# Fire Detection Control Panel
# Series BC216

## User Manual Part A

Description
Operating Instructions



Subject to change without notice

# Contents

# 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°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 operatable, 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 actuations (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

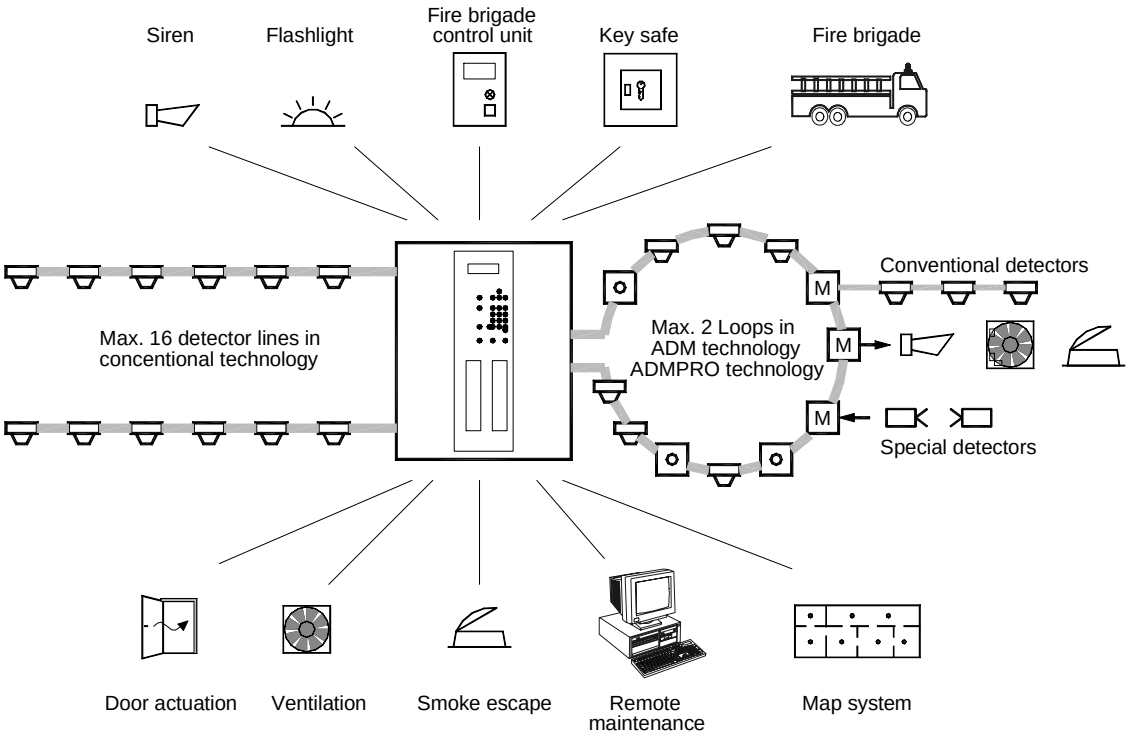


*Figure 2: View of a typical fire detection system constructed with the fire detection control panel BC216-1*
*The system consists of*
- *the fire detection control panel BC216-1 including the power supply,*
- *the automatic and non-automatic fire detectors that are combined into detector zones,*
- *the 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.

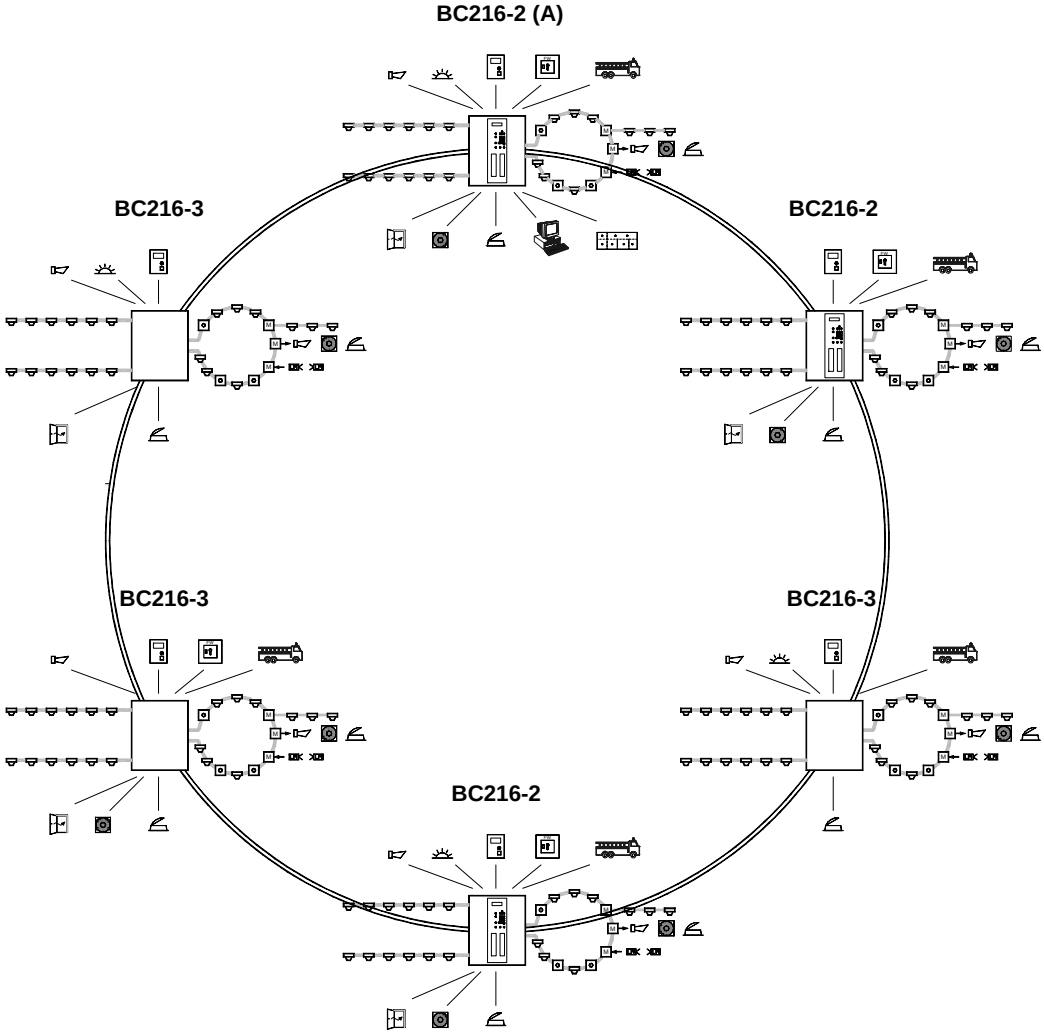


*Figure 3: View of a typical fire detection system constructed with the fire detection control panel BCnet216*
*The system consists of*
- *one BCnet sectional control panel parameterized as main operating unit (A),*
- *further BCnet sectional control panels BC216-2 (with display and operating unit),*
- *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 setable 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.

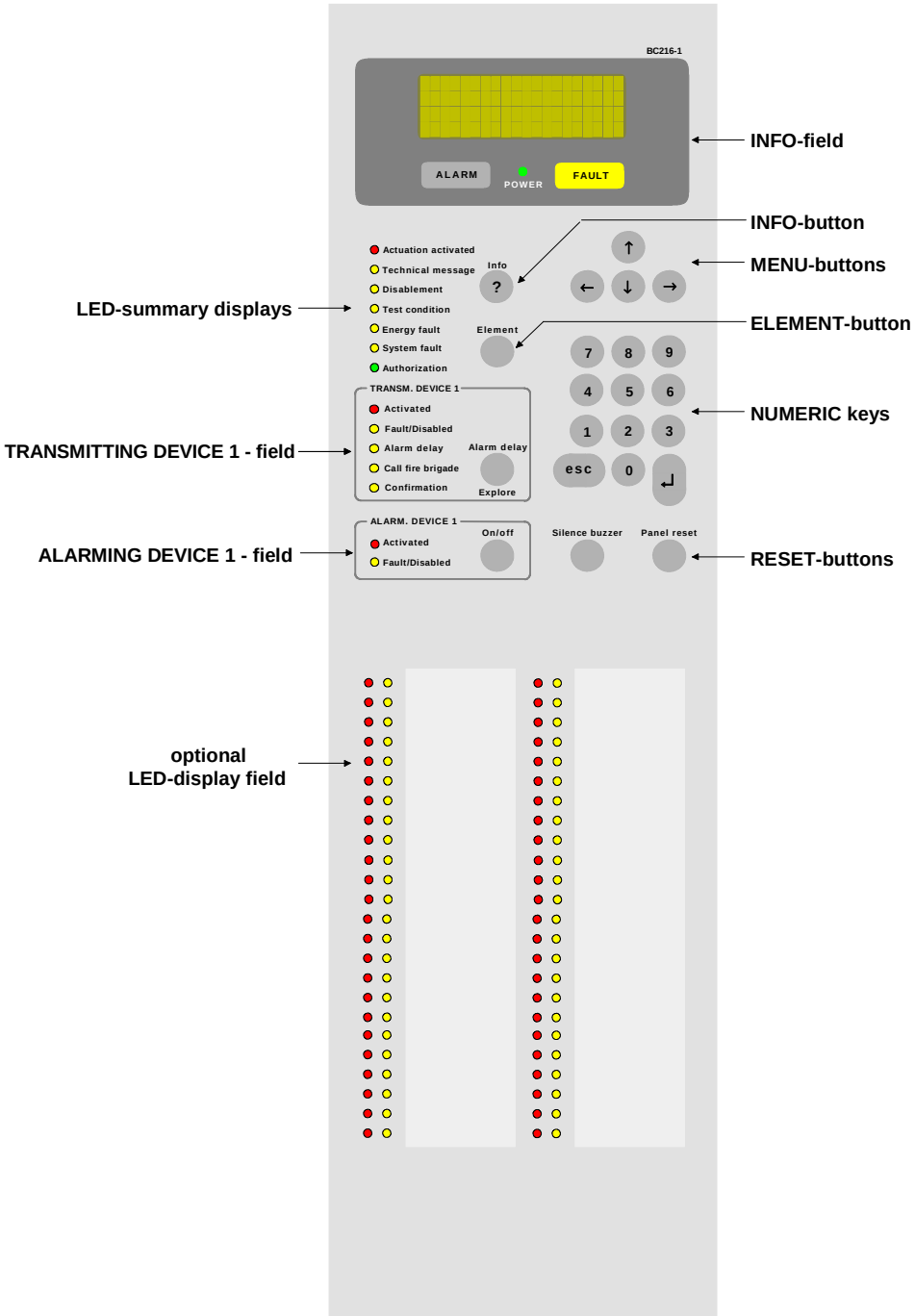


*Figure 4: Displaying and operating elements of the fire detection control panel Series BC216*

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!

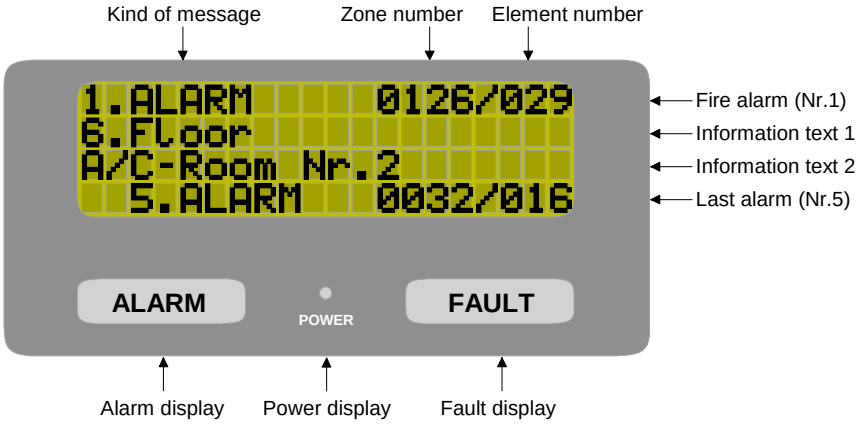


*Figure 5: Info-field - exemplary fire alarm with 5 current fire messages*
*The first line displays the current alarm with the zone and element number.*
*The second line displays the first text information for the zone of the current alarm.*

*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 organizatorial 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], [Disablements] 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:].
- **Disablement 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.
- **Disablement 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.
- **Enablement of disabled parts of the system**
  If you are displaying the currently disabled parts of the system in the menu point [Disablements], 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<br>Enable<br>Activate<br>Test condition on<br>Measured value/<br>maintenance |
| | | Actuation: | Disable<br>Enable<br>Activate<br>Meas.val./Maint. |
| | | Transmit. device: | Disable<br>Enable |
| | | Alarming device: | Disable<br>Enable<br>Activate<br>Meas.val./Maint.<br>Silence<br>Reactivate |
| Event memory *) | Display all<br>Control panel<br>Detector zones | Event memory | Display all<br>Control panel<br>Detector zones |
| System | Event counter<br>Display test<br>Repeat print-out | System | Event counter<br>Display test<br>LCD contrast<br>Clock time correct.<br>Clock time setting[1)]<br>Date setting[1)]<br>Winter/summertime<br>Summer/wintertime<br>Componentries<br>Print-out[1)]<br>Repeat print-out<br>Stop measurement print-out<br>Change user code[1)]<br>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.

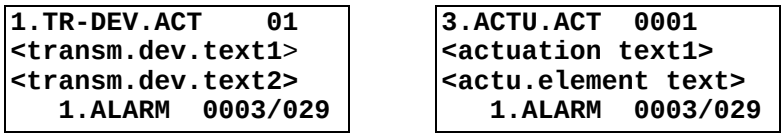


*Figure 8: Examples for the display of an actuation activation.*
*Left figure: Transmitting device Nr. 1 is activated as the first actuation.*
*Right figure: Actuation Nr. 1 is activated as the third actuation. Has no element text been programmed, the second line of the actuation text (if available)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

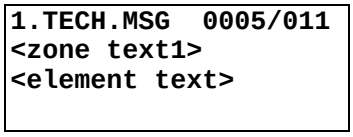


*Figure 9: Example for the display of a technical message from detector zone 5, detector Nr. 11. Has no element text been programmed, the second line of the zone text (if available) is displayed.*

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").

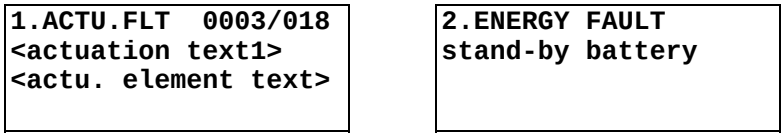


*Figure 10: Example for the display of faults*
*Left figure: Display of a fault of actuation Nr. 3, element Nr. 18. Has no element text been programmed, the second line of the actuation text (if available) is displayed.*
*Right figure: Energy fault, fault of the stand-by battery. In addition to the fault 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!
Is a disabled transmitting device 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 '↑↓'-buttons in steps of minutes. Confirming the corrected time with the '↵'-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 '↵'-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 '↵'. 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]

Is 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 actuations on the control panel. Usually the "technical messages" and actuations 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 actuations (at least one actuation 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 actuations
- 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, actuations, 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".

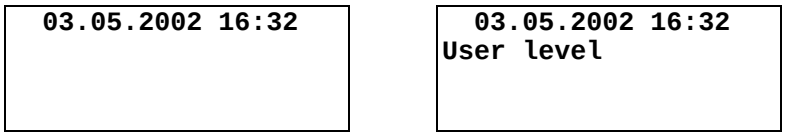


*Figure 15: Display in normal condition of the control panel.*
*Left figure: authorization level 1*
*Right figure: authorization level 2*

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

```
1.ALARM     0003/029
<zone text1>
<element text>
   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**<br>**<zone text1>**<br>**<element text>**<br>**3.ALARM 0016/020** | first display |
| | press '↓'-button |
| **2.ALARM 0003/010**<br>**<zone text1>**<br>**<element text>**<br>**3.ALARM 0016/020** | |
| | press '↓'-button |
| **3.ALARM 0016/020**<br>**<zone text1>**<br>**<element text>**<br>**3.ALARM 0016/020** | |
| | press '↓'-button |
| **1.ALARM 0003/029**<br>**<zone text1>**<br>**<element text>**<br>**3.ALARM 0016/020** | you have arrived at the first display again |

*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 setable) 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 [Disablements] 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 actuation 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.

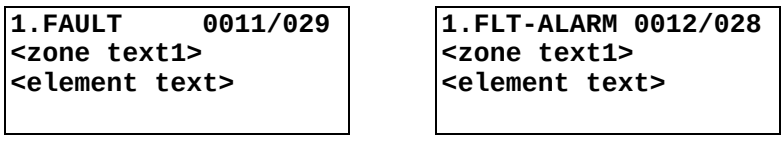


*Figure 20: Examples of displays in fault condition*
*Left figure: Element Nr. 29 in detector zone Nr. 11 is displayed as the first received fault message.*
*Right figure: The activation of fault detector Nr. 28 in detector zone Nr. 12 is displayed as the last fault alarm.*
*The second and third line 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**<br>*Effect* | **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<br>*The transmitting of a fire alarm from the concerning fire detectors to the control panel is no longer ensured.* | **1.FAULT 0004** |
| Fault in an element (e.g., Nr. 29) of a detector zone (e.g., Nr. 4) for fire alarms<br>*The transmitting of a fire alarm from the concerning element to the control panel is no longer possible.* | **1.FAULT 0004/029** |
| Fault in a detector zone (e.g., Nr. 3) for technical messages<br>*The transmitting of an alarm from the concerning detectors to the control panel is no longer ensured.* | **1.TECH.FLT 0003** |

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

Is a disabled part enabled again, all displays of disablements remaining in the display memory are renumbered 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 funcion 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 FEPROM | FAULT | Param. setup FEPROM | | fault cause |
| Configuration RAM | FAULT | Parameter setup RAM | | fault cause |
| Programme memory | FAULT | Software | | fault cause |
| Settings FEPROM | FAULT | Sys. settings FEPROM | | 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.*

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