Sinteso control panels – clear concept, efficient operation

SIEMENS

Sinteso: innovation based on experience – from Siemens

Sinteso™ is a comprehensive system for fast, reliable fire detection, alarm signaling and control. It is designed to protect lives and assets and prevent production losses, thereby safeguarding your company's buildings and very survival. Sinteso not only defines the technological state of the art, but also offers almost unlimited scalability, network capability, and further development in harmony with existing products.

The ideal solution for every requirement

■ Safe, precise, and reliable – from detection to control

Reliable detection, fast notification, quick response – Sinteso sets the standard in all three areas. At the field level, for example, with everything from state-of-the-art fire detectors with **ASA**technology™, providing such immunity from false alarms that even a Genuine Alarm Guarantee is possible. Fast, fault-tolerant network technology ensures maximum reliability in communication between FDnet devices and the control panel. And the control panels offer simple, intuitive operation, plain text displays, and unambiguous instructions – and let security personnel concentrate on the event.

■ Scalable and versatile – for all requirements from "standard" to "special"

Sinteso was developed using decades of experience in fire protection. In combination with the Sinteso fire detectors, the Sinteso control panels offer a complex and homogeneous system.

The characteristic feature of Sinteso is its flexibility to meet any requirement. In a standard configuration, for example, two loops can be connected to an FC2020 control panel, and four loops to an FC2040, expandable to 4 or 8 loops. For big, complex applications, up to 28 loops or 56 stubs with up to 1,512 FDnet addresses can be connected to the modular FC2060. A broad range of FDnet devices is available for every task.

The result is a comprehensive fire protection system on a shared technology platform with provision for simple, open-ended expansion in the future.

■ Homogeneous and expandable – for more efficiency throughout the entire life cycle

The fire control panel networks from Sinteso can be adapted to any building structure by networking several clusters (FCnet/SAFEDLINK) with a backbone (FCnet/LAN). For the backbone, IT technologies such as industrial LAN are being used. Siemens is the first manufacturer to use this technology in a redundant way so that it is also approved as a fire safety system.

In addition, Sinteso can be efficiently commissioned, expanded, and adapted – thanks, for example, to FDnet-powered devices that require no additional cabling for their power supply, data transport or connection to the control panel. Additional devices and lines can be simply connected to the system networks (FDnet, FCnet) when a building is expanded. And if you ever want to use rooms for new functions, you only need to have the parameter sets of the detectors adapted.

■ Reliable fire safety – thanks to communication with other security systems

For increased safety, Sinteso can be easily integrated into a danger management system from Siemens. This enables security personnel to centrally operate fire alarm signals, video surveillance, access control, and other systems. This offers additional security: video surveillance provides an overview of the danger area. In addition, the recorded film footage can also be used later to help analyze the cause of an event. And with access control, escape routes can be controlled and doors opened or closed.

■ Optimal life safety – through innovations

Operational safety, sophisticated detection, and reliable alarming – Sinteso offers many innovative functions for uniquely high levels of protection. For example, the control panels are safeguarded by a degrade mode and standby functionality. Redundant sensors increase the availability of the detectors. In addition, the CO concentration can be monitored independently of fire detection. Turbo isolators as well as loop installations ensure reliable alarming, as they increase the availability of the alarm sounders and floor repeater terminals even in the case of an open or short circuit. Among other things, the Video Fire Controller allows a visual verification of events. And the integration of the voice alarm system E100 enables safe evacuations.

Highlights

- ■ Comprehensive fire safety system

- ■ Genuine Alarm Guarantee possible

- ■ Can be used in small and simple as well as for very large, complex, and unadjoined buildings

- ■ EN 54-compliant networking of several clusters – for the largest applications

- ■ Networking across all building services via Ethernet

- ■ Easy integration into a danger management system from Siemens

Fire control panel FC2020

Floor repeater terminal FT2010

Different FCnet stations for a wide range of needs

The specifications for fire detection technology depend, among other things, on the size and complexity of the building. As a result, requirements for the fire control panels also vary depending on the area of use. To ensure that the right control panel is always available to suit the application at hand, Sinteso offers different FCnet stations that can be networked with one another.

■ FC2020 – the control panel for small-scale applications

The design of the FC2020 fire control panel is extremely compact; it can be completely networked via Ethernet. A maximum of 252 FDnet devices, such as fire detectors, alarms or floor repeater displays can be connected. They can be distributed on up to four FDnet loops or eight stubs. Moreover, the FC2020 can also be networked with Sinteso control panels that are of the same design or more powerful.

The FC2020 is particularly suitable for the following applications:
– Small hotels
– Workshops
– Banks and branch post offices
– Museums
– Small-scale industrial operations
– Retirement and nursing homes
– Schools

■ FC2040 – the control panel for medium-sized applications

The FC2040 fire control panel is the right choice for medium-sized areas of use. It supports up to 504 FDnet devices that can be connected on up to eight FDnet loops or 16 stubs. This provides a good foundation for protecting medium-sized buildings. Since the FC2040 can be networked, it can also be used for monitoring extensive building complexes.

Some examples of practical applications:
– Medium-sized industrial operations
– Office and administrative buildings
– Shopping centers
– Medium-sized hospitals
– Hotel complexes
– University campuses

■ FC2060 – the control panel for large applications

The modular control panel FC2060 is the ideal solution for large new applications or a stepwise modernization of existing fire detection systems. Its modular structure lets you connect up to four loops, and up to five module bus cards can be integrated. This means that the FC2060 can be expanded to support up to 28 loops or 56 stubs as well as more than 1,500 devices, offering maximum flexibility and opening up new perspectives – including networking with other FCnet panels.

Possible applications include:
– Large industrial plants
– Big office complexes
– Full-scale industrial complexes

■ Everything on the screen, everything under control – in every situation

All innovative Sinteso control panels have an integrated degrade mode. This ensures that alarms of connected FDnet devices are transmitted to the system and reach the security personnel as well as the fire brigade even if a panel should fail. If a fire terminal or an operating unit of a panel fails, a standby Person Machine Interface, such as another Sinteso control panel or another FT2040 fire terminal, will automatically take over its display and operating functionalities.

Another plus: detectors and peripheral devices are connected to the panels via FDnet loops and have integrated turbo isolators. With standard systems, it can take a long time until detectors and alarm devices are functional again after a loop failure. With Sinteso, however, the reinitialization of the loop is extremely fast thanks to the turbo isolators. Thus, alarms and messages reach the panel with no delays even in the case of a line interruption, and alarming with the alarm sounders occurs without interruption. As a result, the site is reliably protected at all times.

■ FT2040, FT2010, and FT2011 – remote operation and overview

The FT2040 fire terminal mirrors the displays and functions of the control panels with which it is networked. This is practical for adding further operating terminals some distance away from the control panels; for example, in the reception area. This enables the personnel to react more quickly to faults and alarms – directly from their workstations, without having to go to the control panel.

Both the FT2010 floor repeater terminal and FT2011 floor repeater display provide a detailed overview of all alarms and messages from the entire system on floor level if needed. Furthermore, they follow the same operating and display concept as the panels. The FT2010 additionally offers important operating functions like a panel.

■ FDnet and collective line cards – for increased flexibility

FDnet and collective line cards can be used to expand Sinteso networks as well as to connect existing collective detectors to a Sinteso system. Collective line cards allow connection of up to eight additional stubs to a panel. FDnet line cards can be used to add up to four loops or eight stubs.

Highlights

- Customized control panels for different areas of use – for small and very large, simple and complex as well as distributed buildings

- Fire terminals for additional, remote system user interfaces – such as in the security monitoring room or the reception area

- Highest safety, transparency, and availability thanks to degrade mode, standby functionality, and turbo isolators

- Stepwise modernization of existing fire detection systems – with the FC2060

- Modularity thanks to FDnet and collective line cards
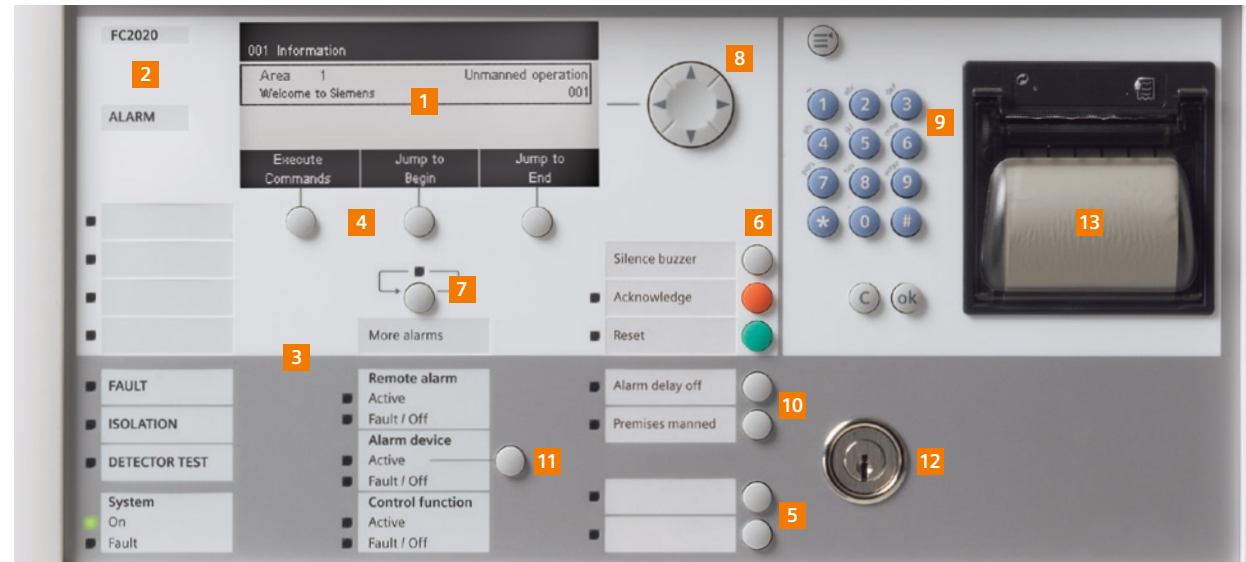
Simple operation – quick and easy access to all functions

Dangerous situations are stressful situations. But they demand the right response, quickly. To ensure that this happens, safety technology must be easy to understand and intuitive to operate. With fire control panels, it must be possible to see at a glance which operating steps are required.

■ **Standardized operating concept that is easy to learn**
All FCnet stations including the floor repeater terminals on the FDnet follow a standardized operating concept. They are also based on the same hardware and software platform, which means greater operating safety with less training.

■ **Different user profiles with individual rights**
To allow individual modifications for situations involving several users, different access rights can be defined for different user profiles.

■ **Intuitive operation – reliable reaction**
The operation of all FCnet stations is simple, ergonomic, and self-explanatory, thanks to a logical, menu-driven user interface. Interactive, dialog-based procedures ensure ease of use. Standard keys are available for the "Acknowledge", "Reset", and "Silence buzzer" functions, allowing users to navigate easily and conveniently through message lists. Thus, alarming devices can be quickly and easily switched on and off at the control panels, operating modes can be changed, and event messages can be clearly identified and responded to.

In the event of an alarm, intervention texts with instructions make it easier to initiate the correct reaction.

■ **Innovative standby functionality – increased safety**
Should an operating panel fail because of a fire incident or construction work, standby functionality ensures that alarm messages are transmitted to other control panels. A standby operating panel can be configured to automatically take over the display and control functions of the failed panel. If Sinteso is integrated into a danger management system from Siemens, security personnel can operate the fire detection system via the standby terminal even if the connection to the danger management system should fail.

■ One control panel – various alarm concepts

Shopping malls, airports or industrial parks are often divided into several fire protection areas that need different alarm concepts. There could be several reasons for this: security personnel need time to verify an alarm before alerting the fire department, or several tenants with different requirements share the same control panel. For these and other scenarios, Sinteso fire control panels are the ideal solution because each control panel offers several, independent alarm concepts – the FC2020 and FC2040 offer four and the FC2060 offers eight alarm concepts.

■ Innovative vectoring – providing a clear overview for increased safety

Faster orientation and more operational and reaction safety in a stressful situation. The display of events and alarms can be tailored to individual needs to ensure that users can completely concentrate on the relevant information when an event occurs. Used with a control panel or a fire terminal, the vectoring function lets you define which events, faults or alarms are displayed and in how much detail – from a single area or several areas to the entire system.

■ Improved service – through remote control

The control panels can be accessed via Ethernet and a standard PC using the PC software SintesoView for remote system operation. Events such as messages, faults or alarms can then be displayed on the PC. You can also use it to check the system status and the opening of fire doors, review past events, and if permitted switch fire zones back on after construction work. SintesoView functionality exactly matches panel operation.

Of course, remote monitoring requires the highest level of security: Only authorized persons can access the network using a security module and password.

Highlights

- ■ Standardized operating concept for all control panels, fire terminals, and floor repeater terminals

- ■ Menu-driven, logical operation

- ■ Interactive, dialog-based procedures

- ■ Simple, safe, stress-free operation in the event of an alarm

- ■ Standby functionality for additional safety

- ■ Several alarm concepts for large applications with different users

- ■ Different access rights for different user groups

- ■ Comprehensive overview anytime, anyplace – thanks to remote access and SintesoView

Fire control panel FC2040

Easy networking –
even for large applications

Whenever requirements change, a network has to be expanded or detectors or control panels have to be exchanged – Sinteso is the ideal solution thanks to its modularity and flexibility.

■ **Innovative networking of several clusters via the backbone**

Sinteso is the first fire safety system that uses EN 54-compliant, industrial LAN technology. The system can be expanded to up to 64 control panels or fire terminals to realize especially large applications.

In this way, Sinteso also protects for example companies and airports with buildings distributed over a large campus. Via the fiber-optic backbone (FCnet/LAN), several clusters (FCnet/SAFEDLINK) with up to 16 panels each can be connected. Every cluster is connected to the backbone with two independent, EN 54-compliant Ethernet switches, ensuring the highest possible system availability.

In addition, the entire network can be optimally adapted to existing building structures. As an EN 54-compliant overall system, one central access point is sufficient to connect the remote transmission to the fire brigade, pager, and a danger management system. To integrate the large Sinteso network into a danger management system from Siemens, only one Ethernet switch and one optional security module (firewall) are needed.

■ **Networking of control panels and terminals in a cluster**

The different control panels and the fire terminal can be networked with each other to protect large building complexes as well as to extend the fire protection system to extensions and factory buildings that are added later. Up to 16 (and, in part, up to 32) control panels and fire terminals can be connected in one cluster. The distance between two stations can be up to 2,000 m with repeater. With fiber-optic cables, the distance can be expanded up to 15,000 m. Moreover, a cluster can be expanded further with industrial LAN technology to a cluster-backbone architecture.

■ **Timely commissioning**

As soon as the control panels are switched on, all FDnet devices are automatically read in. This means that the building is immediately protected and, in case of an event, the fire safety system will instantly transmit the address of the alarming detector. Moreover, the fire controls can be configured by several people simultaneously. This parallel commissioning process reduces commissioning time.

■ **Innovative: exchange during running operation**

Connected FDnet devices can be exchanged easily and quickly without having to switch off the fire control panel. Module bus cards for the modular FC2060 can be easily exchanged during running operation as well. This flexibility ensures high system availability.

■ **FDnet loops – the flexible way to extend loops**

The loop extension makes it possible to double the number of loops. This allows variable adaptation of the cable routing as well as increased flexibility when changing the function of a building.

Application: complex building

Network in a complex building, for example a hospital.
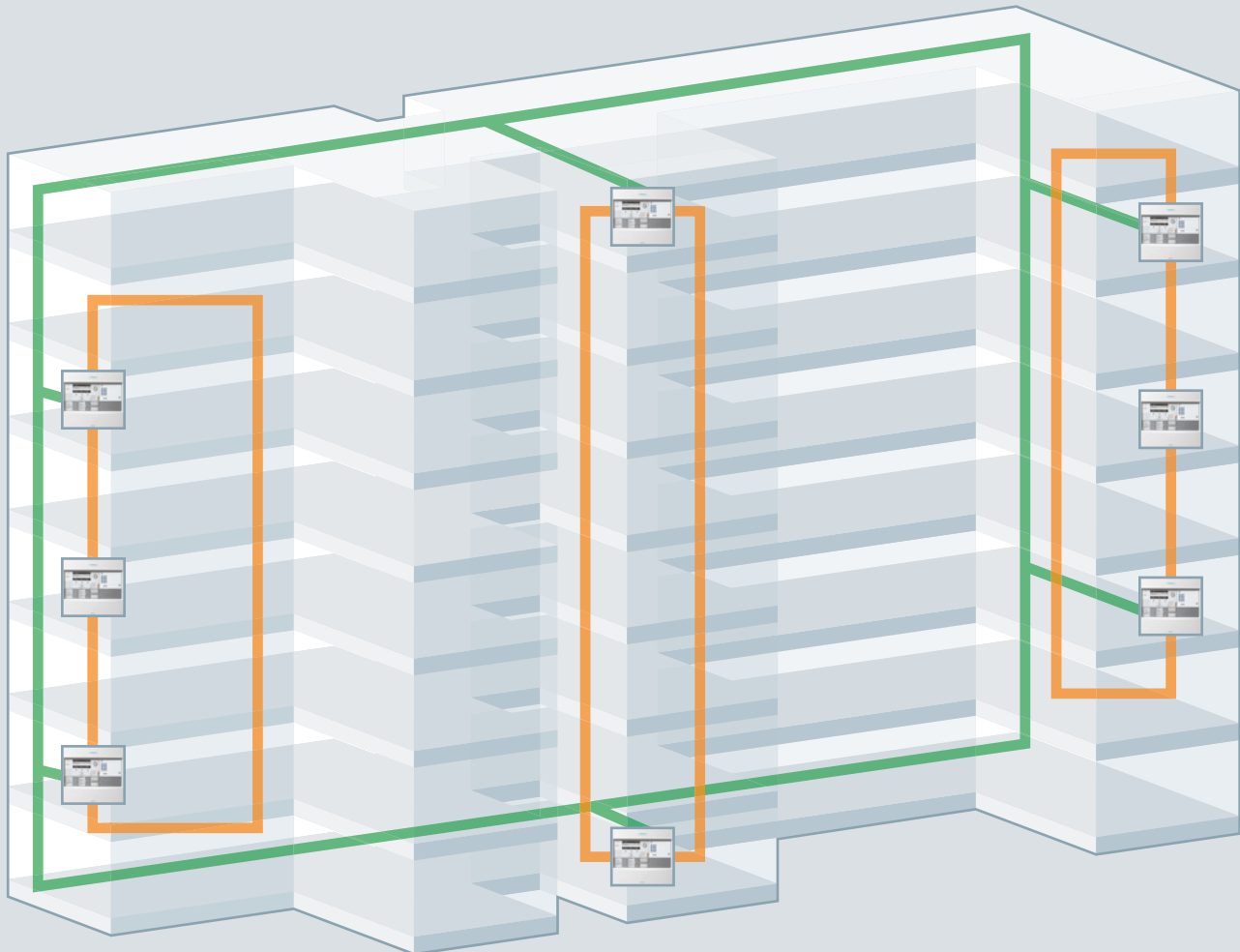
Description

In complex buildings, the fire safety system can be adapted to local circumstances. The control panels as well as fire terminals are networked together via clusters (FCnet/SAFEDLINK). These clusters are interconnected via industrial LAN technology per backbone (FCnet/LAN) to create an EN 54-compliant overall system.

Benefits

– Only one remote transmission to fire brigade necessary for entire system
– One interface to common pager system
– Overview of entire system from any configured terminal
– Fiber-optic backbone with high immunity to electromagnetic disturbance

– System-wide EN 54-compliant operation
– Timely hand-over thanks to parallel commissioning of individual panels or clusters
– Distributed intelligence: complete control in the event of a fire is mapped in a cluster; this enables ideal adaptation to structural as well as process requirements

━━━ Backbone (FCnet/LAN)
━━━ Cluster (FCnet/SAFEDLINK)

Application: large campus

Extensive network spanning large distances, for example a production plant
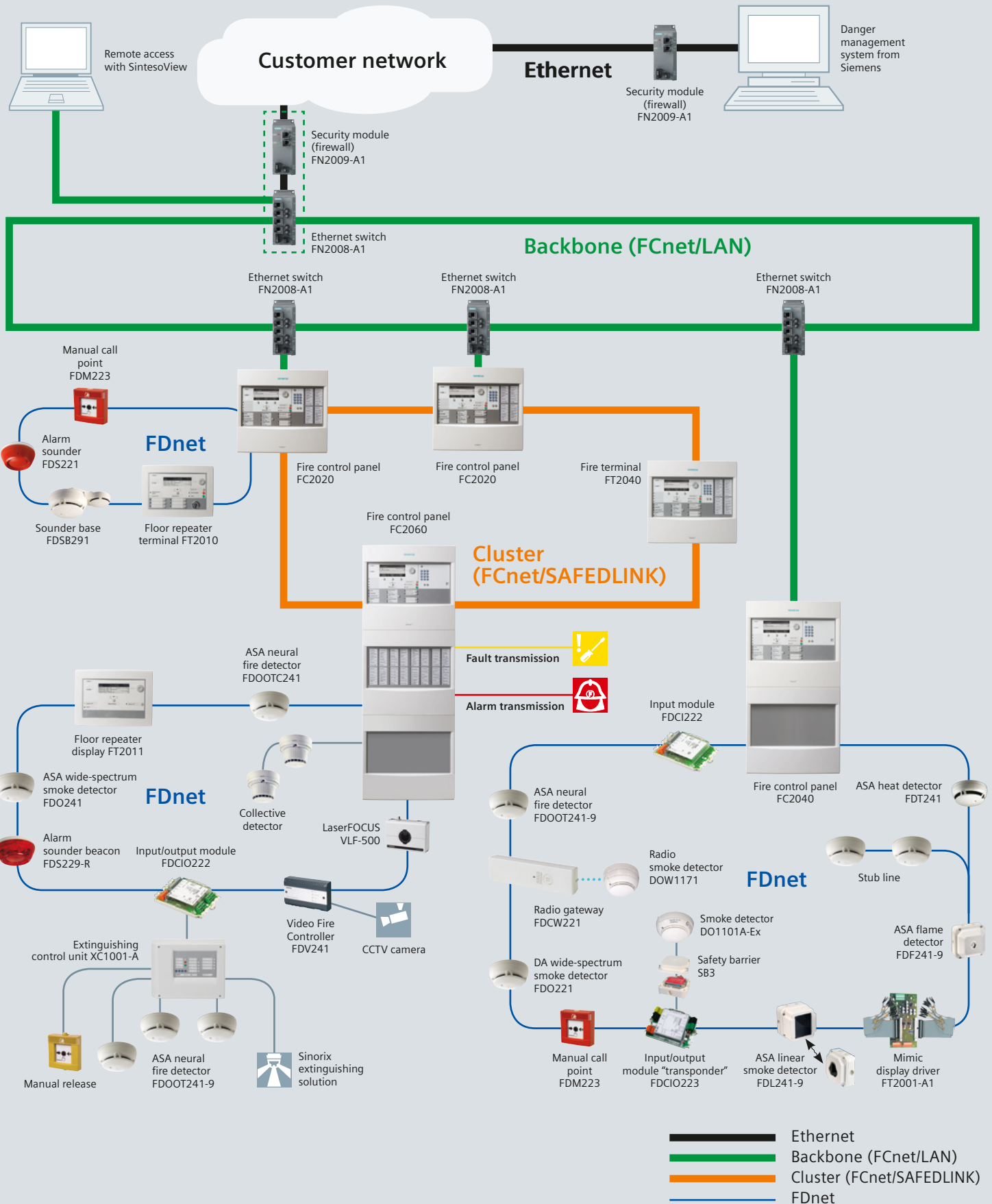in the pharmaceutical industry.
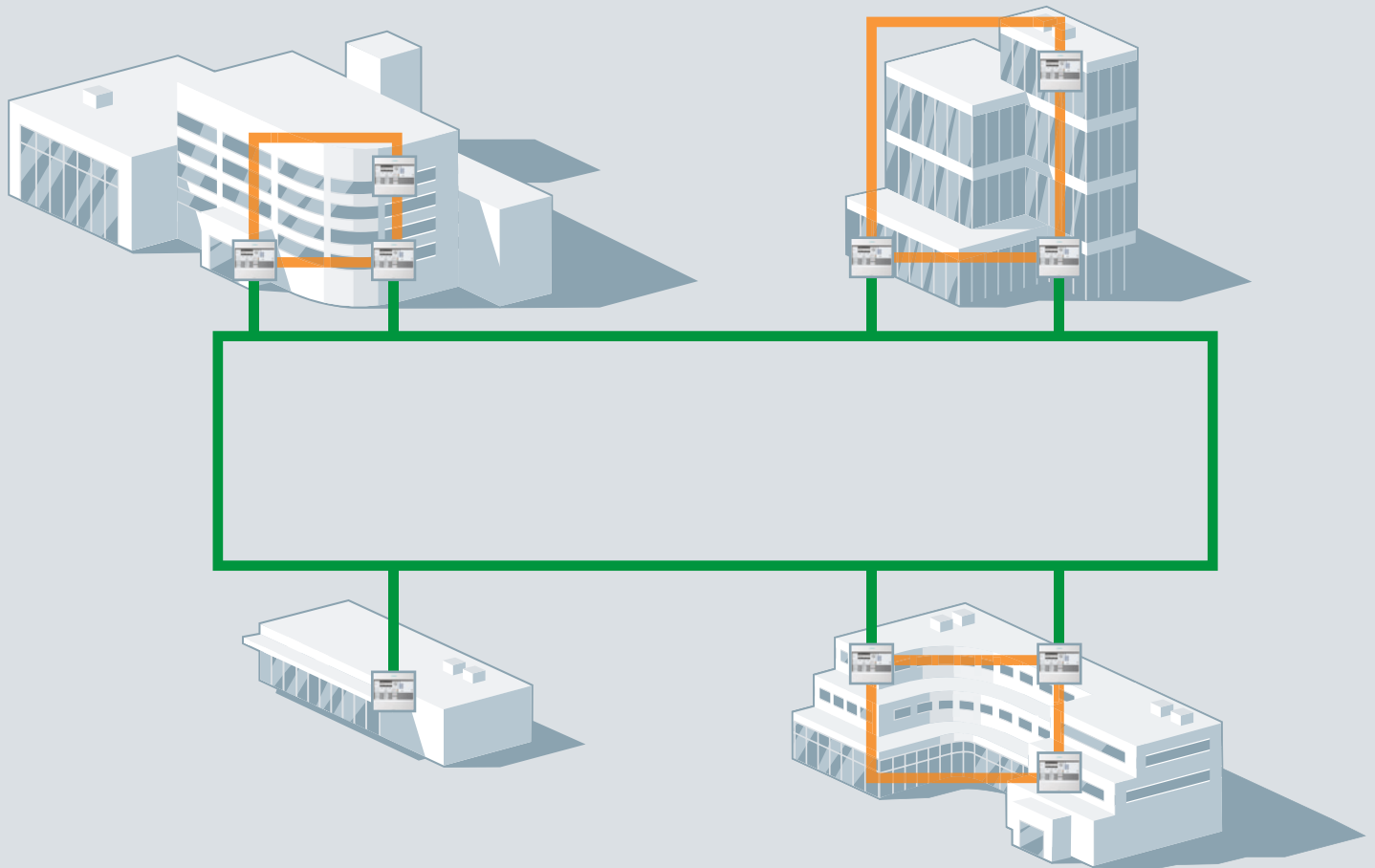
Description

A campus comprises numerous, independent
buildings. These have their own organization
and structure that can be mapped ideally with
a cluster of up to 16 panels. The backbone
connects these clusters to an EN 54-compliant
network.

Benefits

– Intelligently arranged network structure with
  clearly defined clusters
– Only one control panel necessary to access
  entire system with all subnetworks
– Backbone is EMC protected and EN 54-compliant
– Commissioning is possible at several locations
  simultaneously (gain in time)
– Only one central connection to pager system
  for entire system

– Distributed intelligence: complete control in
  the event of a fire is mapped in a cluster; this
  enables ideal adaptation to structural and proc-
  ess conditions
– Security personnel has entire campus in view
– The right information at the right place:
  pre-defined views can be displayed according
  to customer requirements over the entire
  system; all controls can be configured to
  fulfill site-specific requirements

——— Backbone (FCnet/LAN)
——— Cluster (FCnet/SAFEDLINK)

Sinteso – the comprehensive system with control panels and FDnet devices

Customer network

Remote access with SintesoView

Ethernet

Security module (firewall) FN2009-A1

Danger management system from Siemens

Security module (firewall) FN2009-A1

Ethernet switch FN2008-A1

Backbone (FCnet/LAN)

Ethernet switch FN2008-A1

Ethernet switch FN2008-A1

Ethernet switch FN2008-A1

Manual call point FDM223

Alarm sounder FDS221

FDnet

Fire control panel FC2020

Fire control panel FC2020

Fire terminal FT2040

Sounder base FDSB291

Floor repeater terminal FT2010

Fire control panel FC2060

Cluster (FCnet/SAFEDLINK)

ASA neural fire detector FDOOTC241

Fault transmission

Alarm transmission

Input module FDCI222

Floor repeater display FT2011

ASA wide-spectrum smoke detector FDO241

FDnet

Collective detector

LaserFOCUS VLF-500

Fire control panel FC2040

ASA heat detector FDT241

Alarm sounder beacon FDS229-R

Input/output module FDCIO222

Video Fire Controller FDV241

CCTV camera

ASA neural fire detector FDOOT241-9

Radio smoke detector DOW1171

Radio gateway FDCW221

FDnet

Stub line

ASA flame detector FDF241-9

Smoke detector DO1101A-Ex

Safety barrier SB3

Extinguishing control unit XC1001-A

DA wide-spectrum smoke detector FDO221

Manual release

ASA neural fire detector FDOOT241-9

Sinorix extinguishing solution

Manual call point FDM223

Input/output module "transponder" FDCIO223

ASA linear smoke detector FDL241-9

Mimic display driver FT2001-A1

Ethernet

Backbone (FCnet/LAN)

Cluster (FCnet/SAFEDLINK)

FDnet

FC2020	Control panels with Standard housing		Control panels with Comfort housing	

FC2020-AZ

2 loops for max. 252 addresses with power supply: 70 W
Battery capacity: max. 2x12 Ah
1 Ethernet connection RJ45

FC2020-EZ
(24 LED display groups)

2 loops for max. 252 addresses with power supply: 70 W
Battery capacity: max. 2x12 Ah
1 Ethernet connection RJ45

FC2020-AA

2 loops for max. 252 addresses with power supply: 150 W
Battery capacity: max. 2x26 Ah
1 Ethernet connection RJ45

FC2020-AE
(48 LED display groups)

2 loops for max. 252 addresses with power supply: 150 W
Battery capacity: max. 2x26 Ah
1 Ethernet connection RJ45

FC2040	Control panels with Comfort housing

FC2040-AA

4 loops for max. 504 addresses with power supply: 150 W
Battery capacity: max. 2x26 Ah
1 Ethernet connection RJ45

FC2040-AE
(48 LED display groups)

4 loops for max. 504 addresses with power supply: 150 W
Battery capacity: max. 2x26 Ah
1 Ethernet connection RJ45

FC2040-AG
(96 LED display groups)

4 loops for max. 504 addresses with power supply: 150 W
Battery capacity: max. 2x26 Ah
1 Ethernet connection RJ45

FC2040-BB
(with A3 plan compartment)

4 loops for max. 504 addresses with Nordic key switch and power supply: 150 W
Battery capacity: max 2x45Ah
1 Ethernet connection RJ45

FC2060	Control panels with Large housing

FC2060-AA

max. 28 loops for max. 1,512 addresses with power supply: 150 W
Battery capacity: max. 2x45 Ah
1 Ethernet connection RJ45

Whether small and compact or modular and customizable, Sinteso control panels are the heart of the system. They process all messages generated by the system, and trigger alarm signals and complex control processes. The extremely simple user interface with user prompting allows rapid check of system status, either locally or by remote access. Since requirements vary depending on the building and application, different control panels are available for different areas of application

FT20	Fire terminals with Eco housing		Floor repeater terminals and displays	

FT2040-AZ

Power supply: 70 W
(optional)
Battery capacity: max. 2x7 Ah
1 Ethernet connection RJ45

FT2040-EZ
(24 LED display groups)

Power supply: 70 W
(optional)
Battery capacity: max. 2x7 Ah
1 Ethernet connection RJ45

FT2010

Power supply: via FDnet or 70 W
(optional)

FT2011

Power supply: via FDnet or 70 W
(optional)

Module bus cards for FC2060

FCL2001-A1
FDnet line card

4 loops, max. 252 FDnet devices
installable into: FC2060

FCL2002-A1
Collective line card

8 stubs
installable into: FC2060

FCI2008-A1
I/O card

Programmable
12 freely configurable
inputs/outputs
fail-safe
installable into: FC2060

Expansion and network options

FCI2003-A1
Loop extension (FDnet)

Loop extension
(e.g. from 2 to 4 loops
or from 4 to 6 loops)

FN2001-A1
Network module (SAFEDLINK)

Housings

FHA2016-A1
19" mounting kit

To integrate a panel into a 19"
cabinet

FH2001-A1
Housing (Eco)

To integrate additional LED or event
printer FTO2001-A1

FHA2017-A1
Flush mounting cover for control
panels and fire terminals

FH2004-A1
Housing (large extension)

To integrate additional feeds and
batteries

Network components

FN2008-A1
Ethernet switch

to connect several clusters to an
Ethernet backbone and the danger
management station or a PC for
remote operation with SintesoView

FN2009-A1
Security module

to protect individual devices or
networks from data espionage, data
manipulation, unauthorized access

Operating add-ons

FTO2005-C1
Operation access key set KABA

User access is integrated in the key
concept

FTO2001-A1
Event printer

FTO2006-B1
Operation access key set Nordic

User access can be approved with
one key

DL 3750+
Monitored, external
event printer

FCM2006-A1
(48 LED display groups)

FCM2007-A1
(96 LED display groups)

Answers for infrastructure.

■ **Megatrends driving the future**

The megatrends – demographic change, urbanization, climate change, and globalization – are shaping the world today. These have an unprecedented impact on our lives and on vital sectors of our economy.

■ **Innovative technologies to answer the associated toughest questions**

Throughout a 160-year history of proven research and engineering talent, with more than 50,000 active patents, Siemens has continuously provided its customers with innovations in the areas of healthcare, energy, industry, and infrastructure – globally and locally.

■ **Increase productivity and efficiency through complete building life cycle management**

Building Technologies offers intelligent integrated solutions for industry, commercial and residential buildings, and public infrastructure. Over the entire facility's life cycle, our comprehensive and environmentally conscious portfolio of products, systems, solutions, and services for low-voltage power distribution and electrical installation technology, building automation, fire safety and security ensures the:
– optimum comfort and highest energy efficiency in buildings,
– safety and security for people, processes, and assets,
– increased business productivity.

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