day, switching to day operation is impossible, an incoming alarm message is forwarded undelayedly.



The function area "alarm delay" is described in detail in User Manual Series BC216 / Part A.



The duration of the alarm delay time must be coordinated with the responsible authorities.



Pressing the 'Info'-key will show, which output the transmitting device is assigned to.

Once you have entered the parameters of the transmitting device you return to the menu point [Transm. device set.] by pressing the 'esc'-button, select the next transmitting device by entering the transmitting device number or with the '↑↓'-buttons and set the parameters in the same manner.

2.3.10 Parameter setup of alarming devices [Alarming device set.]

In this menu point you can

- ◆ enter the display texts and
- ◆ determine combinations of detector zones in AND and OR combinations and
- ◆ define the properties

for each of the 10 possible alarming devices.

For each alarming device you can file two lines of text with a maximum of 20 characters each. In case of an event, the texts of the alarming device will be displayed on the control panel in the second and third

display line. The information will also be printed on the optional printer and sent to the optional external display devices, main control panels or building management systems.



If you use external display installations, which can only show 16 characters (e.g., the signalling device SG58-1) you should select texts in such a way that the unambiguity of the information or the information itself is not lost if the last 4 characters are suppressed.

The primary alarming device holds a special position compared with the further 9 possible alarming devices:

- ◆ If the siren output of the power unit NTB216-1 was parameterized as alarming device (thereto see from page 19 in Chapter 2.3.3.1: "Output types"), this alarming device will automatically become primary alarming device. Has the siren output been parameterized for another function, no primary alarming device will exist in the control panel.
- ◆ Additionally to the operation via the menu it can be operated directly with the buttons of the display and operating board of the fire detection control panel.

The number of the primary alarming device is - like for the further 9 alarming devices - freely settable in predefined limits.

All additional alarming devices must be activated by way of optional componentries (e.g., relay modules), the operation of these alarming devices is exclusively made by the menu.



For entering and editing the texts, a PC keyboard must be connected to the connector ST8 of the central processing board ZTB216-1. The entered texts can be edited with the '←', '→', 'Del', 'Backspace' and 'Shift+Backspace' keys.



An output must have already been defined as alarming device with an alarming device number before you can assign texts, combinations, etc., in this menu point.

Alarming device set.	Default value: The lowest parameterized alarming device number Value range: 1, ..., 99 You select the desired alarming device by entering the number or with the '↑↓'-buttons.
Alarming device xx Text 1	Enter the text on the PC keyboard which should be displayed in the second display line and confirm with the '↵'-key.
Alarming device xx Text 2	Enter the text on the PC keyboard which is to be displayed in the third display line and confirm with the '↵'-key.
Alarming device xx Combinations ¹⁾	You can enter a maximum of 99 different combinations of detector zones and zone elements for the chosen alarming device ¹⁾ .
Alarming device xx Properties	Here you determine the properties of the selected alarming device.
N. silence/n. retrig ²⁾	The activated alarming device can be silenced in authorization level 2, 3 and 4 only and will not be activated renewedly by sequential alarms once being silenced.
Silence/n. retrigger ²⁾	The activated alarming device can be silenced in authorization level 1 also and will not be activated renewedly by sequential alarms once being silenced.
N. silence/retrigger ²⁾	The activated alarming device can be silenced in authorization level 2, 3 and 4 only and will be activated renewedly by sequential alarms once being silenced.
Silence/retrigger ²⁾	The activated alarming device can be silenced in authorization level 1 also and will be activated renewedly by sequential alarms once being silenced.
Not retriggerable ³⁾	The alarming device will not be activated renewedly by sequential alarms once being silenced via the menu.
Retriggerable ³⁾	The alarming device will be activated renewedly by sequential alarms once being silenced via the menu.

- 1) The process of entering combinations is described from page 37 in Chapter 2.4: "Description of logic combinations", where you will also find examples of combinations. If you do not enter a combination for an alarming device, this alarming device will be activated with every alarm from a fire detector zone.
- 2) This is valid for the primary alarming device only.
- 3) This is valid for all alarming devices, except for the primary alarming device.



Pressing the 'Info'-key will show, which output the alarming device is assigned to. If the alarming device is realized via a loop element, the function module and the physical address will be displayed.

Once you have entered the parameters of the alarming device you return to the menu point [Alarming device set.] by pressing the 'esc'-button, select the next alarming device by entering the number or using the '↑↓'-buttons and set the parameters in the same manner.

2.3.11 Parameter setup of the interfaces - [Interfaces]

In this menu point you can

- ◆ configure the INFO bus and
- ◆ determine the type, baud rate and the printer filter (if the parameters are set for a printer) for both serial interfaces.

The INFO bus connection for the control of a maximum of 8 additional devices of the system (such as display devices, remote indication unit, transmitting devices, etc.) is included in the fire detection control panel BC216-1 as standard. As an option it is possible to use two RS232-C interfaces for the connection of additional equipment by means of the serial interface modules SIM216-1 and SIM216-2. Both serial interfaces are also capable of connecting a printer but the connection of only one printer to the control panel is permitted.



If you have not connected any device to the INFO bus and have not installed an additional serial interface module, you can completely skip this menu point.

Interfaces

INFO-bus	
INFO-bus Number of devices	Default value: 0 Value range: 0, ..., 8 Here you enter the number of devices connected to the INFO bus
INFO-bus Baudrate	Default value: 1200 baud Value range: 600, 1200, 2400 baud Change the default value only in exceptional cases and only after consultation with the manufacturer.
Serial interface	Default value: 1 Value range: 1, 2 You select the serial interface whose parameters are to be set: 1 = SIM216-x on connector ST6 of the ZTB216-1 2 = SIM216-x on connector ST7 of the ZTB216-1.
Ser. interface x Type	Here you determine the type of serial interface.
Not defined	The serial interface will not be used.
PARSOFT ⁴⁾	A PC for setting the parameters of the control panel with the parameter setup software PARSOFT-1 is connected to the serial interface ⁴⁾ . The baud rate is 38400 baud.
Printer, no superv.	The device connected to the serial interface will not be monitored by the control panel. The data will be transferred irrespective of whether the device is ready for receiving. This setting is suitable, e.g., for connecting a data terminal.
Printer with superv.	The printer connected to the serial interface is monitored by the control panel for the reaction to the handshake line CTS. Only the serial interface module SIM216-1 is suitable for this! Both short circuit connectors on SIM216-1 must be set to CTS (works setting).

Ser. interface x Baudrate ³⁾	Default value: 1200 baud Value range: 1200, 2400, 4800, 9600, 38400, 57600 baud
Ser. interface x Printer filter ¹⁾	Filter for selection of the printing data.
Print all	All events are printed without filter.
Control panel	Only control panel events will be printed.
Detection zones	Only detector zone events will be printed.

- 1) This menu point is only displayed if the serial interface was parameterized as "Printer". A printer filter acts on the event print-out (print-out of continuously incoming events) as well as on the service print-out (print-out of the complete event memory).
- 2) This selection possibility is only visible while setting the parameters of plug-in port ST7 (serial interface 2) of the central processing board ZTB216-2.
- 3) This menu point is invisible if the serial interface was parameterized to [PARSOFT]. The baud rate is fixed to 38400 baud in this case.
- 4) A software update of the software PL149 of the central processing board can only be made via a SIM216-1 plugged to connector ST6.

2.3.12 Automatic setup of the System configuration - [AUTO-setup]

In this menu point, you will start a query of the installed hardware and determine their system configuration according to the default values assigned by the factory (see from page 42 in Chapter 2.5: "Standard parameter setup with AUTO-setup").

In the sub-menu [Initialize new componentries], only the configuration for additionally installed componentries will be automatically created. The system configuration for existing componentries and of no longer available componentries remains untouched.

In the sub-menu [Delete settings and initialize componentries], all settings are deleted and set to default values in accordance with the installed componentries. With this menu point you are able to reset a parameter setup, which has got "out of tune" through frequent changing, to safe values and subsequently begin with a new parameter setup.

AUTO-setup	
Initialize new componentries	
Start initialization: ↵	After confirming with '↵', the standard configuration for newly added componentries will be established.
Delete settings and initialize componentries	
Delete all? Input authorization- code:	Following the entry of the installer code and confirming with '↵', the entire configuration is deleted and re-established in accordance with the installed componentries.

Following the initialisation you can continue with the parameter setup. For the new parameters to become effective, you have to exit authorisation, which will restart the control panel.



During a restart, all current events are reset, including alarm and fault messages. Disablements of control panel parts will not be changed. During the restart, the control panel is out of function for approximately 5 seconds.



The deletion of the system configuration cannot be undone! Therefore, the entry of the installer code is requested once again prior to the deletion, for reasons of safety. You can prematurely exit the sub-menu point by pressing the 'esc'-button.

2.4 Description of logic combinations

For each actuation, each transmitting device for fire messages and each alarming device of the fire detection control panel you can determine 99 logic activation combinations, thereby practically performing any

necessary control task of a modern fire detection system without additional hardware expenditure. The total number of logic combination entries in the memory of the control panel is restricted to 128.



No logic combinations can be determined for a transmitting device, the parameters of which were set for fault messages.



The special case of alarm activation of a fire detection control panel in an interdependence of two detectors is not called combination in the sense of this chapter. Detailed information on interdependencies of two detectors can be found from page 13 in Chapter 2.3.2.2: "Parameter setup of a loop interface LIF64-1" and in the User Manual Series BC216 / Part A.

2.4.1 General

Actuations, transmitting devices and alarming devices are always activated by alarms from detector zones or elements. By setting the parameters of the logic combinations of these devices you determine the logic dependencies of the detector zone messages which will activate these devices.

The following possibilities of forming logic combinations are available:

- ◆ OR combination of detector zones and elements entered individually or as a combined range (from detector zone/element to detector zone/element),
- ◆ "multiple" combination of detector zones and elements entered individually or as a combined range.



In this case the condition "multiple" means: The logic combination condition is fulfilled when more than one of the detector zones or elements involved are in the state of alarm. Such a logic combination is used if a particularly high degree of safety against false activation (e.g., of an extinguishing system) is demanded.



Please observe official directives when employing a "multiple" condition.

These two possibilities themselves are again connected by OR combination. The "multiple" combination is - as shown in the following paragraphs - processed differently by the control panel for transmitting devices, alarming devices and actuations.

2.4.2 Logic combinations for transmitting devices and alarming devices

Each transmitting device for fire alarms and each alarming device - provided no other parameter setup has been determined - will always be activated by an alarm from every detector zone (or its element) defined as fire detector zone.

You can restrict this general activation by entering logic combinations as follows:

- ◆ If one or several OR combinations have been entered, the activation is performed only by the alarms contained in the OR combination(s). Alarms outside these combinations will not result in an activation.



Explanatory example:

The control panel is equipped with 8 fire detector zones (1, ..., 8).

The OR combination {1 or 2 or 3} has been entered for the transmitting device Nr. 2. The transmitting device Nr. 2 is activated only if alarm is signalled from at least one detector zone of {1, 2, 3}.

Alarms from the detector zones 4, ..., 8 do not have any effect on the transmitting device Nr. 2.

- ◆ If one or several "multiple" combinations have been entered, activation will take place both when the logic combination condition is fulfilled and with an alarm from detector zones and elements located outside these "multiple" combinations.



Explanatory example:

The control panel is equipped with 8 fire detector zones (1, ..., 8).

The "multiple" combination {4, 5, 6} has been entered for the transmitting device Nr. 3.

The transmitting device Nr. 3 is activated when

- alarm is signalled from at least two detector zones of {4, 5, 6} or

- if one (or several) detector zones from the zones 1, 2, 3, 7, 8 signal alarm.

- ◆ If "multiple" combinations and OR combinations are entered jointly, the activation takes place both when one of these "multiple" combinations has been fulfilled and also by the alarms included in the OR combinations. Alarms from detector zones and elements outside these logic combinations will not result in activation in this case.



Explanatory example:

The control panel is equipped with 8 fire detector zones (1, ..., 8).

The "multiple" combination {1, 2, 3} and the OR combination {4 or 5} have been entered for the transmitting device Nr. 4.

The transmitting device Nr. 4 is activated

- when at least two detector zones from {1, 2, 3} signal alarm, or
- if one (or both) detector zones from the zones {4, 5} signal alarm.

Alarms from the detector zones 6, 7 and 8 will not result in activation of the transmitting device Nr. 4.

2.4.3 Logic combinations for actuations and actuation elements

Contrary to transmitting devices and alarming devices, an action is only set for actuations if this is expressly specified by the entered combinations of detector zones and elements. If no logic combinations are entered for an actuation, the actuation will never be activated!

You cannot enter general combinations which define the activation condition for the complete actuation zone for actuations which were parameterized as a zone of single actuation elements (i.e. of control modules on the loop) of a function module. You have to enter the desired combinations separately for every single actuation element of the zone.



The combinations of the single elements of an actuation zone need not be identical. For example, you can define an actuation zone whose elements are activated by different events (or combinations of events). The operation and displaying on the control panel is however made for the complete actuation zone.

The following combinations are possible:

- ◆ If one or several OR combinations have been entered, the activation is performed only through the alarms contained in the OR combination(s). Alarms outside these logic combinations will not result in an activation.



Explanatory example:

The control panel is equipped with 8 fire detector zones (1, ..., 8).

The OR combination {1} has been entered for the actuation Nr. 2.

The actuation Nr. 2 will only be activated if the detector zone Nr. 1 signals alarm.

Alarms from the detector zones 2, ..., 8 will not have any effect on the actuation Nr. 2.

- ◆ If one or several "multiple" combinations have been entered, the activation will take place when the combination condition has been fulfilled. Alarms from detector zones and elements located outside these "multiple" combinations will not result in an activation.



Explanatory example:

The control panel is equipped with 8 fire detector zones (1, ..., 8).

The "multiple" combination {4, 5} has been entered for the actuation Nr. 3.

The actuation Nr. 3 is activated when both detector zones 4 and 5 are in the state of alarm. If only one of the two detector zones is in the state of alarm, the actuation Nr. 2 is not activated. No activation takes place either upon alarm from the detector zones 1, 2, 3, 6, 7, 8.

- ◆ If "multiple" combinations and OR combinations are entered jointly, the activation takes place both when one of these "multiple" combinations has been fulfilled and also by the alarms included in the OR combinations. Alarms from detector zones outside these combinations will not result in an activation in this case.



Explanatory example:

The control panel is equipped with 8 fire detector zones (1, ..., 8).

The "multiple" combination {1, 2, 3} and the OR combination {4 or 5} have been entered for the actuation Nr. 4.

The actuation Nr. 4 is activated,

- when at least two detector zones from {1, 2, 3} signal alarm or
- if one (or both) detector zones {4 or 5} signal alarm.

Alarms from the detector zones 6, 7 and 8 will not result in activation of the actuation Nr. 4.

2.4.4 Entering logic combinations

The combination entries are filed in the control panel in entry tables. Each entry table is able to accommodate either one range specification (from detector zone/element ... to detector zone/element) or a maximum of 10 individual definitions. If more than 10 entries are required, another entry table will be appended automatically.



If you define ranges by specifying the detector zone/element, all elements lying between the specified ranges (including the range limits) will be utilised for the logic combination. Specifying "from 0001/001 to 0002/005", e.g., means that all elements of the zone 0001 and the first 5 elements of the zone 0002 will be used for the combination.

A logic combination may consist of a maximum of 99 entry tables (not taking into account the appended tables). A total of 128 entry tables can be occupied for all logic combinations of the control panel. On attempting to exceed this number, the message [Combination table full!] will be shown on the LC-display.

The following menu list shows the parameter setup menus for entering the logic combinations.

...	
Combination	<p>Default value: First created combination or "New combination"</p> <p>Value range: 1, ..., 99</p> <p>Here you select the number of the combination using the '↑↓'-buttons or confirm "New combination". You can enter a maximum of 99 combinations of detector zones and zone elements for the chosen actuation/transmitting device/alarming device.</p>
New combination type ¹⁾ OR-depend.-single	<p>Combination of a maximum of 99 zones and elements to be entered individually which are combined by way of OR combination.</p>
Depend.xx:OR.single Zones/elements	<p>Default value: 01st entry</p> <p>Value range: 01st entry, ...99th entry</p> <p>Here you select the number of entry using the '↑↓'-buttons. If the entry is still blank, "New" will be displayed instead of the number. If 0 or "Del" is entered, the displayed entry will be removed.</p>
Zone:	<p>Default value: The lowest parameterized zone or element number</p> <p>Value range: 1, ..., 9699 / 1, ..., 999²⁾</p>
Depend.xx:OR.single Delete combination	<p>You delete the entire combination entry number xx.</p>
New combination type ¹⁾ OR-depend.-range	<p>Combination of a maximum of 99 ranges of zones/elements (each limited by lower and upper limits) which are interconnected by means of OR combination.</p>
Depend.xx:OR.range Lower limit	<p>Default value: The lowest parameterized zone or element number</p> <p>Value range: 1, ..., 9699 / 1, ..., 999²⁾</p>
Depend.xx:OR.range Upper limit	<p>Default value: The lowest parameterized zone or element number</p> <p>Value range: 1, ..., 9699 / 1, ..., 999²⁾</p>
Depend.xx:OR.range Delete combination	<p>You delete the entire combination entry number xx.</p>
New combination type ¹⁾ AND-depend.-single	<p>Combination of a maximum of 99 zones or elements to be entered individually which are interconnected through "multiple" combination.</p>

Depend.xx:AND.single Zones/elements	Default value: 1st entry Value range: 1st entry,..., 99th entry, 0, 'Delete' Here you select the number of the entry using the '↑↓'-buttons. An entry may already contain a zone or element number, otherwise "new" will be shown instead of the number. If 0 or 'Delete' is entered, the displayed entry will be removed.
Zone:	Default value: The lowest parameterized zone and element number. Value range: 1, ..., 9699 / 1, ..., 999 ²⁾
Depend.xx:AND.single Delete combination	You delete the entire combination entry number xx.
New combination type ¹⁾ AND-depend.-range	Combination of a max. of 99 ranges of zones/elements (each limited by lower and upper limits) interconnected through "multiple" combination.
Depend.xx:AND.range Lower limit	Default value: The lowest parameterized zone and element number. Value range: 1, ..., 9699 / 1, ..., 999 ²⁾
Depend.xx:AND.range Upper limit	Default value: The lowest parameterized zone and element number. Value range: 1, ..., 9699 / 1, ..., 999 ²⁾
Depend.xx:AND.range Delete combination	You delete the entire combination entry number xx.
...	

- 1) When selecting an already existing combination, this menu point will be skipped and the first sub-menu point is displayed directly depending on the type of combination.
- 2) The element key on the control panel itself and the '+/-'-key of the numeric key pad is used to switch between zone and element mode.



When deleting an existing combination the combination entries situated behind will move up automatically. Even if only one entry remains, the combination remains valid. If all entries of an existing combination have been deleted, the entire combination is deleted and the device to be controlled (e.g., actuation, etc.) will be operated with the initial values without combinations. In the case of a "multiple" combination containing only one entry, the element to be controlled will never be activated!

The following examples serve to explain the method of such combinations in more detail:

Example 1: Required is the activation of the actuation Nr. xxxx by

- the detector zones 0010, 0012, or 0013 in OR combination
- or the detector zones 0020, 0021, 0022, 0023 or 0024 in OR combination
- or the detector zones 0005 and 0006 in "multiple" combination = two-zone dependency
- or the detector zones 0030, 0031, 0032 and 0033 in "multiple" combination.

For this task proceed as follows:

- ◆ As combination Nr. 01 you determine the detector zones 0010, 0012 and 0013 one after the other using the menu point [OR-depend.-single].
- ◆ As combination Nr. 02 you determine the value for [Lower limit] with 0020 and the value for [Upper limit] with 0024 using the menu point [OR-depend.-range].
- ◆ As combination Nr. 03 you determine the detector zones 0005 and 0006 one after the other using the menu point [AND-depend.-single].
- ◆ As combination Nr. 04 you determine the value for [Lower limit] with 0030 and the value for [Upper limit] with 0033 using the menu point [AND-depend.-range].

Alternatively, you also can combine above combinations 01 and 02 by successively entering detector zones 0010, 0012, 0013, 0020, 0021, 0022, 0023 and 0024 in menu point [OR-combinat.-single].

Example 2: Required is the activation of the actuation Nr. xxxx, if more than one detector zone of the detector zones 0010, 0011, 0012, 0013 are in the state of alarm.

For this task proceed as follows:

- ◆ As combination Nr. 01, determine the detector zones 0010 as [Lower limit] and the detector zone 0013 as [Upper limit] using the menu point [AND-depend.-range].

Example 3: Required is the activation of the actuation Nr. xxxx by the elements (= detectors) /004, ..., /008 of the detector zone 0003 in OR combination.

For this task proceed as follows:

- ♦ As combination Nr. 01, determine the element 0003/004 as [Lower limit] and the element 0003/008 as [Upper limit] using the menu point [AND-depend.-range].

2.5 Standard parameter setup with AUTO-setup

The fire detection control panel BC216-1 is always delivered ex factory without componentry parameter setup. As part of commissioning, you therefore have to establish the necessary configuration either by means of individual parameter setting or by means of AUTO-setup.

By calling up the menu point [Parameter settings] - [AUTO-setup] - [Delete settings and initialize componentries] (see from page 37 in Chapter 2.3.12: "Automatic setup of the System configuration - [AUTO-setup]") the control panel parameters are set to the default values in accordance with the hardware configuration. Typically, you will call up this menu point when commissioning the fire detection control panel BC216-1 for the first time.



Calling up the menu point [Parameter settings] - [AUTO-setup] - [Delete settings and initialize componentries] does not only result in new initialisation of the hardware components but also resets all control panel parameters to the default values. Thereby, the entire existing site-specific parameter setup will be deleted.

By calling up the menu point [Parameter settings] - [AUTO-setup] - [Initialize new componentries] you can set the default values of additionally installed hardware components at any time without changing the configuration of already configured hardware.

In both aforementioned cases you can suitably change the preset default values to the specific system requirements.

The following overview shows the default values in the sequence of the main menu for all possible hardware installations.

Menu points	Default value
Global settings	
Name of panel	None
Number of panel	0
Detector addr. mode	Binary
Mains fault eval.	Evaluate
Battery fault eval.	Evaluate
Earth fault eval.	Evaluate
Function modules	Type: is recognized automatically
FM-x: GIF8-1 ¹⁾	
Detection lines	
Zone type	All existing zones: Manual call point zones
Zone number	Function module 1 (ST2): detector zone 1...8 Function module 2 (ST3): detector zone 9...16 (if FM1=GIF) detector zone 1...8 (if FM1 is no GIF)
FM-x: LIF64-1 ¹⁾³⁾	
Detector manufact.	is recognized automatically
FM-x: LIF64-1 ¹⁾³⁾	
Detectors/modules AP	element address: is recognized automatically
Address point type	is recognized automatically
Output type ²⁾	actuation

Zone/element Nr. ²⁾	function module 1 (ST2): zone 9701 / element = address of the detector/module function module 2 (ST3): zone 9702 / element = address of the detector/module
Actuat./element Nr. ²⁾	function module 1 (ST2): actuation 9701 / element = module address function module 2 (ST3): actuation 9702 / element = module address
Loop position	the element address is displayed as preliminary loop position
Interdep. group Nr. ²⁾	0
FM-x: LIF64-1 ¹⁾³⁾ Detectors SYS.SENSOR	element address: is recognized automatically
Address point type	is recognized automatically
Zone/element Nr.	function module 1 (ST2): zone 9701 / element = detector address function module 2 (ST3): zone 9702 / element = detector address
FM-x: LIF64-1 ¹⁾³⁾ Modules SYS.SENSOR	element address: is recognized automatically
Address point type	is recognized automatically
Output type ²⁾	actuation
Zone/element Nr. ²⁾	function module 1 (ST2): zone 9701 / element = address of the module + 500 function module 2 (ST3): zone 9702 / element = address of the module + 500
Actuat./element Nr. ²⁾	function module 1 (ST2): actuation 9701 / element = address of the module + 500 function module 2 (ST3): actuation 9702 / element = address of the module + 500
Loop position	the element address is displayed as preliminary loop position
Interdep. group Nr. ²⁾	0
FM-x: LIF64-1 ¹⁾³⁾ Zones	
Zone type	manual call point zone
FWI1-2	
FBCU country version	free setable
FWI relay outputs	
Relay Nr.: 1	Primary transmitting device
Output type	Transmitting device
Signal type	Continuous signal
FWZ-monitor current	Medium
Transm.dev.number	1
Relay Nr.: 2	Not defined
FBCU country version	free setable
FWI inputs	all inputs: Not defined
FWI oc-outputs	all outputs: Not defined
NTB outputs	
Output 1 ... 16	all outputs: Not defined
Siren output	
Output type	Alarming device
Signal type	Continuous signal
Alarm. device number	1
LAB48-1	all light-emitting diodes: Not defined
Zone settings	
	GIF8-1: No zones- and elementtexts LIF64-1: No zones- and elementtexts

Actuation settings	LIF64-1: No zones- and elementtexts, no combinations
Transm. device set.	
Transm. device: 01	
Text 1	No text parameterized
Text 2	No text parameterized
Type	Transmitting device for fire messages
Combination	None All detector zones parameterized for fire messages activate the transmitting device Nr. 01.
Property	No alarm delay
Reaction time	30 seconds
Alarm delay time	5 minutes
Alarm delay timer	
Enable time	all days: **:*** (=deleted)
Disable time	all days: **:*** (=deleted)
Transm. device: 02, ..., 99	Not parameterized
Alarming device set.	
Alarming device: 01	
Text 1	No text set
Text 2	No text set
Combination	None All detector zones parameterized for fire messages activate the alarming device Nr. 01.
Properties	The activated alarming device can be silenced in authorization level 1 also and will be activated renewedly by sequential alarms once being silenced.
Selection: 02, ..., 99	Not parameterized
Interfaces	
INFO-bus	
Number of devices	0
Baudrate	1200 baud
Serial interface	
Type	Not defined
Baudrate	1200 baud
Printer filter	Print all

- ¹⁾ The presetting is only made if the componentry is installed and therefore recognized during AUTO-setup.
- ²⁾ If apt due to the type of element.
- ³⁾ The AUTO-setup of LIF zones and elements is not supported in the current software version PL149 V4.11.

2.6 Settings print-out

By calling up the menu point [System] - [Print-out] - [Settings print-out] (see User Manual Series BC216 / Part A, description of the menu point [System]) you will start the print-out of the parameterized configuration of the fire detection control panel BC216-1 on the connected printer. All parameters of the control panel will be clearly printed out.

The printer is switched automatically to event print-out - the print-out of all continuously incoming events - after finishing the configuration print-out.



Printer setting information is found from page 36 in Chapter 2.3.11: "Parameter setup of the interfaces - [Interfaces]".

3 Parameter setup by means of PC and software PARSOFT-1

If you have a PC (notebook) at your disposal, you can carry out the parameter setup for the fire detection control panel BC216-1 considerably easier, clearer and faster than is possible with the method using control panel keypad or PC keyboard with the built-in LC-display described in the preceding chapter. With the parameter setup software PARSOFT-1 you can

- ◆ read the set parameter data of a control panel into the PC,
- ◆ change the data on the PC to suit the requirements and
- ◆ load the new data from the PC back into the control panel.

You can further

- ◆ save the data of the control panel on the PC or on independent storage media,
- ◆ create the setup data independently from the control panel on the PC and subsequently load the data in the control panel,
- ◆ copy the setup data of one control panel to another, etc.



The parameter setup software is exclusively designed for rapid and simple parameter setup of the fire detection control panel BC216-1 but not for the operation and remote maintenance of the control panel!

During all activities performed via PARSOFT-1 the fire detection control panel BC216-1 keeps working with the hitherto parameters in the authorization level selected on the control panel unaffectedly from PARSOFT-1. Only after loading a new setup from the PC to the control panel, the control panel performs a restart and subsequently starts to work in authorization level 1 with the new parameters.

The authorization level selected on the fire detection control panel BC216-1 is insignificant for activities performed via PARSOFT-1; you must prove your authorization for changing parameters by entering your installer code via PARSOFT-1. Nevertheless, it is recommended to set the control panel in authorization level 1 before starting to work with PARSOFT-1.



The authorization level on the control panel must not be changed during data transfer from the PC to the control panel or from the control panel to the PC!

3.1 Installation of the parameter setup software PARSOFT-1

You require an IBM-compatible PC with Windows 95/98/NT4.0/2000 as operating system and the following minimum requirements:

- ◆ Processor Pentium or equivalent /100MHz, 32MB RAM,
- ◆ At least 5MB free storage capacity on a hard disk,
- ◆ CD ROM drive,
- ◆ free serial interface with 9-pin connector,
- ◆ keyboard, mouse,
- ◆ optional: printer.

The parameter setup software PARSOFT-1, Art. Nr. 218007 (German/English/Spanish), is supplied on a CD ROM, a version is also available on several 3.5" diskettes on request. The software package is not copy-protected; nevertheless, usage of the programme is subject to the license agreement saved on the CD.

If you are accepting the license agreement, start the installation by entering <CD-ROM-D>:\<Language>\Setup in the Windows input field "Execute", the installation process will then take place automatically (<CD-ROM-D> stands for the drive name of your CD-ROM drive, <Language> stands for the language version: currently, "Deutsch" (German), "English" and "Español" (Spanish) are provided). As default, the programmes will be installed in C:\Programme\Parsoft but you can determine an individual path if you wish.

When starting the programme the first time, you are asked via a dialogue box to enter the CD key which is found on a sticker on the CD cover. At correct entry the key is saved in the system area of the PC and the programme is started.

A serial interface module SIM216-1 must be installed in the fire detection control panel BC216-1, the corresponding interface of the BC216-1 must be set to "PARSOFT" (see from page 36 in Chapter 2.3.11: "Parameter setup of the interfaces - [Interfaces]"). An interface cable as described in User Manual Series BC216 / Part B serves to connect the SIM216-1 with the PC.



If a new software version PL149 of the central processing board ZTB216-1 is to be loaded also it is indispensable that the serial interface module SIM216-1 is plugged to connector ST6 of the ZTB216-1.



Observe the hints for installing and connecting the serial interface modules in the corresponding chapters of this User Manual.

Under no circumstances plug a cable to a serial interface module if it is not tightly secured to the central processing board. A not sufficiently secured module may be moved by an inadvertent pull on the cable which may lead to internal short circuits and, in succession, to considerable damage to the control panel.



At starting the programme it is attempted to open the COM interface set in the menu and to establish contact to the control panel. If this attempt is unsuccessful (wrong COM interface, no control panel connected, or the like) a warning is put out. In this case it is reattempted to open the COM interface and to establish contact to the control panel prior to starting the data transfer from and to the control panel.



You determine the number of the COM interface of the PC used in the menu "Communication" - "Settings", see from page 48 in Chapter 3.2.1.2: "Data transfer - menu point "Communication"". No further configuration of the COM interface (e.g., baud rate, etc.) is required since this has already been established in the programme itself.

The de-installation of the parameter setup software is by means of the Windows system control by calling up settings - system control - software - PARSOFT - remove.

3.2 Functions of the parameter setup software PARSOFT-1

The parameter setup software PARSOFT-1 is started with the usual Window methods (e.g., clicking on Programme - Parsoft - PARSOFT-1). The PARSOFT-1 user surface mainly consists of the four areas:

- ◆ The **menu bar** serves to determine the control panel to be parameterized, for opening and closing files, for connecting to the control panel, etc.
- ◆ The **configuration window (system tree)** shows the tree-like structural arrangement of the parameterized control panel (global parameters, zones, actuations, etc.). The required parameter setup window is opened by clicking on a menu point of the system tree.
- ◆ The **parameter setup window** shows the various parameters of the selected system part. It contains selection lists, numeric and alpha-numeric input fields, click boxes, etc., on one or several pages which can be selected by clicking on tabs.
- ◆ The **information window** provides additional information on the selected system component and for the current input.

On faulty inputs, an error text window is opened in addition which can be closed by confirming with a mouse click.

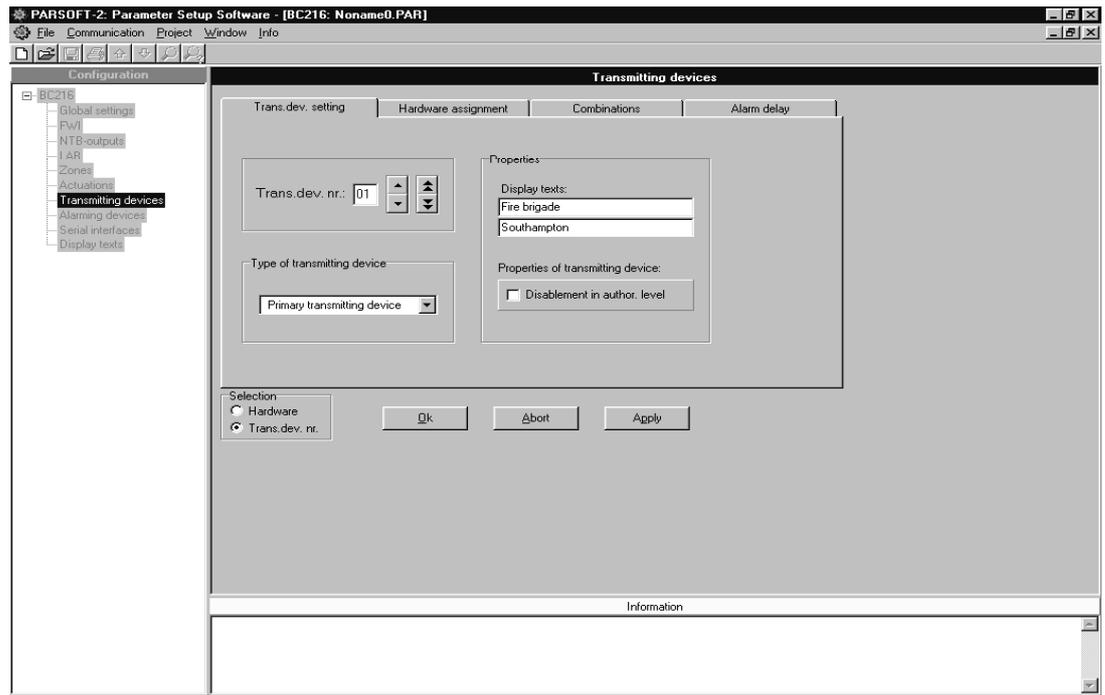


Figure 1: PARSOFT-1 - window

3.2.1 Menu bar

3.2.1.1 File management - menu point [File]

The configuration of a fire detection control panel BC216-1 is filed in the PC as configuration file (the file name has the extension ".par"). All parameters of the control panel relevant for the function of the system are stored in this configuration file. The parameter setup software PARSOFT-1 is used to generate the configuration files (e.g., loaded from a parameterized fire detection control panel BC216-1, copied from an existing configuration file or newly created on the PC), edit the data on the PC and to copy the result back to the fire detection control panel BC216-1 (or to save as a file).

- ◆ **Creating new configuration file** - "New configuration...".

Here you select the control panel type and the version number of the operating software of the control panel. The standard configuration (see from page 37 in Chapter 2.3.12: "Automatic setup of the System configuration - [AUTO-setup]") is created automatically, however without taking into account function modules.

You can change this standard configuration as required or overwrite with the parameter setup data of another control panel (see from page 48 in Chapter 3.2.1.2: "Data transfer - menu point "Communication").

- ◆ **Open configuration file** - "Open..."

You select an existing configuration file (file extension ".par") and open it for further processing. Before opening a configuration file you display an info-field with the project name, the referee and notes on the monitor by clicking the file in the "Open"-window (see from page 49 in Chapter 3.2.1.3: "Check settings and project information - menu point "Project").



If you create a link between files with the extension ".par" and the programme PARSOFT.EXE on the Windows-operating system of your PC, you can start the parameter setup software by double-clicking a configuration file.

Configuration files generated with earlier versions of the parameter setup software can be converted to the latest level (see further below).

- ◆ **Close configuration file** - "Close"

The open configuration file is closed, preceded by the query whether the file should be saved prior to closing.

- ◆ **Save configuration file** - "Save", "Save as..."

The open configuration file is saved on the PC. Before saving, the file is checked for formal correctness, detected errors will be indicated. The file can also be saved if the configuration itself is incomplete or faulty.



A faulty file cannot be copied to a control panel.

- ◆ **Convert** - "Convert"

The parameter file opened or downloaded from the control panel is adjusted to the latest software version of the fire detection control panel.



Before you load the converted data into the control panel, you have to update the software of the fire detection control panel to the latest edition. The hardware of the control panel must be compatible to the software, otherwise the control panel will not work correctly. Contact the deliverer of the control panel in case of doubt!

The conversion is made as follows:

- load the existing (old) configuration into the PC and subsequently convert it,
- update the software of the control panel (see also from page 56 in Chapter 4.1.6: "Loading a new software version PL149"),
- load the converted configuration back in the control panel.

Reconverting into the old data format is not possible. If necessary, create a safety copy of the old settings on the PC before starting conversion.

If the file was created for the latest software version or was already converted to the latest edition, this menu point is greyed.

- ◆ **Print** - "Print..."

The open configuration file is printed out on the optional printer, selected in the menu point "Printer setup..."

- ◆ **Printer setup** - "Printer setup..."

A printer is selected and set up with the usual Windows methods.

- ◆ **Print in file** - "Print in file ..."

The opened configuration file is saved on the PC as ASCII-file. The file name is selected by means of common Windows methods. Subsequently the file can be opened for viewing with a suitable ASCII editor or by confirming the dialogue box "Shall the file be opened?".

- ◆ **Exit** - "Exit"

You exit the parameter setup programme PARSOFT-1. If necessary it is queried if the file should be saved.

3.2.1.2 Data transfer - menu point "Communication"

The setup data is transferred from and to the fire detection control panel by way of a serial interface. The baud rate is fixed to 38400 baud (with software versions older than V4.06 a baud rate of 57600 baud is used, which PARSOFT-1 automatically recognizes and considers).

With the start of PARSOFT-1 the first connection establishment is executed. If this connection establishment was unsuccessful it is renewedly tried to open the COM interface and to establish connection prior to reading or writing the configuration (see from page 45 in Chapter 3.1: "Installation of the parameter setup software PARSOFT-1").



Due to reasons of safety the installer code is queried before transferring data from and to the control panel. The input of the manufacturer code of the day instead of the installer code is also possible if using PARSOFT-1/version V1.06 or newer (see from page 57 in Chapter 4.2.1: "Lost installer code"). If you have lost the installer code and you are using an older PARSOFT version you have to enter a new installer code on the control panel by using the code number of the day before you can execute the data transfer with PARSOFT-1.

- ◆ **Updating the software of the control panel - "Software update..."**

A new version of the central processing board software PL149 can be installed in the control panel via this menu point. Notice that the whole existing setup of the control panel thereby can be deleted and reset to initial values (if this is the case, a dialogue box will indicate that). If necessary, load the setup on your PC before transmitting the new software to the control panel, see also from page 56 in Chapter 4.1.6: "Loading a new software version PL149".

- ◆ **Loading configuration back into the control panel - "PC → BC216 "**

A created configuration is loaded back in the control panel by clicking this menu point. It is automatically checked if the configuration just generated is compatible with the software version of the control panel and if it is formally correct. Possible faults will be shown by means of the dialogue box and can be partly corrected immediately.

If the parameter setup of the control panel was changed, the fire detection control panel BC216-1 will restart after conclusion of the loading process.

- ◆ **Reading configuration from the control panel - "BC216 → PC "**

The entire control panel configuration is read out and can be saved on the hard disk of the PC. The parameter setup software checks before if the software version of the control panel is compatible to the selected system configuration.



You cannot perform an AUTO-setup of the control panel by using PARSOFT-1. If you wish to base the work with PARSOFT-1 on the parameters of an auto-setup control panel, you will have to perform the AUTO-setup first on the control panel itself (see from page 37 in Chapter 2.3.12: "Automatic setup of the System configuration - [AUTO-setup]") and subsequently transfer the resulting configuration from the control panel to the PC.



With the exception of the summer/wintertime data, the system settings (see User Manual Series BC216 / Part A) cannot be set via PARSOFT-1.

- ◆ **Reading out the event memory of the control panel - "Event memory → PC"**

The entire contents of the event memory of the control panel is read out and can be saved in an ASCII file with fixed column division without separating characters on the PC. The data can be read with ASCII-text programmes, (e.g., Notepad) or transferred to standard programmes (e.g., dBase, etc..) and further processed.

- ◆ **Resetting the event counter - "Special functions - resetting event counter"**

The event counter (alarm counter) is reset to 0. This menu point is furnished in order to reset a control panel, which has been subject to extensive test alarms (e.g., on the occasion of staff training by the installer) prior to the delivery to the customer.

This menu point is only accessible for especially authorized companies.

- ◆ **Deleting the event memory - "Special functions - delete event memory"**

The content of the event memory is deleted. This process cannot be undone!

This menu point is only accessible for especially authorized companies.

- ◆ **Setting COM interface number - "Settings..."**

Here you set the number of the COM interface of the PC.



This setting must be made before you start with the data transfers between PC and fire detection control panel!

3.2.1.3 Check settings and project information - menu point "Project"

You can check the created setup data on formal errors and enter project specific information in this menu.

- ◆ **Check setup and create error file - "Check setup"**

The control panel setup is checked on formal errors. Eventually existing errors are entered in a file (file name: <Parameter file name>.err); successively, the file is opened for viewing.

- ◆ **Check setup and correct interactively - "Interactive error correction"**

The control panel setup is checked on formal errors. Eventually existing errors are entered in a file (file name: <Parameter file name>.err). A dialogue box providing instant correction possibility is opened in some cases. Successively, the file is opened for viewing.

- ◆ **Project information** - "Data..."

In this menu point you enter the project name (50 characters), the referee (50 characters) and informal notes (200 characters). This information supports you when selecting a parameter file in the "Open"-window.

3.2.1.4 Arrange windows - menu point "Window"

In this menu point you can arrange several opened files on the monitor.

3.2.1.5 Information - menu point "Info"

This menu point contains information on the parameter setup software.



Please pay attention to the information and hints given in the User Manual Series BC216 / Part A and B.

3.2.2 Configuration window (system tree)

The system tree is dynamically generated on the basis of the parameterized hardware units. The applicable parameter setup window is opened by clicking on a menu point. The system tree has a grey background with the parameter setup window open. While the open window has not been closed with "OK" or "Cancel", no new window can be opened by clicking on the system tree.

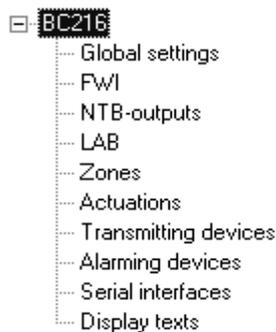


Figure 2: Example of a system tree

3.2.3 Parameter setup windows

The parameter setup windows serve for the actual parameter setup of the system, they are opened by clicking on the appropriate menu point in the system tree. The parameter setup windows contain all input and selection elements required for parameter setup. The parameter setup windows themselves are partly divided into index cards, which can be selected by clicking on the tabs.

Each parameter setup window has the buttons

- ◆ 'OK' - to check and apply the parameters of that window and close the window - and
- ◆ 'Cancel' - when this button is pressed, all entries will be rejected and the window closed.

In certain cases, the buttons

- ◆ Apply - the data is checked and applied similar to "OK" but the window stays open for similar types of entries - and
- ◆ Default values - the data is reset to default values (corresponding to the delivery status of the control panel) -

are available in addition.

In some parameter setup windows, the appropriate parameter setup window is selected automatically when selecting a certain hardware unit. For instance, when selecting the output type "Actuation" in the "NTB outputs" window, the system branches directly into the parameter setup window "Actuations". After pressing "Cancel" or "OK" the original window will be displayed again.

Some of the entered parameters will be checked immediately on entry, others on applying the data by clicking "OK" or "Apply".



An overview window containing all settable units (zones, actuations, etc.) can be opened with some selection fields (selection of a logic number of a zone, actuation, transmitting device, alarming device or of a zone element) by clicking the field with the right mouse button. The belonging number is directly entered in the selection field by clicking the desired entry.

A selection of the NTB outputs, FWI oc-outputs and FWI inputs is possible similarly in the corresponding window by clicking the field "Hardware assignment", which surrounds the selection field, with the right mouse button.

The permissible parameters are thoroughly described from page 7 in Chapter 2: "Parameter setup by means of control panel keypad" and in the sub-chapters included in that chapter, please note the information and warning hints mentioned in these chapters when setting the parameters.

3.2.4 Information window

Information texts on the chosen system part or concerning the momentarily selected entry are shown in the information window.

3.3 Typical parameter setup process with PARSOFT-1

- ◆ Connect your PC with the serial interface module SIM216-1 of the control panel.



You can also set the parameters of a SIM216-1 used in the control panel for connecting a printer for this purpose - do not forget to change the parameters of the serial interface back for the printer after completing the job.

- ◆ Start PARSOFT-1 on the PC (Programmes - Parsoft - PARSOFT-1)
- ◆ Create either a new configuration file ("File - New configuration...") or open an already existing configuration file ("File - Open").
- ◆ Set the COM interface of the PC to the required value ("Communication - Settings...").
- ◆ In both the above cases you can now - if required - transfer the existing configuration of the control panel to your PC ("Communication - BC216 → PC"). Notice that setup data currently on the PC are thereby overwritten by data of the control panel.
- ◆ Edit the configuration files to suit the requirements and,
- ◆ subsequently, save the data in a file ("File - Save" or "File - Save as...").
- ◆ Copy the setup data from the PC to the control panel ("Communication - PC → BC216").
- ◆ Disconnect the connection between PC and SIM216-1, remove the SIM216-1 again from the control panel if applicable.
- ◆ Set the parameters of the interface from PARSOFT-1 to the initial setting or to "Not defined".
- ◆ Carefully check all functions of the fire detection control panel. Do not limit this check to the parameters just modified - you may have also influenced other functions mistakenly!

4 Maintenance, reconditioning

This chapter includes only hints on maintenance and reconditioning for the fire detection control panel BC216-1, it does not provide any instructions for the expert maintenance or repair of an installed fire detection system.

This chapter of the manual does not replace the training of a specialist installer by LST or its authorized representative for proper planning, installation, commissioning, maintenance and repair for a fire detection system established with the fire detection control panel BC216-1.

4.1 Maintenance

With the exception of the stand-by batteries, no components with limited functioning period as a result of wear are installed in the fire detection control panel. The maintenance of the fire detection control panel itself is therefore mainly limited to checks of external damage (e.g., the key pad), a check of the emergency power supply and an extensive function check.



Reliably prevent that an undesirable activation of one of the transmitting devices or an actuation results through one of the function tests during the maintenance! Under certain conditions you may be liable for the damages resulting from this!



Inform the user of the fire detection system that the fire detection system as a whole or in part is not operational during the maintenance work!

4.1.1 Checking the final charge voltage

With the stand-by batteries charged and the mains voltage connected, the charge voltage of the stand-by batteries must be between 26.0 and 29.0V depending on the temperature.

A voltage value below 26V with connected mains voltage is only permissible if the stand-by batteries are recharged after having been discharged. In this case check if the charge current is flowing.

If the voltage of the stand-by batteries drops below 21V in operation during main power failure, the stand-by batteries will be disconnected from the control panel to prevent total discharge. Once the mains voltage returns, the stand-by battery charging is started automatically. However, if the voltage of the stand-by battery drops below approximately 16V (e.g., with a defective battery), charging is no longer started automatically.

Check to see if the charge voltage of the two series-connected 12V-stand-by batteries is identical.

4.1.2 Checking the stand-by batteries

The useful life of the stand-by batteries employed is specified by the battery manufacturer. The usual stand-by batteries have an useful life of approximately 4 years, but stand-by batteries with considerably longer period of usage are available on the market (up to 10 years according to manufacturer's specifications).



Ensure that the replaced stand-by batteries are properly disposed of. The batteries are based on a lead and sulphuric acid basis, such a battery must not enter the domestic waste under any circumstances!



Clearly mark the newly installed stand-by batteries with an expiry date, corresponding to the useful life specified by the manufacturer, taking into account a certain safety factor.

An exact check of the stand-by batteries requires much time and is only possible in cooperation with the respective manufacturing company. A rough estimate of the battery condition, however, is possible through a brief load test with high load (e.g., with a load that would result in total discharge in 5...10 hours). To do so it is essential to disconnect the stand-by batteries from the control panel! Disconnect the series-connected batteries and test each battery separately.



The clock installed in the control panel has a running reserve of a few minutes. If you have completely de-energised the control panel, the clock must be reset once the power has been switched on again.



The single batteries must be of the same type; under no circumstances may 12V batteries with different capacities be connected in series.



The expected usable life and the age of the series connected 12V batteries ought to be identical. Equal charging of the batteries is to be expected then only. Therefore it is highly recommended to change both batteries at a time if one 12V battery has to be changed due to a defect.

4.1.3 Earth leakage monitoring

The fire detection control panel BC216-1 continuously monitors the cabling of the entire fire detection system for earth leakage. However, if this check has been switched off during commissioning because system parts must be continuously connected to the earth potential for company reasons (e.g., with intrinsically safe circuits), an additionally faulty earth leakage cannot be detected automatically by the control panel.

As part of the maintenance in such cases, you should disconnect the circuits connected with the earth potential from the control panel and temporarily re-enable the earth leakage monitoring function on the control panel (see from page 10 in Chapter 2.3.1: "Parameter setup of the global settings of the control panel - [Global settings]"). In this way you check if the remaining cabling of the fire detection system is free of earth leakages. Subsequently set the parameters to remove the earth leakage monitoring once again and reconnect the disconnected circuits to the control panel.



You may never separate the connection of intrinsically safe circuits with the earth potential (e.g., the equipotential busbar)! Sparks may be generated thereby whose energy is sufficient for ignition and, in succession, for starting an explosion in the intrinsically safe area!

4.1.4 Function check

During control panel maintenance, carry out a function check

- ◆ of the displaying installations (light-emitting diodes, LC-display, buzzer) with the function "Display test",
- ◆ of all keypad buttons,
- ◆ of all inputs (detector zones, fire brigade interface, etc.),
- ◆ of all outputs (fire brigade interface, auxiliary outputs of the NTB216-1, actuations, transmitting devices, alarming devices, etc.)



You must prevent undesired activations of extinguishing systems or other actuations, unannounced activations of transmitting devices or unannounced activations of alarming devices to occur by carrying out the function checks! Before starting the function checks, contact the person responsible for the fire alarm system (e.g., fire prevention officer, safety officer, etc.) in order for him to make the required mechanical or electrical switch-offs and to inform the concerned persons of the test alarm on time. Before the test activation of a transmitting device you have to inform the concerned designated alarm respondents (e.g., the fire brigade) about the imminent activation.

- ◆ of the devices connected to the INFO bus (fire brigade control unit, etc.) and
- ◆ of other peripheral devices (e.g., printer).

4.1.5 Maintenance support for loop elements

Intelligent loop technique allows to make exact statements on the condition of the ADM- and ADMPRO-elements (detectors and modules) applied on the loop. This information on the condition provides the basis for a selective and efficient maintenance of the elements. Following information is available on the LC-display or on a connected printer for the maintenance technician:

- ◆ the parameterized detector or module type (only on the printer)

- ◆ the current measured value
- ◆ the 6 month long-term drift (only on the printer)
- ◆ the alarm threshold adjusted corresponding to the long-term drift (only on the printer)
- ◆ the measured value which the detector or the module presumably will be having in 12 month's time at constant ambient conditions (only on the printer)
- ◆ a maintenance recommendation on how many months the detector will presumably be fully operational without maintenance.

The measured values of the detectors and modules, the upper and lower fault threshold and the alarm threshold are dependent on the detector brand and the detector type. The values of the most important detectors supported by the control panel are listed in below table.

Detector condition	Apollo	System Sensor
Detector defective, removed or short circuit in the loop line	0	0
Detector defective	1 - 7	1 - 32
Detector in normal range	8 - 45	33 - 112
Dirtiness threshold	45	112
Alarm threshold of a new detector	55	I-detector: 150 O-detector: 200 T-detector: 166

Table 4: Survey of the measured values of detectors at various operating conditions

4.1.5.1 Maintenance support on the LC-display

By calling up the menu point [Zone:] and successively entering the zone number, the element number and selecting the function "Measured val./Maint.", the current measured value and the maintenance recommendation are displayed on the LC-display for the selected detector. For further information see User Manual Series BC216 / Part A, "Operating single elements of detector zones".

4.1.5.2 Maintenance support on the printer

By calling up the menu point [System] - [Print-out] - [Meas. print-out zone] and entering the desired area, printer filter and the repeat interval you start the print-out of the measured values of the intelligent detectors connected to the Loop interfaces LIF64-1 (see User Manual Series BC216 / Part A, description of the menu point [System]).



You find information on printer settings from page 36 in Chapter 2.3.11: "Parameter setup of the interfaces - [Interfaces]".

```

*****
02.03.2001 14:21 Measurement zone 0001/013 - 0001/015
                Filter: Print all
*****

Zone/el. TYPE  09.00 10.00 11.00 12.00 01.01 02.01 ACT.  A-VAL 03.02  MAINT
0001/013 O-S   65   66   65   67   67   68   69   200   75  >>12
0001/014 O-S   94  103  102  104  108  109  114  205  123  <00>
      Element dirty
0001/015 O-S   77   81   83   88   92   96  102  202  118  >=04
    
```

Figure 3 Printing example of a detector measured value print-out
 Following information is printed for every detector (from left to right):
 - the detector type (see following table)
 - the past 6 month's mean values,
 - the actual measured value,
 - the alarm threshold value of the detector, valid at the time of printing,
 - the expected measured value in one year's time and

- the maintenance calculation, i.e., for how many months the detector will presumably be working in normal range (<00> means: replace immediately)

Type abbreviation	Detector and module type
MCP	Manual call point
CM	Conventional detector module
I	Ionisation detector
LA1	Laser detector level 1
LA5	Laser detector level 5
LA9	Laser detector level 9
BEA	Beam detector
MD	Multisensor Discovery
O	Optical detector
OT	Optical-thermal detector
CMN	Control module with relay contact
CMS	Control module with supervision
CM	Control module
CMN	Control module without supervision
DT	Rate-of-rise temperature detector
MT	Maximum temperature detector
MM	Monitor module
MCP	Monitor module manual call point
MMM	Monitor module mini
MMS	Monitor module for special detectors

Table 5: Explanation of the type abbreviations used in the measured value print-out
The abbreviation of the detector manufacturer (A = Apollo, S = System Sensor) is appended in the print-out.

The measured values of control modules (which are used for actuations and alarming devices) of a loop can be put out in the same way (menu points [Meas. print-out act.] and [Meas. print-out al.d]). The maintenance calculation is insignificant with these elements (as with monitor modules and manual call points), the measured value of these elements should be constant for its entire life time.

4.1.5.3 Replacement of an ADM- or ADMPRO-detector

The individual measured values of the past 6 months and the thereby calculated alarm threshold are saved in the control panel for every installed ADM- and ADMPRO-detector. If you replace a faulty or dirty detector with a new detector, the mean values and the alarm threshold are adjusted to the new condition relatively fast (i.e., within a few weeks).



Principally refrain from exchanging installed detectors in a system. Every detector is identified by the control panel by its set physical address; measured values are assigned and saved to this address. If you exchange the physical addresses of two detectors and re-insert them in the base, the control panel continues to work with these detectors with the historical data of the other detector, respectively! Therefore it is possible for the next maintenance recommendation to provide values of only limited sense.



When replacing a defective or dirty detector with a new detector, it is indispensable to set the same physical address on the new detector which was set on the replaced detector!

4.1.6 Loading a new software version PL149

The control panel software PL149 is constantly further developed and adjusted to the progress of the fire detection technology and to changed requirements due to modifications of standards and regulations. Upgrading the fire detection control panel BC216-1 to a new software version is effected by loading the new software from a PC by means of PARSOFT-1.



A basic precondition for applying a new software version is also that the existing hardware of the fire detection control panel, especially the central processing board ZTB216-1 must be compatible to the new software version! Contact the deliverer of the control panel in case of doubt!

Consider that due to continuous development of the software and therefore resulting modifications of the structure of the setup data, the structure of the setup data of your control panel need not correspond to the requirements of a new software version. Therefore you should adapt the existing setup data to the structure of the new software version by using PARSOFT-1 before loading a new software version and before saving the new software version into the control panel (see from page 45 in Chapter 3: "Parameter setup by means of PC and software PARSOFT-1").



If the setup data already available in the control panel not compatible in its structure with the newly loaded software version, the setup data is reset to initial values and appropriate error messages will be put out by the control panel upon restart.



Requirements on the BC216-1: A serial interface module SIM216-1 must be connected to ST6, see User Manual Series BC216 / Part B. The baud rate is automatically set to 38400 baud for loading by the ZTB216-1 and subsequently reset automatically to the previously set value. The serial interface must not necessarily be parameterized to [PARSOFT].

The new software version is loaded in the following steps:

- ◆ Connect the COM interface of the PC with the serial cable (see User Manual Series BC216 / Part B) to the serial interface SIM216-1 which is plugged to connector ST6 of the ZTB216-1.



Loading a new software version can be executed exclusively via interface 1 which is available on connector ST6 of the ZTB216-1!

- ◆ On the PC, start the programme PARSOFT-1 and either open an existing parameter file or, for reasons of formality, create a new parameter file (menu [File] - [New System...]). Thereby the menu [Communication], which is needed for the loading procedure, becomes available.
- ◆ Select the HEX-file to be loaded via the dialogue box in the menu [Communication] - [Software update...] but do not yet confirm the selection.
- ◆ Set the short circuit connector JP1 on the central processing board ZTB216-1 (i.e. connect the two pins of the JP1, see following figure) then press the reset button of the ZTB216-1.

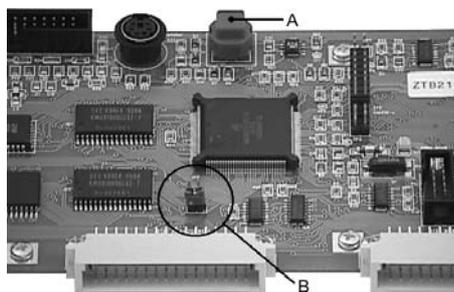


Figure 4: Position of the short circuit connector JP1 and the RESET button on the central processing board ZTB216-1

A ... RESET button

B ... Short-circuit connector JP1

- ◆ In PARSOFT-1, confirm the dialogue box by clicking "OK" to start the loading process. This process may take a few minutes. At the end of the loading process, a dialogue box appears for confirmation of the settings.

- ◆ Reset the short circuit connector JP1 on the ZTB216-1 to the original position (i.e. separate the two pins of the JP1 and connect the connector with only one of the two pins for safe-keeping) then press the RESET button of the ZTB216-1. The control panel performs a restart, the loading process of the new software version is concluded.



During the processes described above the fire detection control panel BC216-1 is in an operating condition similar to that during system fault (see User Manual Series BC216 / Part A), i.e. alarm messages can be received by the function modules and passed on to the primary alarming device and the primary transmitting device. In order to avoid undesired alarms it is indispensable to shut down the connected detector zones while loading a new software version (e.g., by disconnecting the corresponding function modules).



The internal clock of the control panel is stopped during the loading procedure. Therefore you must set the time newly after completing the loading procedure.

4.2 Reconditioning

A multitude of checks is continuously performed internally by the fire detection control panel BC216-1 and reported on the LC-display by using text and acoustically by using the internal buzzer. Detailed additional information on any fault occurred can be called up for each fault by means of the 'INFO'-button. This information is generally sufficient for the trained specialist installer to rapidly correct the fault.



"Fault" means a fault in the installed fire detection system, but not the activation of a fault detector.

4.2.1 Lost installer code

It is not possible to read out an installer code from the control panel. Once the installer code saved in the control panel has been lost, access to authorisation level 3 can only be gained with the help of the manufacturer of the control panel or his national representative.

For this you have to press the '↑'-button in the menu point [Authorization code:] (i.e. in authorisation level 1). The following appears on the LC-display for 5 seconds:

- ◆ in the first line the date and the time,
- ◆ in the second line the word "Key number:" and
- ◆ in the third line a 5-digit random figure, the key number.

The indicated date and key number must be given to the manufacturer or his representative who will determine a code number of the day from these two pieces of information. You then enter this code number of the day as installer code, by this automatically delete the forgotten installer code and, as first additional step, you have to establish a new installer code (see User Manual Series BC216 / Part A).



The code number of the day is only valid as entry code of this control panel on the day displayed on the control panel LC-display when reading out the key number.

5 Index

- Actuation
 - combination, 31
 - parameter setup, 31
 - text, 31
 - type, 31
- Address
 - logic, 12
 - physical, 12
- Address module coding, 10
- Alarming device
 - combination, 34
 - parameter setup, 34
 - primary, 35
 - text, 34
- Auto setup
 - standard parameter setup, 42
- Auxiliary outputs
 - parameter setup, 27
- Battery fault, 10
- Combinations
 - description, 37
 - examples, 41
 - parameter setup, 40
- Control panel name, 10
- Control panel number, 10
- Conventional detector interface
 - GIF8-1
 - parameter setup, 12
- Detector replacement, 55
- Detector zone
 - parameter setup, 29
 - text lines, 29
- Earth leakage
 - function impairing, 11
 - parameter setup, 10
 - test, 53
- Edit, 9
- Element text, 29, 31
- Event counter
 - reset, 49
- Event memory
 - delete, 49
 - read-out, 49
- Fire brigade interface additional board FWZ2-1
 - supervising current, 22
- Fire brigade interface FWI2-1
 - inputs, 24
 - national version, 22, 23
 - oc-outputs, 26
 - parameter setup, 21
 - relay outputs, 22, 26
 - supervising current, 22
- Function module
 - parameter setup, 12
- INFO bus, 36
- Installation
 - important hints, 5
- Installer code, 7
 - code number of the day, 57
 - lost, 57
 - PARSOFT-1, 48
 - wrong entry, 7
- Interdependence of two detectors, 14
- Interface
 - parameter setup, 36
- LED-display field LAB48-1
 - parameter setup, 28
- Loop interface LIF64-1
 - parameter setup, 13
- Loop position number, 12
- Mains fault, 10
- Maintenance
 - detectors, 53
- Measured value
 - display, 54
 - print, 54
 - survey, 54
- Parameter setup, 9
 - alarm condition, 8
 - basic method, 18
 - by means of panel keypad, 7
 - combinations, 19
 - end, 7
 - message texts, 19
 - record, 7
 - repeat, 7
- Parameter setup software, 45
- PARSOFT-1, 45
 - convert data, 48
 - data transfer, 48
 - de-installation, 46
 - file management, 47
 - functions, 46
 - installation, 45
 - print file, 48
- PC keyboard
 - function keys, 8
 - key assignment, 8
- Position number, 12
- Printer
 - measured value, 54
- Restart, 37, 57
- Setup
 - initial values, 56
 - print, 44
- Siren output
 - parameter setup, 27
- Software
 - load new version, 56
- Stand-by battery
 - disposal, 52
 - voltage test, 52
- System configuration
 - determine, 37
- System parameter setup, 9
- Transmitting device
 - combination, 32
 - parameter setup, 32
 - primary, 32
 - text, 32
 - type, 32
- Zone text, 29

BCnet Sectional Control Panel Extension BCE216-3LG

User Manual

Assembly - Connection - Commissioning

Contents

1	Introduction	3
1.1	General	3
1.2	Scope of delivery	3
2	Installation in a BCnet Sectional Control Panel BC216-2 or BC216-3	4
3	Connection	6
3.1	Connection of the 24V supply and the loop cables	6
3.2	Connection of the GSSnet line	7
3.2.1	GSSnet line for a BCnet Sectional Control Panel BC216-2 with installed BCnet Sectional Control Panel Extension BCE216-3LG	7
3.2.2	GSSnet lines for a BCnet Sectional Control Panel BC216-2 or BC216-3 with in- stalled BCnet Sectional Control Panel Extension BCE216-3LG, which is embed- ded in a Fire Detection Control Panel BCnet216	7
3.3	Connection of the BCnet redundant alarm line	8
4	Commissioning	9
4.1	Firmware version	9
4.2	Parameter setup	9
4.3	Status displays	10
5	Specifications	11

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1 Introduction

The BCnet Sectional Control Panel Extension BCE216-3LG is designed as a compact processing unit capable of managing 2 loops with System Sensor/500 or Apollo/Discovery protocol. The implementation in a Fire Detection Control Panel BCnet216 is made with the installation of the Extension in a BCnet Sectional Control Panel BC216-2 or BC216-3 and its connection to the GSSnet wiring via the GSSnet interface embedded on the Extension.

The 24V supply of the BCnet Sectional Control Panel Extension is taken over by the respective BCnet Sectional Control Panel in which it has been installed; the Extension has no power supply unit or battery charging unit of its own.

1.1 General

The present User Manual of the BCnet Sectional Control Panel Extension is to be regarded as an addition to the User Manual Series BC216 / Part B. It provides the competent installer with the additional information necessary for the installation of the Extension in a BCnet Sectional Control Panel BC216-2 or BC216-3 and for the connection to the BCnet Sectional Control Panel and to the GSSnet wiring.

The determinations, remarks and explanations stated in the User Manuals of Series BC216 as well as in the User Manual PARSOFT-2 will not be repeated in the present document! It is therefore indispensable that you familiarize yourself with the contents of these manuals before starting installation, connection and commissioning jobs.

1.2 Scope of delivery

The BCnet Sectional Control Panel Extension BCE216-3LG consists of the following parts:

- ◆ Loop Gateway Board BCB216-3LG pre-mounted on carrier plate,
- ◆ 24VDC connection cable,
- ◆ 4-pole cable for the GSSnet connection of the Extension with the GSSnet terminals of the Network Interface NIF5-1 of a BCnet Sectional Control Panel BC216-2 or BC216-3,
- ◆ hexagon swiveling bolts and further assembly material.

The extension is supplied 100% function-tested. Please check the delivery for completeness and transport damage before installing the equipment.

2 Installation in a BCnet Sectional Control Panel BC216-2 or BC216-3

All installation work must only be carried out with the respective BCnet Sectional Control Panel in the de-energized state. Mains power must be switched off and locked to prevent switching on and the standby batteries must be disconnected.



Attention with MOS components! The MOS components employed in the device can be destroyed by static loads with the device opened. Prior to and during the work carried out on the printed circuit boards it is necessary to reliably discharge static charges of the body by contacting an earth-connected metallic part (e.g., the earth-connected Control Panel case).

- ◆ Remove the case cover according to the instructions in User Manual Series BC216 / Part B.

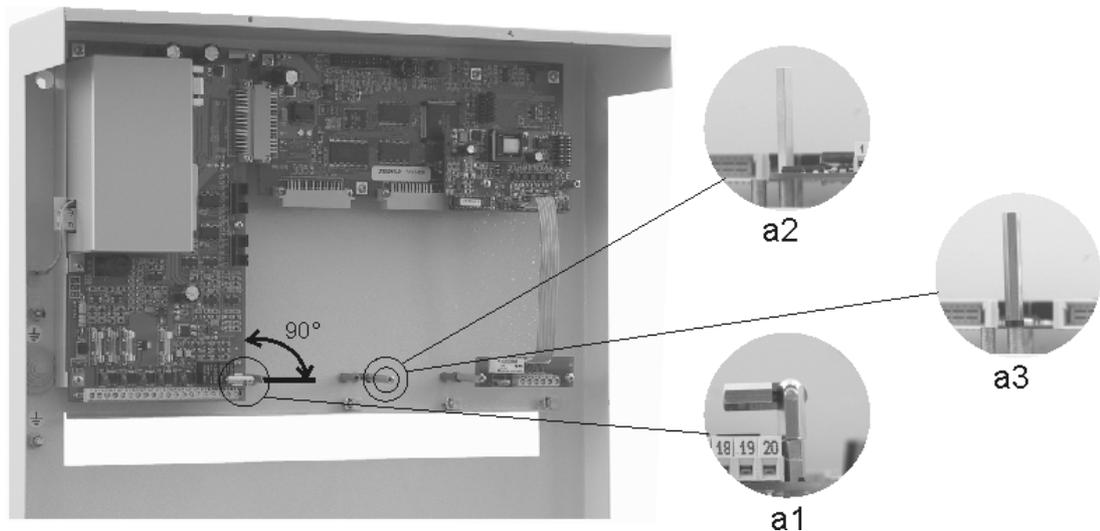


Figure 1: Mounting bolts for the installation of the BCnet Sectional Control Panel Extension BCE216-3LG in a BCnet Sectional Control Panel BC216-2 or BC216-3.

a1 ... hexagon swiveling bolt screwed on hexagon lengthening bolt

a2 ... hexagon bolt

a3 ... hexagon bolt with plastic washer

Further explanations: see the text below.

- ◆ Remove (and keep for later use) both M3 screws on the right upper and right lower edge of the Power Unit NTB216-1 and install the supplied hexagon swiveling bolts with the lengthening bolts underneath instead (figure 1/a1). You have to fasten the bolts so tight that
 - the Power Unit is fixed sufficiently and
 - in swiveled state, the swiveling part of the hexagon bolts form a right angle with the right edge line of the Power Unit.
- ◆ Remove (and keep for later use) the remaining M3 screws, which have to be replaced with hexagon bolts (see figure 2/B), and install the supplied hexagon bolts instead. If no printed circuit board has been installed on the place where a hexagon bolt has to be screwed, you have to insert one of the supplied plastic washers underneath the hexagon bolt for level compensation (see figure 1/a3).

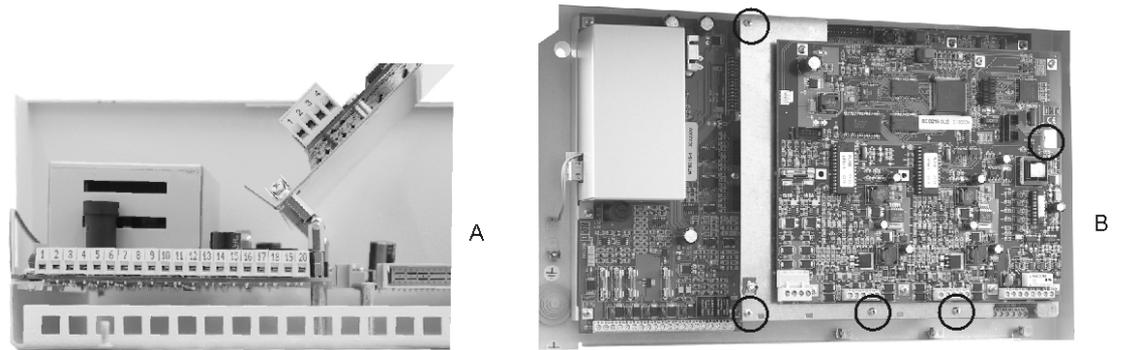


Figure 2: Installation of the BCnet Sectional Control Panel Extension BCE216-3LG
A ... carrier plate with Loop Gateway Board assembled on the swiveling parts of the hexagon swiveling bolts
B ... carrier plate fixed with five M3 screws (indicated as circles)

- ◆ Assemble the carrier plate together with the Loop Gateway Board with the M3 screws removed beforehand (figure 2/A) on both hexagon swiveling bolts (figure 1/a1). Check the smooth working of the swiveling construction; if necessary, slightly readjust the hexagon bolts.
- ◆ Fix the carrier plate with the remaining M3 screws according to figure 2/B.
- ◆ Proceed now with all necessary connection jobs (see from page 6 in Chapter 3: "Connection" and from page 9 in Chapter 4: "Commissioning"), but keep the mains power switched off and the standby batteries disconnected until all connection jobs have been finished and examined.
- ◆ Close the Control Panel case according to the instructions in User Manual Series BC216 / Part B.



It is indispensable for the case of the Control Panel to be earthed in operation! For this purpose connect the Control Panel case with the equipotential busbar connection of the local electrical installation. Ensure that protective earth is connected to the earth connection terminal on the bottom part of the case.

3 Connection

This chapter generally describes the connection of the usual components of a fire detection system to the BCnet Sectional Control Panel Extension BCE216-3LG.



Observe the notes stated in the chapter "Connection" of User Manual Series BC216 / Part B! All connection jobs must only be carried out with the respective BCnet Sectional Control Panel in the de-energized state. Mains power must be switched off and locked to prevent switching on and the stand-by batteries must be disconnected.



The cabling of all connections of the BCnet Sectional Control Panel Extension must be carried out so that swiveling of the Extension is also possible with all cables connected. Form a slackness loop with the connection cables on the point of rotation of the Extension BCE216-3LG and fix all cables with cable binders.

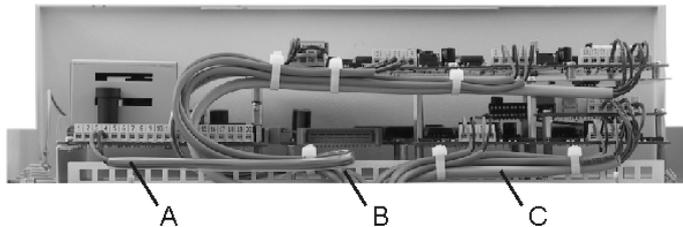


Figure 3: Position of the connection cables and the slackness loop

A ... power supply cable

B ... loop cables

C ... GSSnet cable

The printed circuit board position of the fuses, connectors, light emitting diodes and other devices mentioned in the following connection schemes are indicated from page 10 in Chapter 4.3: "Status displays".

3.1 Connection of the 24V supply and the loop cables

The connection cable needed for the connection of the 24V supply is delivered with the BCnet Sectional Control Panel Extension BCE216-3LG. Use the red wires for the positive voltage connection and the black wires for earth.

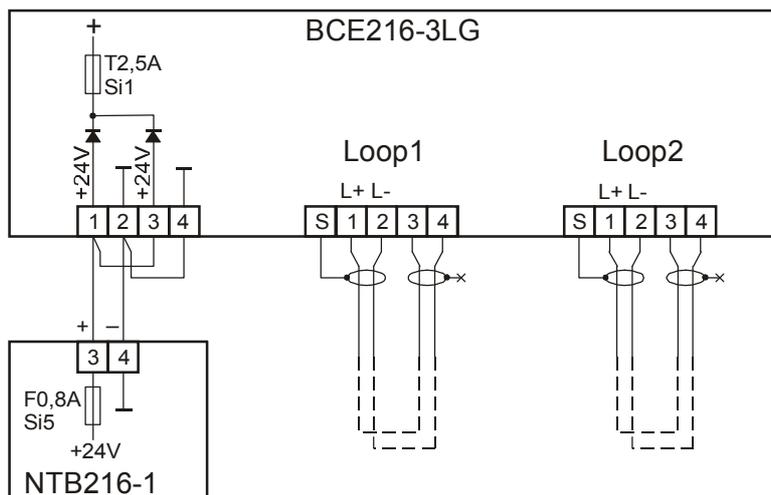


Figure 4: Connection of the 24V supply and the loop cables
terminal 1 + 2 of the loop connections: loop start
terminal 3 + 4 of the loop connections: loop end

If only one of both loops of the Extension shall be used, the respective terminals of the second loop remain unoccupied.

If shielded cables are used for the loop wiring, you have to attach the shield of only one side of the circular wiring to the shield terminal "S" of the respective loop connection. Please note the statements concerning shielded loop cables made in User Manual BC216 / Part B!



The loop connections L+/L- must not be interchanged. It is indispensable that the 2-core line starts on terminals 1 and 2 and ends on terminals 3 and 4 of the same terminal group as shown in figure 4! The lines of different loops must not be interconnected anywhere!

3.2 Connection of the GSSnet line

Basically the GSSnet line has to be wired so that the GSSnet output of one GSSnet member (displayed as ↓ in the following figure) is connected with the GSSnet input of the next GSSnet member (displayed as ↑). Thereby, the GSSnet line forms a closed circle.

3.2.1 GSSnet line for a BCnet Sectional Control Panel BC216-2 with installed BCnet Sectional Control Panel Extension BCE216-3LG

This device combination forms the smallest Fire Detection Control Panel BCnet216 possible. In this constellation the GSSnet network entirely remains within the case of the BCnet Sectional Control Panel BC216-2. The BCnet Sectional Control Panel BC216-2 functions as main operating unit of this device combination.

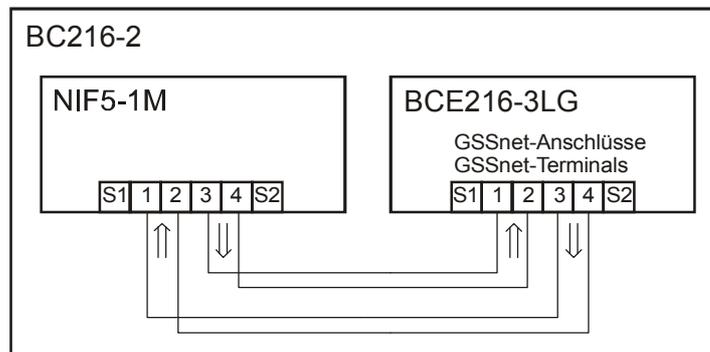


Figure 5: GSSnet line between the BCnet Sectional Control Panel BC216-2 and the installed BCnet Sectional Control Panel Extension BCE216-3LG

The arrows ↓ and ↑ show the standard communication direction of the data transfer in the GSSnet.

The GSSnet connection cable for this application is supplied with the BCE216-3LG. Due to the short length and the fact that the GSSnet line is not led out of the Control Panel case, an unshielded GSSnet cable may be used.

3.2.2 GSSnet lines for a BCnet Sectional Control Panel BC216-2 or BC216-3 with installed BCnet Sectional Control Panel Extension BCE216-3LG, which is embedded in a Fire Detection Control Panel BCnet216

In this constellation, the device combination of a BCnet Sectional Control Panel BC216-2 or BC216-3 and a BCnet Sectional Control Panel Extension BCE216-3LG is by itself again part of a larger Fire Detection Control Panel BCnet216.

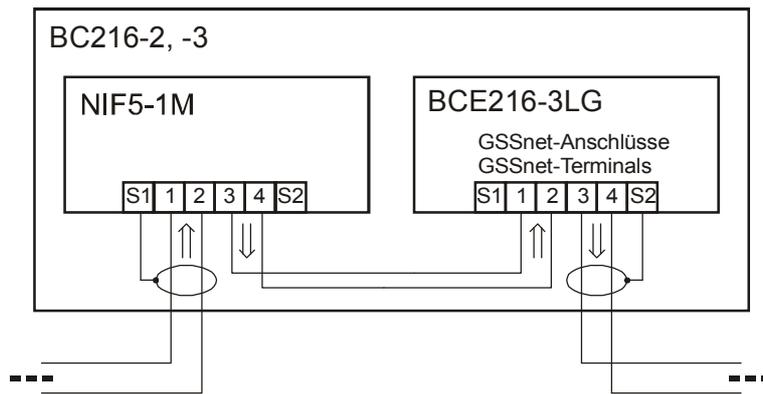
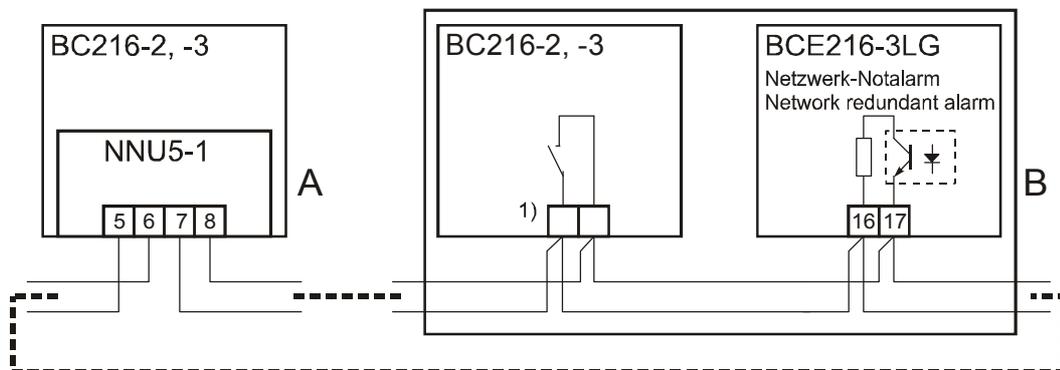


Figure 6: BCnet Sectional Control Panel BC216-2 or BC216-3 with installed BCnet Sectional Control Panel Extension BCE216-3LG, included in a Fire Detection Control Panel BCnet216.
The arrows \Downarrow and \Uparrow show the standard communication direction of the data transfer in the GSSnet.

The supplied unshielded cable may be used for the GSSnet line between the BC216-2 or BC216-3 and the installed BCE216-3LG (see also from page 7 in Chapter 3.2.1: "GSSnet line for a BCnet Sectional Control Panel BC216-2 with installed BCnet Sectional Control Panel Extension BCE216-3LG"). For the GSSnet lines leading outside to the remaining BCnet Sectional Control Panels, the use of category 5 computer network cable is inevitable. Observe the correct connection of the shields of the network cable (see User Manual Series BC216 / Part B).

3.3 Connection of the BCnet redundant alarm line

A potential-separated semiconductor switch with integrated serial resistor is provided on the BCnet Sectional Control Panel Extension BCE216-3LG for activating the redundant alarm function.



1)...Depending on the outfit of the BCnet Sectional Control Panel, either the contact of the alarm relay of the Power Unit NTB216-1 or the contact of the relay HM1 on the Fire Brigade Interface FWI2-1.

Figure 7: Connection of the BCnet redundant alarm line to the BCnet Sectional Control Panel Extension BCE216-3LG

A ... BCnet Sectional Control Panel to which the transmitting device to the fire brigade is connected
B ... BCnet Sectional Control Panel with installed extension BCE216-3LG

The semiconductor switch acting on terminals 16 and 17 is polarity dependent. It has to be connected to the Network Redundant Alarm Converter NNU5-1, which is installed in the BCnet Sectional Control Panel to which the transmitting device to the fire brigade is connected, in exactly the illustrated way. Convince yourself during commissioning of the Fire Detection Control Panel that also the redundant alarm function works correctly!



Upon alarm of a detector connected to the BCE216-3LG, the voltage on the terminals 16 and 17 decreases from approximately 10V to approximately 2V (at 24V supply voltage); successively, the alarm criteria (= 0V) is put out on terminal 4 of the NNU5-1.

4 Commissioning

Prior to commissioning of the Control Panel, follow the checklist below and check the following points in correspondence to the existing Control Panel structure:

- ◆ Is the supply voltage of the Extension properly connected?
- ◆ Are the incoming and the outgoing network cable properly connected?
- ◆ Is the network cable as a whole laid as a circle without branch-offs?
- ◆ Are the shielding wires of the incoming and the outgoing network cables isolated from each other and connected to the correct terminals?
- ◆ Is the network redundant alarm line properly connected?
- ◆ Are the loops properly connected?
- ◆ Are all addresses of the devices connected to the loop set correctly?
- ◆ Are all detectors in normal condition?

Check once again the earth-connection of the Control Panel case: The cover and bottom part must be electrically interconnected during operation.



Check if all mounting screws of the inserted boards are securely tightened. This is particularly decisive for the effectiveness of the EMC measures taken on the boards.

Proceed commissioning according to the steps described in User Manual Series BC216 / Part B.

4.1 Firmware version

The same firmware version must be installed in the BCnet Sectional Control Panel Extension BCE216-3LG as is in all other Sectional Control Panels of the Fire Detection Control Panel BCnet216. This is valid also if the Control Panel exists of only one BC216-2 and a BCE216-3LG installed therein.

If the firmware versions do not match, you have to adjust the firmware of the Extension to the firmware version of the remaining BCnet Sectional Control Panels. To install a new firmware version, plug a Serial Interface Module SIM216-1 to the connector ST2 of the BCE216-3LG (see figure 8), screw it on tightly and then transfer the new firmware via PC and PARSOFT-2 to the BCE216-3LG.



The BCnet Sectional Control Panel Extension BCE216-3LG is only operative with a firmware starting PL149Vx.15!

Alternatively, it can be useful to equip the existing BCnet Sectional Control Panels with the firmware version which is installed in the BCE216-3LG - or to equip the existing Sectional Control Panels and the Extension with the latest firmware version.

The procedure for the transmission of a firmware from the PC to the Control Panel is described in User Manual PARSOFT-2.



For the first firmware update the BCnet Sectional Control Panel Extension must be handled like a stand-alone Control Panel BC216-1. If the BCnet Sectional Control Panel Extension is already part of a BCnet216, updates of the firmware are executed for all Sectional Control Panels together from the main operating unit of the BCnet216.



The firmware version is indicated on the packing of the Extension. You can also read out the current firmware version of the Extension via PARSOFT-2 (see User Manual PARSOFT-2).

4.2 Parameter setup

The BCnet Sectional Control Panel Extension is supplied without works settings. Thus you have to set up the necessary configuration by individual parameterization during commissioning. You proceed parameterization via a PC and Parameter Setup Software PARSOFT-2 on the main operating unit of the ready-wired Fire Detection Control Panel BCnet216 (see User Manual Series BC216 / Part C and User Manual PARSOFT-2).

4.3 Status displays

Two LEDs (D16 and D27) are available on the BCnet Sectional Control Panel Extension BCE216-3LG which provide - in addition to the displays of the respective Sectional Control Panel or of the main operating unit - a status display.

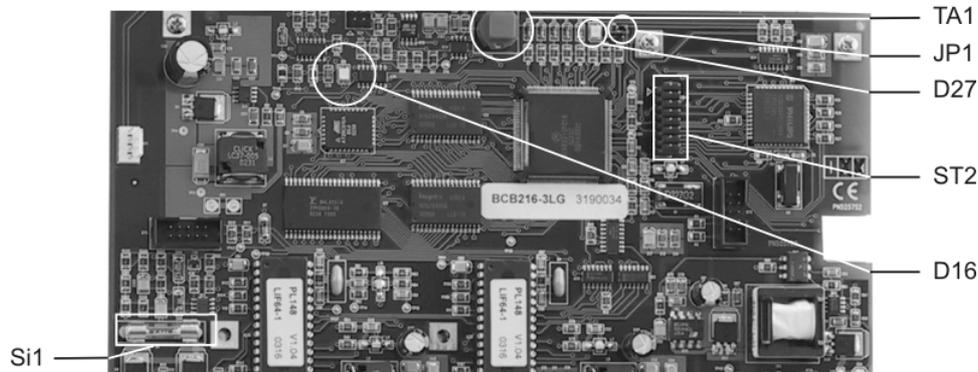


Figure 8: Survey of the components of the printed circuit board of the BCnet Sectional Control Panel Extension BCE216-3LG

D16, D27 ... light emitting diodes for status display

TA1 RESET button

JP1 short circuit connector for initializing the firmware update

ST2 connector for attaching a Serial Interface Module SIM216-1

Si1 fuse for the supply voltage

The light emitting diodes display the following conditions:

- ◆ Light emitting diode D16 (green):
 - illuminated: the BCE216-3LG works normally
 - flashing: the BCE216-3LG is in redundant operating mode
The processor system works only restrictedly, the GSSnet data line is not supported, the two loops are - provided they are not themselves impaired by the fault - entirely supported; a possible alarm is proceeded via the redundant alarm output.
This condition is displayed as member fault on the connected BCnet Sectional Control Panels with display and operating unit
 - dark: the BCE216-3LG is either de-energized or in the condition "system fault"
Depending on the cause of the fault, the BCE216-3LG is either completely out of function or it attempts to maintain a redundant operation of the two loops; a possible alarm is proceeded via the redundant alarm output.
This condition is displayed as member fault on the connected BCnet Sectional Control Panels with display and operating unit
- ◆ Light emitting diode D27 (red):
 - flickering: data is received via the GSSnet
 - dark: either no data is received via the GSSnet or the BCE216-3LG is de-energized

5 Specifications

Please also refer to the specifications and other notes provided in User Manual Series BC216 / Part B.

Supply voltage	21-30VDC (from the BCnet Sectional Control Panel)
Power consumption at 24V (w/o detectors, modules)	typ. 140mA
Number of loops	2
Number of detector zones per loop	max. 128
Total number of detector zones of both loops	max. 144
Number of detectors, modules per loop	
System Sensor/500	max. 198 elements (99 detectors + 99 modules)
Apollo/Discovery	max. 126 elements
Loop quiescent current	typ. 300µA per connected detector or module
Loop total current (detectors, modules, sirens etc.)	max. 300mA (at reduced line resistance)
Loop quiescent voltage	typ. 26V (Apollo) or 29V (System Sensor)
Loop line	2-core, shielded or unshielded
Line resistance	max. 50Ω per core
Line capacity	max. 400nF
Connection type	screw terminals
Wire cross section	max. 2.5mm ² (single wire)
GSSnet connection	RS485, galvanically separated
Cable length between two GSSnet members	max. 1200m (category 5 network cable)
Connection type	screw terminals
Wire cross section	max. 2.5mm ² (single wire)
Ambient temperature	-5°C to +50°C
Relative humidity of air	95% (non-condensing)
Dimensions l × w × h	248 × 222 × 28 (mm)
Weight incl. carrier plate	approx. 675g