SecuriFire 1000/2000 fire detection systems

System description

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1 The SecuriFire System Family

The SecuriFire system family consists of various control panels, devices, map case variants and components which can be combined and coordinated perfectly for any configuration level and system size.

All devices are compatible with each other, work with the same software and the same commissioning tools. The user interface is also identical for all SecuriFire devices. The same external indication and control maps can be connected to all control panels.

Thanks to modular design and networking options, the required devices can be combined in any variation and adapted precisely to the system-specific requirements.

Fig. 1 SecuriFire FCP 2000

SecuriFire FCP 2000 fire alarm control panel

- Compact fire alarm control panel
- For the connection of more than 500 devices
- It can be extended by an extra 2 loop circuits
- Decentralized design
- It can be networked for solutions ranging from a single control panel to a large system.

Fig. 2 SecuriFire FCP 1000

SecuriFire FCP 1000 fire alarm control panel

- One-loop system control panel
- For the connection of up to 250 elements

Fig. 3 SecuriFire ECP / FEP 2000

SecuriFire ECP / FEP 2000 extinguishing system control panel

- Automatic electronic control and delay unit for controlling single zone extinguishing systems
- Which can either be used as a combined SecuriFire ECP / FEP fire alarm control panel/controller unit or exclusively as an SecuriFire1000/2000E controller unit for a single extinguishing zone.
- VdS approval conforming to EN12094-1.

2 The system concept

SecuriFire FCP 2000 fire alarm control panel

The SecuriFire 2000 is a cost-optimized fire alarm control panel for small & medium sized systems, with a total of a maximum of 500 participants able to be connected to two loop circuits in its basic version. Additionally, the unit also has an interface to which a LAN networking module can be connected, or two more loop circuits, a universal interface module or an input/output module can be connected.

Each control panel forms an autarchic unit with its own power supply and battery backup supply, to which external operating panels, fire brigade control panels, printers etc. can also be connected as well as detector zones and controllers. The SecuriFire FCP 2000 can be integrated into an Ethernet mesh network if required, and is fitted with software redundancy to ensure the security of the system.

The SecuriFire FCP 2000 is available with several different types of case - with or without a log printer or as a black box.

SecuriFire FCP 1000 fire alarm control panel.

The SecuriFire FCP 1000 fire alarm control panel is a standalone fire alarm control panel, suitable for connecting a single loop circuit with up to 250 devices. The control panel contains all the necessary interfaces for connection to the fire brigade, as well as relay outputs and connection for the external device bus.

Secured data transmission

Securiton's development engineers paid particular attention to ensuring secure data communication. Due to increasing environmental and electromagnetic influences on control panels, detectors, peripheral devices as well as on the line network, a digital data protocol with fault-detecting redundant coding was specially developed for fire alarm control panels.
The continuous, intelligent communication of peripheral elements and subsystems is assured maximum data security (hamming code distance 4). This filters out false alarms caused by electromagnetic interference such as radio emissions, overvoltage, interference impulses etc.
Data lines to operating devices or connections between subsystems are also redundant (doubled) so that full availability of all system components is always guaranteed in the event of line interruptions and external faults.
All Securiton fire detection systems are equipped with automatic checking cycles, fault-detecting test routines, and measures against electromagnetic interference. But with each new generation of performance features and operational reliability, key improvements have been achieved.

Overvoltage protection

The SecuriFire system is equipped with a comprehensive and integrated overvoltage protection design which protects all peripheral inputs, including the mains power supply in compliance with EN 50130-4 (EMC) and EN 61000-6-2 (immunity for industrial environments). The EMC protection concept protects the electronics by means of a zone concept, Transzorp diodes, filters and broadband decoupling of the power supply.
Thus when the system is used in buildings with installed basic protection (lightning protection, mains overvoltage arresters), no further measures are required (e.g. overvoltage arresters).

Fig. 4 Overvoltage protection

2.1 SecuriLan

For applications that require several fire alarm control panels, it is possible to network up to 16 control units using the SecuriLan Ethernet mesh network, with interfaces like RS485, fibre optics or TCP/IP. The fully freely selectable cabling topology allows the mesh network to be adapted optimally to the physical constraints of the building, while multiple connections between the individual control units also ensures, in the event of connection faults, that every control unit always continues to have a connection to the network.

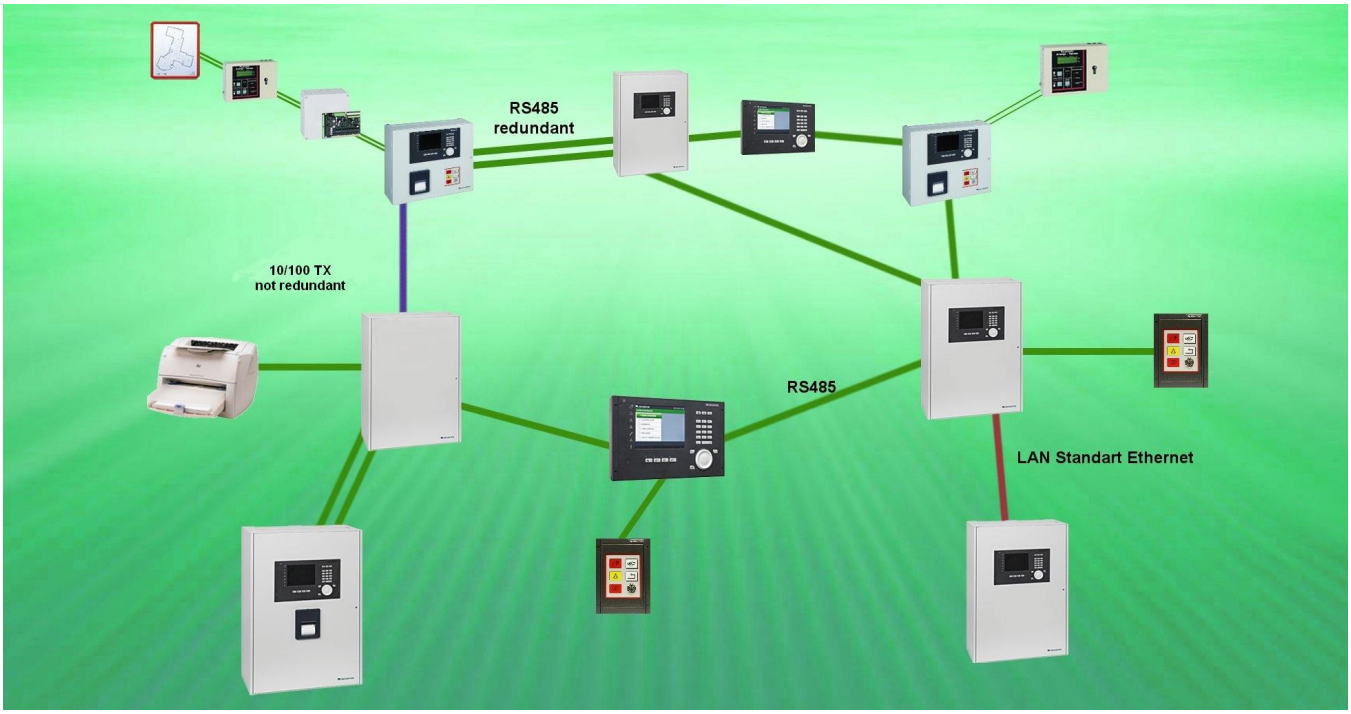

Fig. 5 Topology des SecuriLan

The SecuriFire FCP 2000 control unit can also be directly connected into the IT infrastructure of a building, with Internet and Intranet access to them being possible at no extra expense. Various parallel indicator tableaux or superordinated centralized indicating devices can, as long as they are not also used for notifying the emergency services, use the existing communications channels of the PC network.

Length of wires

The distance between two control unites may be up to 1200 meters. Neither repeaters nor other additional devices such as modems are required, and only the types of cable used and the environmental factors must be observed. In special cases – where the distance has to be greater than 1,200 meters – then other types of communication media (fibre-optic cable or modems) can be used

Centralized downloads

The "Centralized Download" function allows the configuration data to be centrally downloaded to any particular FCP in a SecuriLan. From that control unit, the data is distributed around the whole SecuriLan. This function allows a decisive cost and time-saving advantage when modifying or extending systems, in particularly when the FCP's are considerable distances away from one another.

Extended Event Log Memory

The SecuriFire event log memory is set as standard to cope with up to 200 events; however this capacity can be increased by up to 65,000 events using a corresponding SD card.

Lock outputs
The "Lock outputs" function is used to "lock" all outputs in the SecuriLan in a single defined position from a single control panel using a software command, so that they are not triggered unintentionally. This function allows a decisive cost and time-saving advantage during servicing and maintenance work, or while uploading new configuration software, in particularly when the sub control units are considerable distances away from one another.

Can be networked
Every SecuriLan is suitable for connection building management systems and field buses.

Remote System Diagnosis
Every SecuriFire FCP fire alarm control panel as well as the SecuriLan is pre-equipped for remote system diagnosis (remote polling) of system states (e.g. detector soiling, faults) via modem.

Notice

The application remote system diagnosis of the SecuriFire 2000 fire alarm control panel is identical with the application remote system diagnosis of the SecuriFire 3000 fire alarm control panel.

2.2 SecuriFire FCP 2000

The SecuriFire FCP 2000 fire alarm control panel for small & medium sized systems, with a total of a maximum of 500 participants able to be connected to two loop circuits in its basic version. Moreover, they also have another interface, to which either a LAN networking module, two further loop circuits, a universal interface module or an input/output module can be connected.

Features
- 2 rechargeable batteries for emergency power supply
- 2 loop control unit with optional expansion to 4 loops
- Can be networked as a 2 loop version
- Device bus for connecting remote operating panels, fire brigade control panels and floor plan panels
- Interfaces for transmission and alarm systems, relay outputs, monitored inputs and outputs
- Simple to operate configuration and commissioning tools
- Event memory for 65,000 messages in real time
- Remote system access over TCP/IP
- Can be connected to superordinated computer systems or fire detection management systems over serial data interfaces
- Comprehensive, integrated overvoltage protection concept

2.3 SecuriFire FCP 1000

The fire detector system SecuriFire FCP 1000 is a cost-optimized single loop fire alarm control panel for the smallest sized systems, suitable for connecting a single loop circuit with a maximum of 250 devices.
The main processor unit contains all necessary interfaces for the connection to the fire brigade (transmission and alarm systems, interface for connecting various types of fire brigade control panels), as well as five 230V / 3A relay outputs and a connection for the external device bus (MMI-BUS).
The SecuriFire FCP 1000 cannot be networked, and can also not be connected to superordinated systems (e.g. management systems).

Features

- 1 loop control unit
- Device bus for connecting remote operating panels, fire brigade control panels and floor plan panels
- Interfaces for transmission and alarm systems, relay outputs, monitored inputs and outputs
- Simple to operate configuration and commissioning tools
- Event memory for 65,000 messages in real time
- Comprehensive, integrated overvoltage protection concept

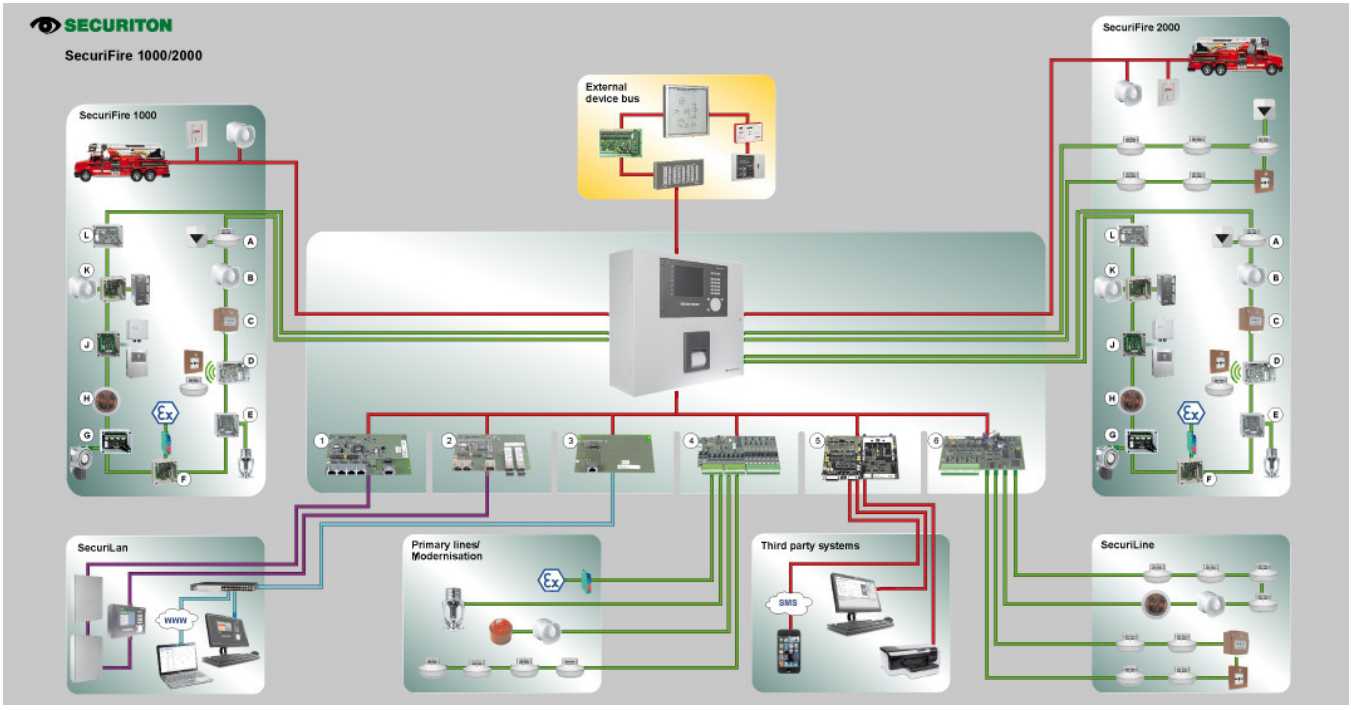

Fig. 6 Topology of a SecuriFire 1000/2000 fire alarm control panel

2.4 SecuriFire ECP / FEP 2000

The SecuriFire 2000 system can also be deployed as a SecuriFire 2000 extinguishing system control panel ECP (electronic control and delay unit) or as a combined SecuriFire 2000 fire detector/extinguishing system control panel FEP. There is a separate version of the case available for this purpose, which contains an additional LED parallel indicator tableau for a single extinguishing zone and also contains additional freely programmable inputs and outputs. In this version, the SecuriFire FEP 2000, in accordance with standards and directives EN 12094-1 and VdS 2496, is now suitable and approved for use for controlling and monitoring the following types of fire extinguishing systems:

Features

- CO2 – high and low pressure extinguishing systems where life is or is not endangered.
- Inert gas and argon extinguishing systems where life is or is not endangered.
- Water spray systems
- Pre-action sprinkler systems
- Sprinkler Systems
- Mist water deluge systems
- Chemical extinguishing systems

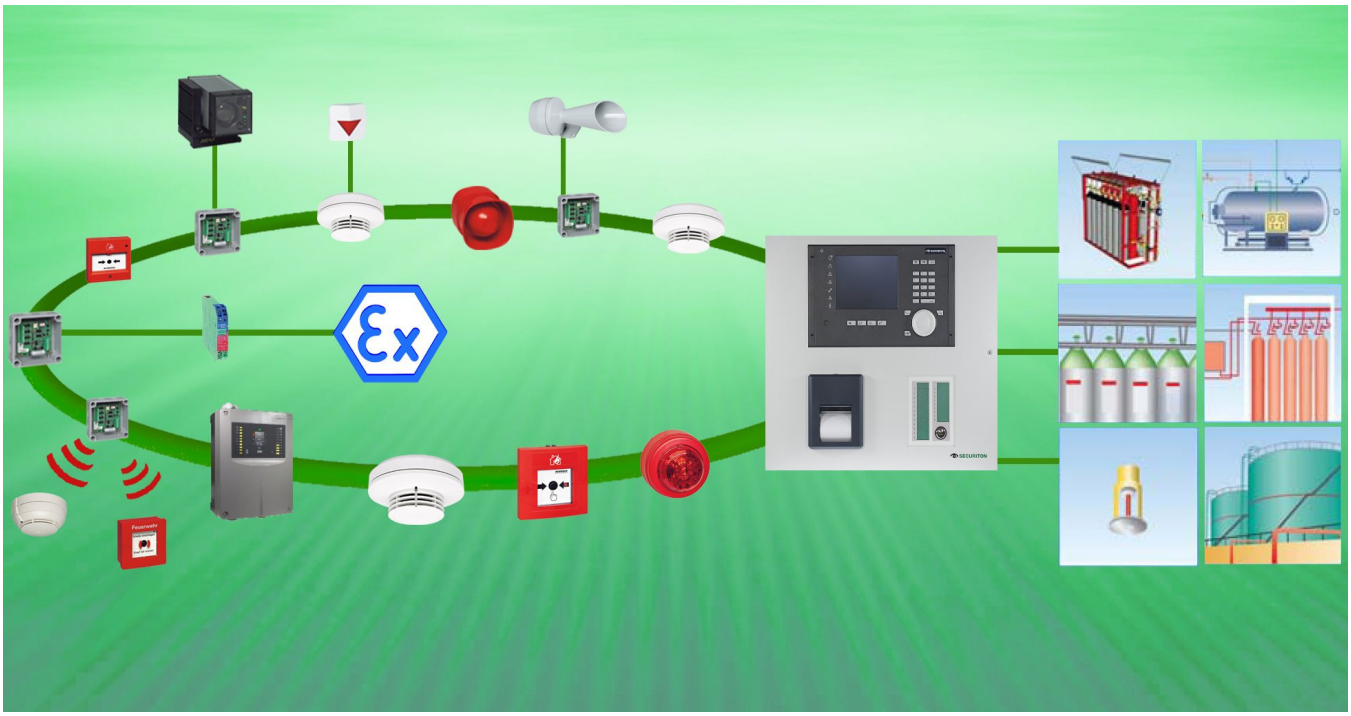

Fig. 7 Topology of a SecuriFire ECP / FEP 2000 control panel

2.5 Characteristics

- Microprocessor controlled and monitored system technology
- Fully redundant system design to ensure unrestricted functioning, even in the event of a fault or failure of a processor or system half.
- Continual, automatic check routines for all system components and programs.
- Easy connection of the units by means of flat plugs.
- Up to 31 remote main indication and control maps (MIC 711) per SecuriLan with graphic display; up to 4 languages can be toggled during operation.
- Serial data protocol printer with emergency power, event memory and message filters; suitable for connecting to the public alarm system of the fire brigade.
- Intervention switch for checking unwanted alarms.
- 2-detector dependency and operational group dependency etc. freely programmable with software.
- Links and dependencies of fire incident controls and fire hatches freely programmable with software.
- Automatic winter time / summer time changeover.
- 16 day/night levels with automatic on/off switching, date-based controls.
- Can be connected to superordinate computer systems and fire alarm deployment management systems via serial data interfaces with the full functional scope (alarm/command directions).
- Fully redundant interconnection of up to 16 fire alarm control panels (FCPs) without superordinate central computer, whereby each individual FCP is a self-sufficient unit with its own power supply and batteries; external indication and control maps, fire brigade maps, printers etc. can be connected to the sub-detection-zones and controls.
- The control panel structure permits nearly any number of fire alarm control panels to be networked, even at a later date.
- The communication between the fire alarm control panels (FCPs) is via a redundant (doubled) ring circuit so that the connection remains intact without restrictions even in the event of three simultaneously occurring connection faults.
- Digital communication paths connect main indication and control maps, protocol printers, parallel indicator boards and other system components can be used in any number of combinations independent of location.
- Because of its special redundancy concept, the SecuriFire fire detection system is suitable (standards compliant) for actuation of more than one extinguishing area.
- Fully complies with the following relevant standards and directives: European standards EN 54, CPD, DIN, VDE, ÖNORM, ÖVE, , and many more.
- VdS devices and system approval, CDP approval

Overview of system limits

	per control panel	**per SecuriLan**
Control panels	--	Max. 16
Indication and control maps (internal)	Max. 1	Max. 16
Indication and control maps (external)	Max. 8	Max. 31
Printer (external, internal)	Max. 3	Max. 16 x 3
Fire brigade panels	Max. 8	Max. 16 x 8
Detection zones	Max. 256	Max. 16 x 256
Inputs, outputs, repeat signals	Each max. 256	Each max. 16 x 256
External (e.g. sprinkler systems)	Max. 256	
Delay layers	Max. 16	
Customer-specific texts	6,500 if average is 25 characters per element	

3 Display, operation and indication

3.1 SecuriFire MIC 711 indication and control maps

The SecuriFire standard indication and control maps provide well-organised, convenient, standards-compliant display and operation of a SecuriFire system and can be built into a FCP or separately mounted in their own housings.

Fig. 8 SecuriFire MIC 711 indication and control maps

They include a 5.7'' TFT colour display for displaying all system states in plain text. No labelling on the front of the housing (only display elements). Intuitive operation with operating elements and SecuriWheel.

3.2 External device bus

3.2.1 EPI-BUS

External devices and indication and control maps can be connected to the “EPI-BUS” on each MIC. A maximum of 3 participants can be connected to this data bus at a distance of up to 1 m from the main indication and control map (B6-MIC711).

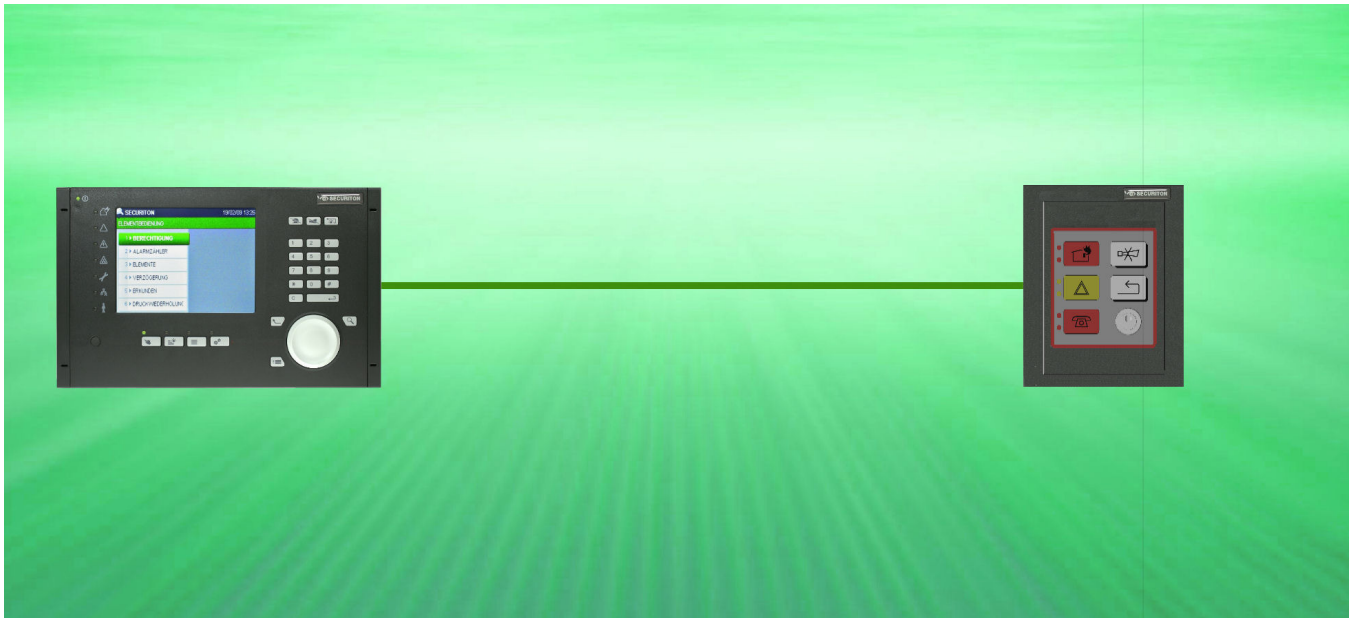

Fig. 9 Schematic of an EPI-BUS

EPI-BUS features

- MIC device bus
- Up to 1 m line length
- Up to 3 devices on one EPI-BUS
- Swiss fire brigade panel compliant with SN 054 002 can be connected
- Additional panels are under development

3.2.1.1 EPI-FPC-GS Swiss fire brigade panel

The B5-EPI-FPC-GS is compliant with Swiss standard SN 054 002. In Switzerland it must be mounted in the immediate vicinity of every fire alarm system in the fire brigade access area. It displays certain operational states of the fire alarm systems and enables fire brigade personnel to carry out essential procedures in a coordinated and unified manner.

Fig. 10 B5-EPI-FPC-GS

3.2.2 MMI-BUS

External devices and indication and control maps can be connected to the “MMI-BUS” on each MIC. Without additional devices such as repeaters, up to 15 participants can be connected to this data bus and operated up to 1,200 m from a control panel.

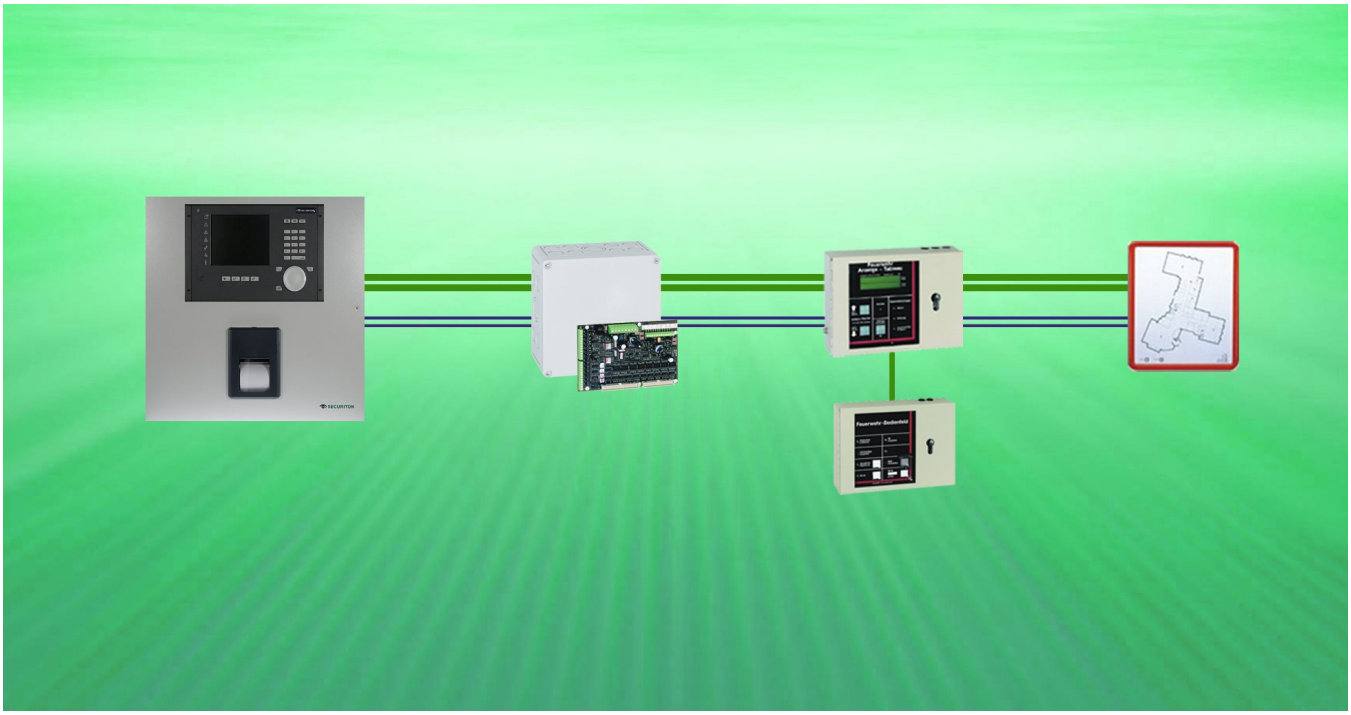

Fig. 11 Schematic of MMI-BUS

MMI-BUS features

- Redundant devices bus
- Up to 1,200 m line length
- Up to 15 devices on one MMI-BUS
- Fire brigade panel compliant with DIN 14661 can be connected

Data communication via redundant, digital communication lines. The devices can be deployed in any number of combinations with each other independent of location.

Notice

For security reasons the data line and power supply are redundantly implemented and should be separately conveyed.

3.2.2.1 Floor indication Panel MMI-FIP

The SecuriFire floor indication panel provide well-organised and convenient announcement of the conditions of the SecuriFire - system.
It contains a monochrome LCD display with 6 lines for the indication of all investment conditions in the clear text. No inscription on housing front (only announcement elements).

Fig. 12 B5-MMI-FIP

3.2.2.2 B3-MMI-EAT64 indication map for 64 alarm lines

The B3-MMI-EAT64 has LEDs that indicate the states of the individual detection zones. The “Alarm”, “Fault” and “Deactivation” states of a detection zone can be indicated by two LEDs (red and yellow).
The B3-MMI-EAT64 is mounted separately in its own housing. Insertion strips are used to label the detection zones.

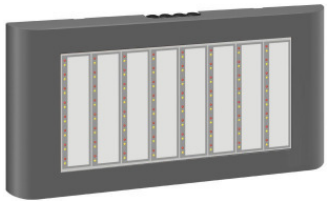

Fig. 13 B3-MMI-EAT64

3.2.2.3 MMI-IPEL indication map for 8 extinction areas

The B3-MMI-IPEL is a standards-compliant LED state indicator of connected extinguishing systems.
The B3-MMI-IPEL can also be mounted separately in its own housing. Insertion strips are used to label the extinguishing areas.

Fig. 14 B3-MMI-IPEL

3.2.2.4 MMI-UIO universal input/output module

The B3-MMI-UIO is primarily used for controlling layout plan and repeat signal boards of the SecuriFire system. It can also be used by the FCP remote input/output module for polling potential-free contacts and keys and for controlling unmonitored horns, lamps, relays etc. Depending on its use, the B3-MMI-UIO is integrated in the concerned boards or branch sockets and connected to the MMI-BUS. The module is fully redundant to ensure security and reliability. Two Twisted Pair bus cables connected to the B5-BAF provides the data traffic via the MMI-BUS to the other FCP participants. It is designed with the appropriate fastening options and connectors.

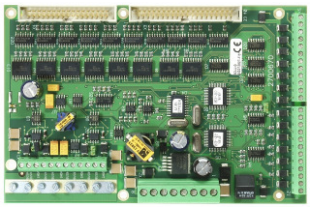

Fig. 15 B3-MMI-UIO

3.2.2.5 indicator board compliant with DIN 14662

Indicator board compliant with the requirements of DIN 14662 for visually indicating the most important operating states of the fire alarm control panel to facilitate easy and standardised operation of a fire alarm control panel for fire brigade personnel.

Fig. 16 Fire brigade indicator board compliant with DIN 14662

3.2.2.6 Fire brigade control board compliant with DIN 14661

Fire brigade map compliant with DIN 14661 for indicating operating states and for standardised operation of a fire alarm control panel by fire brigade personnel.

Fig. 17 Fire brigade map compliant with DIN 14661

4 Various Types of Case and Possible Extensions

4.1 Cabinet versions

Every SecuriFire1000/2000 fire alarm panel in its basic version contains:

- A back wall with cutaways for cable inlets and a battery rack.
- Main processor unit with interfaces for connecting operating panels, peripherals, Service PC etc.
- Power supply
- 2 emergency power supply batteries
- Power clips and battery cable

Fig. 18
Back panel

Fig. 19
Main processor unit and power supply unit

Fig. 20
Module cover and rechargeable cells

Fig. 21
Cabinet with operating panel and log printer

SecuriFire 1000/2000 control panel is available in various different versions:

SecuriFire 2000

Fig. 22 with closed door

Fig. 25 with in-built operating panel

Fig. 27 with operating panel and Log printer

SecuriFire ECP / FEP 2000

Fig. 23 with operating panel, log printer and indicator panel for 1 extinguishing zone

SecuriFire 1000

Fig. 24 with in-built operating panel

Fig. 26 with operating panel and Log printer

4.2 SecuriFire built-in operating panel B6-MIC711/11

Fig. 28 B6-MIC11

The B6-MIC711/11 built-in operating panel is built into the doors of SecuriFire cabinets and contains a 5.7'' TFT-colour display. The operating panel is available in many language variations (both the membrane keypad and the menus on the display) and is connected to the B6-BCB13 main processor unit by means of a ribbon cable. If the sub-control unit also contains a log printer, it is operated via the B6-MIC711/11 built-in operating panel.

4.3 Log Printer with Event Log Memory

Fig. 29 MIC-PPE

The serial data protocol printer is included in several SecuriFire map case variants and in some designs of the external indication and control maps.
Compliant with EN 54-4, the SecuriFire protocol printer is always supplied with emergency power for at least 72 h and saves all fire alarm system changes (e.g. alarms, faults, deactivations, activations, actuations, operation procedures, alarm delays, service notices) in plain text with date, time and other information. The printer includes an event memory which can be printed out any number of times. All information are displayed on the display and output to the protocol printer in clearly understandable plain text.

4.4 Modules

B6-BCB 13 main processor unit

The B6-BCB 13 is a component of every SecuriFire FCP/ECP/FEP 2000 fire alarm control panel and contains all the interfaces required for the connection of peripheral devices, relay contacts, the MMI Bus, monitored outputs and the service PC, as well as a connection slot in which an additional module (B4-DAI2, B4-USI, B4-EIO, B6-LAN or B6-NET2-485) can be fitted. Power is supplied by the B6-PSU power supply, with the built-in operating panel being connected via a 34 pole ribbon cable connector.

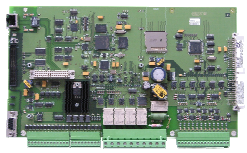

Fig. 30 B6-BCB 13

B6-BCB 12 main processor unit

The B6-BCB 12 is a component of every SecuriFire FCP 1000 control panel and contains all the interfaces required for connecting peripherals, relay contacts, MMI-BUS, monitored outputs and Service PC. Power is supplied by the B6-PSU power supply, with the built-in operating panel being connected via a 34 pole ribbon cable connector.

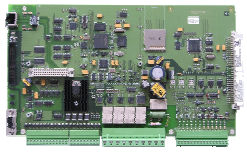

Fig. 31 B6-BCB 12

B6-PSU power supply unit

The internal 4 Amp power supply in every SecuriFire1000/2000 control unit supplies the required output voltages of 3.3V, 5V and 27V. It is always fitted in the case of every SecuriFire control panel on the right hand side next to the main processor unit and is always connected to it using a 64 pin multipoint connector. On the bottom side of the power supply unit there is a 2 pole clip for connection to the rechargeable batteries and a 10 pin pluggable screw connector, to which external devices can be connected using five separately fused outputs. The B6-PSU power supply contains a battery monitoring facility, which is controlled and evaluated by the main processor unit.

Fig. 32 B6-PSU

B4-DAI2 Loop technology module

For connecting two extra loop circuits to the relevant detectors and SecuriLan loop technology modules to the SecuriFire 2000. Alternatively one loop circuit and two stub lines or four stub lines can be controlled. The module is connected to the B6-BCB13 main processor unit.

Fig. 33 B4-DAI2

B6-LAN Network module

For non-redundant networking of SecuriFire FCP 2000 control panels for non-redundant connection of PC applications. The module is connected to the B6-BCB 13 main processor unit.

Fig. 34 B6-LAN

B6-NET2-485 Network Module

For redundant networking of SecuriFire 2000 control panels or for redundant connection of PC applications. The module consists of 2 network connectors (RS 485 interface) and one 100 Base TX interfaces. The module is connected to the B6-BCB 13 main processor unit.

Fig. 35 B6-NET2-485

B6-NET2-FXS network module

For redundant networking of SecuriFire 2000 control panels or for redundant connection of PC applications. The module consists of 3 network connectors (1 x RS 485 interface, 2 x FXS) and one 100 Base TX interface. The module is connected to the B6-BCB 13 main processor unit.

Fig. 36 B6-NET2-FXS

B6-NET2-FXM network module

For redundant networking of SecuriFire 2000 control panels or for redundant connection of PC applications. The module consists of 3 network connectors (1 x RS 485 interface, 2 x FXM) and one 100 Base TX interface. The module is connected to the B6-BCB 13 main processor unit.

Fig. 37 B6-NET2-FXM

Universal Interface Module B4-USI

For connecting SecuriFire 2000 control panels, to management systems, for controlling external printers, pagers, ComBOX, telephone servers etc. and two serial asynchronous interfaces. The module is connected to the B6-BCB 13 main processor unit.

Fig. 38 B4-USI

B4-EIO input/output module

For connection of up to 10 stub lines each with a maximum of 30 detectors from the 130 A detector series, SCD 563/TCD 563 and MCP 521 detector series (or SSD 521/UTD 521) primary inputs or VdS sprinkler interfaces and eight monitored outputs each with an output current of max. 1.5 A. Furthermore it is suitable for connection from intrinsically safe detectors for use in hazardous areas over a safety barrier. The module is connected to the B6-BCB 13 main processor unit.

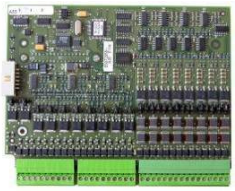

Fig. 39 B4-EIO

4.5 Mains Connection and Emergency Power Supply

The country-specific requirements for installation, as well as the connection conditions of fire brigades, and standards, regulations and guidelines all apply for installing the SecuriFire1000/2000 system. The mains connection is also to be carried out in accordance with the regulations in the relevant country (e.g. DIN, VDE etc.).

In the event of a mains power failure, then the emergency power supply rechargeable cells will ensure that the fire alarm system remains functional for a certain period of time, and must remained fully charged for their entire operating life. Due to the high demands placed on the product, the charging and discharging characteristics of these rechargeable cells are subject to special requirements, restrictions and tests, and furthermore the charging curves of the rechargeable cells are precisely adapted to fit in with the power supply used.

If rechargeable cells with other charging characteristics and characteristics other than those specified are used, then it is not possible to guarantee that the emergency power supply functions properly. Furthermore, it is also possible that the entire system might be damaged as a consequence.

For these reasons, only rechargeable cell types that have been cleared by Securiton for use and which are VdS-approved should be used.

The rechargeable cells are to be fitted in the bottom of the case of every SecuriFire1000/2000 control unit – two rechargeable cells connected in series are to be used in any case.

5 SecuriLine eXtended

The B6-BCB13 is for direct connecting to the SecuriLine eXtended (ring) to a SecuriFire FCP; on each of the 2 ring circuits a maximum of 250 elements can be connected.

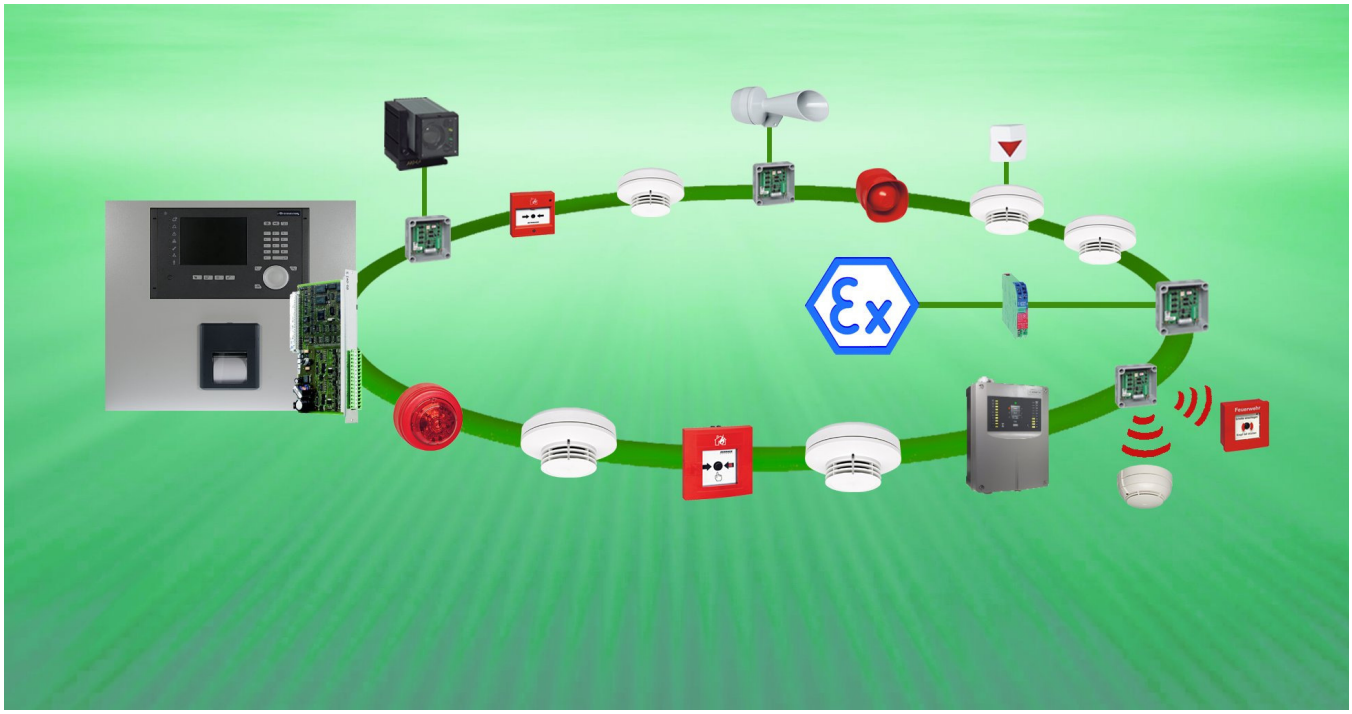

Fig. 40 Schematic of SecuriLine eXtended ring circuit

Maximum transmission security

The continuous, intelligent communication between control panel and detectors (modules) is effected with maximum transmission security and enables seamless monitoring and evaluation of the current actual states. Faults in the line network or false alarms due to electromagnetic interference (e.g. radio emissions, overvoltage, interference impulses) are automatically filtered out and localised by data transmission with fault detecting redundant coding from the control panel.

Integrated short circuit isolator

Thanks to the short-circuit isolator integrated in each SecuriStar detector and in each ring circuit module, the SecuriLine eXtended remains fully functional even in the event of a fault. If a detector fails or in the event of a short-circuit or wire breakage on the line, all other detectors and connected input and output modules remain functional without restriction. The fault is localised and information about its exact position is shown in plain text on the display and printer. This is why cable routing beyond fire sections can be optimised.

Intelligent data communication

Detector zone assignment for the SecuriLine eXtended is performed independently of the wiring, which is optimised and considerably reduced. A detection zone can be divided into various rings (also limited distribution across several FCPs). Inputs and outputs can be freely programmed without additional settings. Further, thanks to the microprocessor integrated in each detector, soiling detection, detector self-tests and detector analyses add to the performance spectrum to prevent false alarms and reduce unwanted alarms.

Programming and commissioning

Programming and commissioning the SecuriLine eXtended is performed exclusively with the SecuriFire Studio software. A calculation program is included for computing the maximum possible ring circuit length based on the connected elements and the wire cross-section in use.

5.1 Key features at a glance

- Digital ring communication and data backup
- Monitoring of all connected detectors and modules
- Integrated short-circuit isolator in each element
- Automatic and non-automatic detectors as well as input and output elements for fire doors, sirens, flashing lights etc. can be connected directly to the ring circuit.
- Alarm and control criteria linking
- Alphanumeric or graphical for individual alarm display and group display of all alarm statuses
- Individually programmable, auxiliary text for alarm, fault, deactivation and activation messages with date and time
- Customer-specific software for freely programmable inputs and outputs
- Individual addressing and deactivation of detectors and control modules as well as transmission and operating groups
- The formation of detection zones is also possible with elements of different ring circuits; detection links can be implemented beyond boards and FCPs.
- Multi-detector and multi-zone dependencies are programmable
- Subsequent additions to a detection zone are easy to implement and do not result in address changes or re-programming of other detectors
- Ex areas monitoring via branching module and stub line
- Evaluation of detector states (detectors which are soiled or needing maintenance) are displayed in plain text in the control panel

5.2 System limits

- Max. 4 ring circuits per SecuriFire FCP 2000
- Max. 2 ring circuits per SecuriFire FCP 1000
- Max. 250 physical elements per SecuriLine eXtended
- Max. 63 detectors per detection zone
- Max. 1 repeat signal per detector
- Max. 3,500 m ring circuit length

6 Components of the SecuriLine eXtended

Standard for all elements of the SecuriLine eXtended are integrated short-circuit isolators, individually deactivated, not sensitive to electromagnetic interference. In addition to automatic and non-automatic fire detectors, ring circuit modules with various functions are also available; these modules can be built into a plastic housing with protection class IP66.

SecuriStar MCD 573X multi-criteria detector
Depending on need and application, the SecuriStar MCD 573X can be implemented as smoke, temperature or combined detector and is programmed system-specifically and set for its area of use. The detector recognises smouldering fires and open fires early by detecting and evaluating smoke (using the Tyndall principle) and heat (NTC sensor principle) fire characteristics.

Fig. 41 MCD 573X

USB 501 universal base
The USB 501 serves to connect the SecuriStar MCD 573X multi-criteria detector and is also available in various special variants for mounting on false ceilings and cement ceilings as well as for use in wet rooms. A repeat signal or a base siren can be connected to the USB 501.

Fig. 42 USB 501

LKM 531 ventilation duct detector
The LKM 531 is suitable for use in locations with high air velocity and strong smoke dilution, e.g. in air-conditioning and ventilation ducts. It consists of a plastic housing with built-in smoke detector and can be used with air velocities of 1 to 20 m/s. The housing is fitted with a clear cover so that the alarm LED of the smoke detector is visible from outside.

Fig. 43 LKM 531

BX-SOL loop siren
The BX-SOL is for audibly signalling a fire alarm in interior rooms (environmental category type A compliant with EN 54-3) and is available in red or white. Three different sounds can be selected from the control panel (also during operation). The volume can be adjusted with the software.

Fig. 44 BX-SOL

BX-FOL loop flashlight
The BX-FOL is for visually signalling a fire alarm in interior rooms (environmental category type A compliant with EN 54-23) and is available in red or white. The flash rate and light intensity adjustment is done with the software.

Fig. 45 BX-FOL

MCP 545X manual call point
The MCP 545X is for manually triggering a fire alarm. It is tested and approved in compliance with EN 54-11; the MCP 545X is a type A (direct triggering) device. It is available in red and other colours and designs (protection class etc.).

Fig. 46 MCP 545X

MCP 535X manual call point
The MCP 535X is for manually triggering a fire alarm. It is tested and approved in compliance with EN 54-11 and EN 12094-3; the MCP 535X is a type B (indirect triggering) device. It is available in red and other colours and designs (protection class etc.).

Fig. 47 MCP 535X

BX-OI3 output/input module
The BX-OI3 can be used either as O/I module or as detector / detection zone for connecting special detectors.

Fig. 48 BX-OI3

BX-02I4 output/input module
The BX-02I4 can be used either as O/I module or as fire incident control module.

Fig. 49 BX-02I4

BX-AIM advanced input module
The BX-AIM can be used either as monitored input for polling potential-free contacts or as detection zone for connecting collective SecuriStar detectors. It serves, among other things, to connect intrinsically safe detectors (Ex-i) with intermediate switching of a Zener barrier. An output for a repeat signal is also available.

Fig. 50 BX-AIM

BX-IOM input/output module
The BX-IOM has a galvanic isolated output for actuating monitored consumers (e.g. sirens) which are supplied by external voltage sources. The input can be used to scan potential-connected voltage sources. The monitored output is divided into three load ranges and can actuate and monitor a load between 20 Ω and 1 kΩ.

Fig. 51 BX-IOM

BX-REL4 relay module
The BX-REL4 consists of four potential-free relay outputs for switching loads of up to 2 A and up to 230 V. All relays are bistable changeover contacts and each one has a screw terminal for the normally closed contact and normally open contact. For each output an “Active in Fail-Safe-Position” can be programmed in the event of ring voltage failure.

Fig. 52 BX-REL4

BX-IM4 input module
The BX-IM4 has 4 primary inputs for scanning potential-free contacts. These inputs monitor the lines for creeping wire breakage and short-circuit. The “monitored” or “unmonitored” operation mode is separately planned for each input; further, each input can be programmed inverted.

Fig. 53 BX-IM4

BX-ESL end switch module eXtended Line
The BX-ESL determines the position of the activation pin. The state active/passive is reported to the FAS and indicated on the BX-ESL by means of a LED.

Fig. 54 BX-ESL

7 Programming and software

The SecuriFire fire alarmsystem from Securiton is a modern microprocessor-controlled system equipped with a multitasking-capable real-time operating system.
A functional basic program is downloaded to the system; the program is then configured customer-specifically for the object to be protected while taking into account the relevant standards.
All program components are stored in the B6-BCB main control board; during start-up they are distributed to all computer components of the SecuriFire units, which then operate independently and are monitored by the B6-BCB. All necessary software components are provided in SecuriFire Studio, which contains all of the necessary planning, commissioning, maintenance and diagnostic data of the SecuriFire system.

7.1 Projection

The SecuriFire Studio planning software is used for creating the project-specific programming of a fire alarm control panel. This is where the hardware configuration of the control panel is defined, the addresses and parameters of all elements (except for the SecuriFire ring circuit technology) are assigned, and the logical links are created.
This Windows-based program offers easy programming and the use of default programming, libraries, macros and programming by blocks.
The completed program is complied, prepared and transmitted to the B6-BCB main control unit.

7.2 Loop configuration

With the help of the loop configuration, the complete addressing and parametrization of the SecuriLine eXtended ring circuit technology is centrally performed. The program also includes helpful functionalities and tools for commissioning and troubleshooting.

7.3 Object texts

The text program offers a graphical user interface for creating customer-specific texts of the individual elements. For each control panel element, defined by type and logical number, any customer-specific text can be specified. The text is converted to a format (compiled) which can then be downloaded to the control panel.

7.4 Download / Upload

These functions download and upload the individual software components which are necessary for the operation of a control panel (operating program, standard text, language, customer program and customer text).
Central downloading makes it possible to download planning data on a SecuriLan via one single control panel and to distribute it throughout the entire network.

7.5 Service tools

These programs establish an online connection to the fire alarm control panel, whether to a single control panel or a complete SecuriLan.

7.5.1 ServiceMonitor

ServiceMonitor essentially serves service and maintenance purposes as well as system diagnostics. Also, telegram filters that record certain system states can be set. In addition, in the event of a fault the user is shown relevant, comprehensive information and possible causes.

7.5.2 ServiceCenter

In the ServiceCenter you can send various commands to the control panel.

7.5.3 SystemInformation

This is where the hardware and various versions of the software in use are called up and different kinds of lists are generated (e.g. fault counter, alarm counter, fault list etc.).

7.5.4 LoopAnalysis

With LoopAnalysis you can evaluate the data of all detectors present in the system. Recordings from the data logger can also be evaluated.

The document “Module faults”, which will provide a complete description of all module faults, is in the pipeline.

7.6 The modular system structure

The fire detection system SecuriFire is a modular, decentralized constructed fire detection system which consists of single components and can be adapted according to demand to the individual system requirements.

This completely modular system structure enables the application in nearly all applications, from very small systems to large-scale networked overall systems, and can be simply and quickly extended - also later - and adapted. Also already installed Securiton alarm units and systems can be integrated without problems into a SecuriFire system.

Due to the system structure the SecuriFire is also checked and admitted as control unit for multiple-zone extinguishing systems (according to EN 12094-1)

The fire alarm control panel is no more a centralized device to which all lines must be led, it can consist from up to 16 panels (FCPs) which can be installed in the building. Of course it is also possible to use only one control panel (FCP) like up to now if the system does not exceed a certain size.

List of figures

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