Keeping people **safe** is our **first priority**
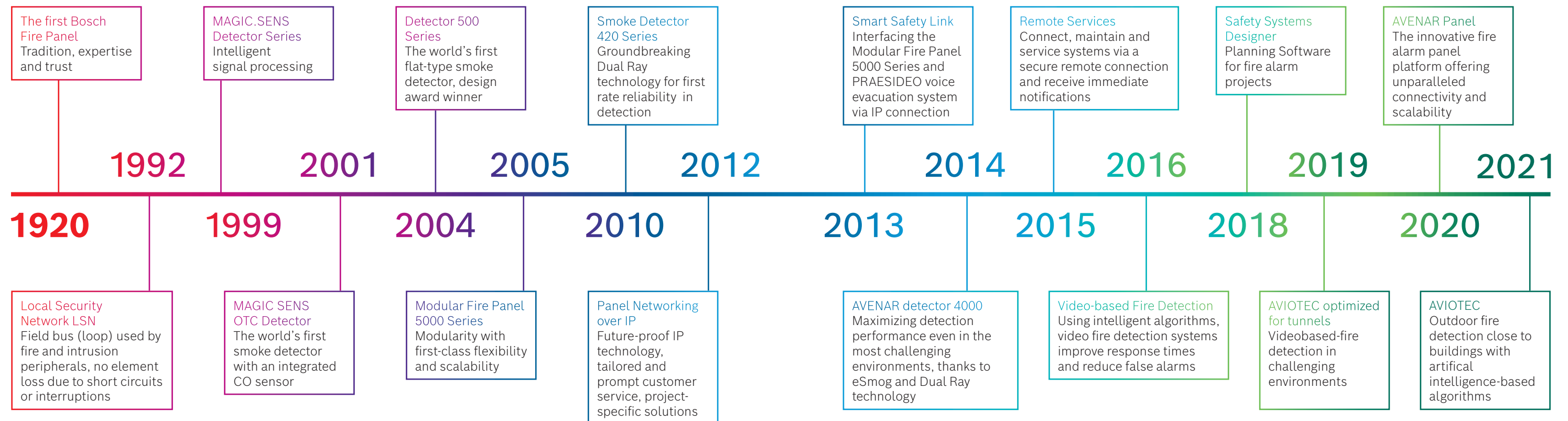
Bosch Milestones –
Innovative Strength in Fire Detection
Technology for over 100 years

Did you know that...
Bosch was the first company in the world to build a carbon monoxide sensor in its fire alarm detectors?

100 Years
Bosch Building Technologies
1920 – 2020

The first Bosch Fire Panel
Tradition, expertise and trust

MAGIC.SENS Detector Series
Intelligent signal processing

Detector 500 Series
The world's first flat-type smoke detector, design award winner

Smoke Detector 420 Series
Groundbreaking Dual Ray technology for first rate reliability in detection

Smart Safety Link
Interfacing the Modular Fire Panel 5000 Series and PRAESIDEO voice evacuation system via IP connection

Remote Services
Connect, maintain and service systems via a secure remote connection and receive immediate notifications

Safety Systems Designer
Planning Software for fire alarm projects

AVENAR Panel
The innovative fire alarm panel platform offering unparalleled connectivity and scalability

1992   **2001**   **2005**   **2012**   **2014**   **2016**   **2019**   **2021**

1920   **1999**   **2004**   **2010**   **2013**   **2015**   **2018**   **2020**

Local Security Network LSN
Field bus (loop) used by fire and intrusion peripherals, no element loss due to short circuits or interruptions

MAGIC SENS OTC Detector
The world's first smoke detector with an integrated CO sensor

Modular Fire Panel 5000 Series
Modularity with first-class flexibility and scalability

Panel Networking over IP
Future-proof IP technology, tailored and prompt customer service, project-specific solutions

AVENAR detector 4000
Maximizing detection performance even in the most challenging environments, thanks to eSmog and Dual Ray technology

Video-based Fire Detection
Using intelligent algorithms, video fire detection systems improve response times and reduce false alarms

AVIOTEC optimized for tunnels
Videobased-fire detection in challenging environments

AVIOTEC
Outdoor fire detection close to buildings with artifical intelligence-based algorithms

Bosch cares about safety. We design all of our products to assure users that their lives will not only be protected, but quickly and effectively saved. A swift response by the fire detection system is absolutely crucial for alerting services and getting help. And because all our products can be combined, a complete solution can be built from just one source.

Put down the fire
Rely on our 100 years of experience in fire alarm systems to offer you solutions to suit all applications. Our automatic detector series also includes multi-criteria and flush-mount variants that offer nearly invisible detection. We supplement these products with highly flexible, user-friendly control panels, such as the AVENAR panel series, for coordinating fire alarms and other event-related messages. Our unique panel design gives you tailor-made protection. Manual call points, sounders, strobes and interface modules, as well as special detectors and our video-based fire detection AVIOTEC complete the solution.

Get the message across
Evacuating a large number of people spread throughout a large site requires trained on-site personnel and a failsafe voice alarm system. Bosch offers a range of highly robust solutions for sites of all sizes, for faster, more efficient and safer evacuations.

As close as if you were there
Preemptive maintenance is the key to preventing costly false alarms. It ensures timely and dependable fire detection. Remote Services enable technicians to be more efficient and effective with their service calls using remote diagnostics – saving costs, assets and lives. Our applications for iOS and Android via a secure cloud structure provide true push and instant notifications in case of fire alarms or system warnings.

A system as individual as you are

Reliable, flexible and customer-specific

With our expertise, portfolio and technology as well as with our close partnerships we can offer end-to end solutions that are anticipating and sustainable and inspire new opportunities for you. Your Bosch fire alarm system provides you with the certainty to retain the value of your equipment, as all new systems designed by Bosch interact with previously installed systems. From reliable fire detection to advanced voice alarm, we deliver a safe, future-proof investment for any kind of location. In a technology-driven world, we offer you exactly what you need.

Reliable – Bosch offers a broad portfolio of EN- and UL-certified products* and systems for accurate, reliable fire detection and notification. Our solutions provide precise, life-saving information at critical moments – you can count on us.

Flexible – Bosch gives you the opportunity to configure your own system according to your specific needs based on the modular principle. The system adapts to the nature and size of your facility's application, so you are provided with flexibility in your buying decisions.

Customer-specific – Bosch offers you the unique software development kit (SDK) suite, containing all the tools to design customer-specific fire safety management systems and software modifications.

* We offer a portfolio of fire systems dedicated to the UL market

01 Get ready for tomorrow's smart buildings and Internet of Things

Complex projects

Modular addressable AVENAR panel 8000

Mid-sized projects

Modular addressable AVENAR panel 8000

Small projects

1-2 loop addressable AVENAR panel 2000

Ready-to-use

Conventional FPC-500

High rise or complex building

Extensive campus – very large network spanning large distances, for example university campus

The various housings, modules and rails result in a tailored system that you can economically extend as your business needs grow. You only buy the components that you really need!

Bosch provides you with the unique opportunity to configure your own system according to the modular principle and your specific needs. The reusable "click-and-go" modules, the interchangeable housings, the practical CAN bus mounting and the "hot plug" feature make this possible.

Ethernet

Building Management Systems

CAN   CAN   CAN

Network loop with redundancy

Panel networking via CAN or Ethernet network. Combined CAN networks with high-performance IP Ethernet backbone.

Panel networking
The CAN bus technology operates on a peer-to-peer basis ensuring reliable functionality even if an error occurs. The different loops of the network provide flexibility and allow the system to be adapted to personal requirements. Setting up zones within the network connections, provided by either standard copper or fiber-optic cables, as well as Ethernet, facilitates smooth administration.

Integration in business management systems
Connected to the building management system (BIS) and interfaced with the panel controller through an Ethernet interface and the OPC protocol, no additional interface module is required.

Remote control
AVENAR keypad 8000 remote control unit gives full command of the control panel or the panel network by means of a CAN bus. It offers a high degree of functionality, without the need for additional training, together with an attractive design.

Seamless integration of voice alarm via Smart Safety Link from Bosch
Right out of the box, AVENAR fire alarm panels interface with our voice alarm solutions. This integration supports advanced functionality such as guided evacuation by building zones, allowing operators a high level of situational intelligence and optimized response times. Additionally, the solution significantly reduces installation time and costs by minimizing cabling requirements.

Did you know that…
Bosch has created its first fire alarm panel in 1920?

02 AVENAR panel
Are you ready for…

AVENAR panel 2000 and 8000 is the innovative fire alarm panel platform offering unparalleled connectivity and scalability from small to large-sized installations. Users can now fully control safety equipment such as voice alarm, door controls, and more, directly on the panel display via eMatrix feature. The systems are future-proof and fully backwards compatible for sustainable investments, keeping costs for extensions and retrofits at a minimum.

The panel series supports the transformation of building technologies driven by the Internet of Things (IoT). Fully backwards compatible with current fire alarm system components, the AVENAR panel 2000 and 8000 series presents significant improvements in terms of scalability, integration, and processing power. It offers a new level of safety, control and efficiency.

AVENAR panel 2000 for small and medium projects
AVENAR panel 2000 is the key solution for smaller projects. It supports up to four loops thereby extending the applications from small projects to medium projects with up to 512 detectors and call points. AVENAR 2000 panels can connect to a panel network, allowing customers to distribute the intelligence of the fire system in the building while saving cabling costs. Furthermore, AVENAR panel 2000 simplifies the planning and purchasing process for system integrators, as it comes as a complete fire alarm panel kit, expandable in modular fashion.

AVENAR panel 8000 – a solution for all project sizes
For larger-scale installations, AVENAR panel 8000, the successor of the Modular Fire Panel 5000 Series, allows for up to 32 loops and a total of up to 4096 detectors and call points per panel.

Both panels support the current generation of fire detectors based on Local Security Network (LSNi) connections, as well as call stations and other critical system components. The panels can be installed alongside existing network architectures such as our Modular Fire Panel 5000 Series. The possibility to build one common network around AVENAR panel 2000 and 8000 as well as AVENAR keypad 8000 and Modular Fire Panel 5000 Series enhances network efficiency and utilizes the backward compatibility.

AVENAR panel 2000

Modular system built for scalability and connectivity
Both panels support an Ethernet architecture with fast 100 Mbit connectivity. Four external Ethernet ports are available to link Bosch fire panels and Bosch voice alarm systems on a network, connect to building management systems or other safety systems and also enable remote services for cloud-based control and maintenance.
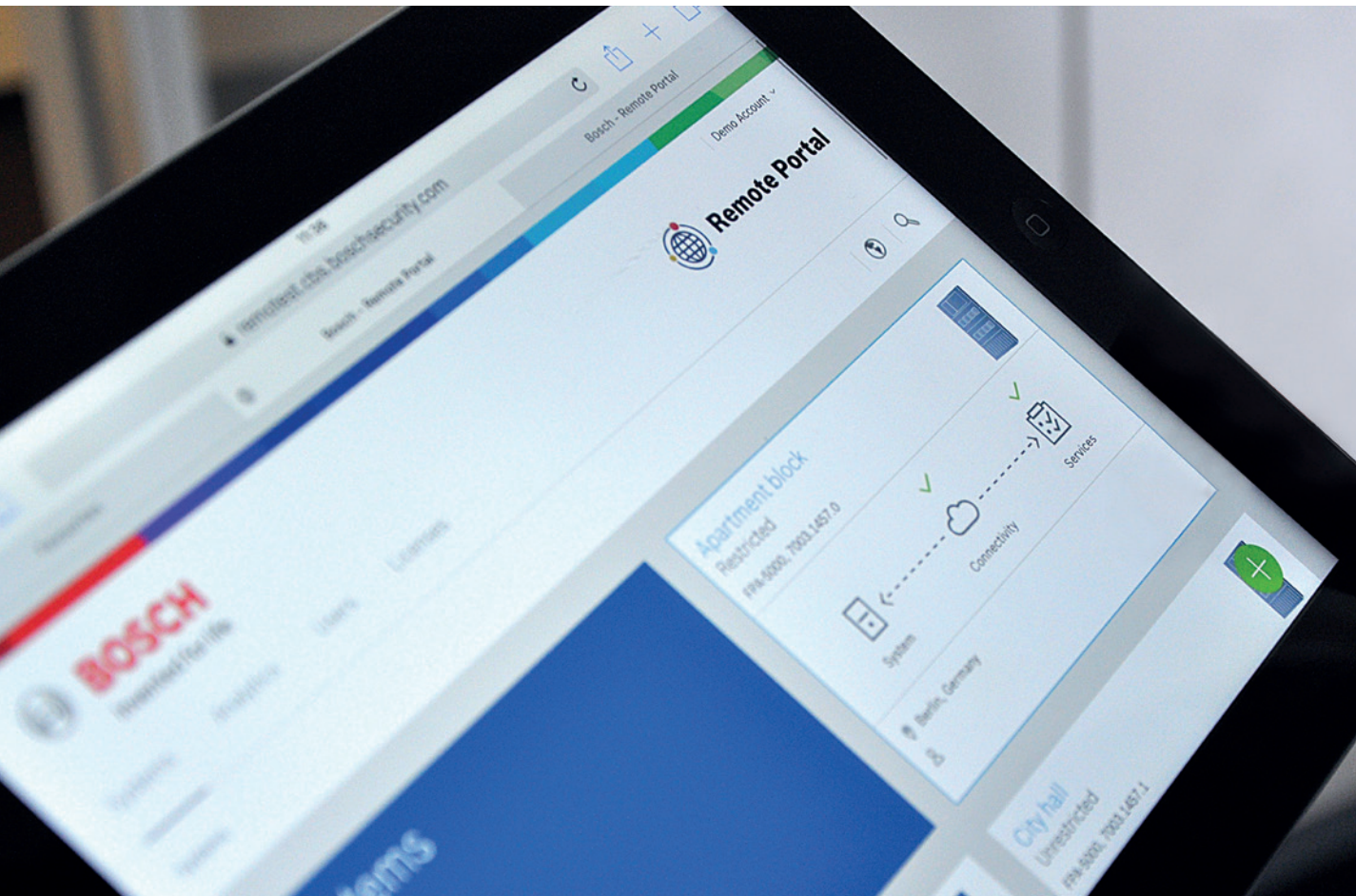
Fully controllable via graphic user interface (GUI) directly on fire panel
As a technical novelty, the eMatrix graphic user interface (GUI) offers full control via a 7-inch screen. The intuitive interface provides a clear status overview of connected fire protection equipment and evacuation zones. eMatrix also controls voice alarm, door control as well as HVAC (heating, ventilation and air-conditioning). It enables safety managers to optimize protection by monitoring automatically triggered evacuations and offers the possibility to interfere manually when required.
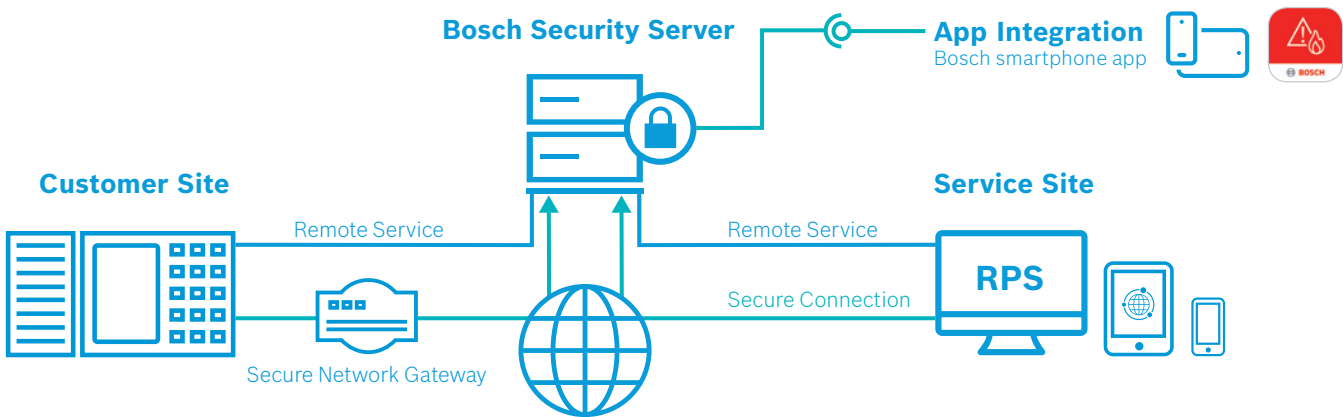
Watch the video "AVENAR panel" and learn more

03 Intelligent service
that's always available

Innovative technology from Bosch allows system integrators to provide seamless remote support and enhanced performance. Bosch Remote Services are a secure, efficient way to monitor, maintain and service fire detection equipment remotely as well as to interact via a mobile application.

Remote Services

Bosch Security Server

App Integration
Bosch smartphone app

Customer Site

Service Site

Remote Service

Remote Service

Secure Connection

RPS

Secure Network Gateway

Remote Connect
The secure and protected connection to the panel via internet optimized for use with FSP-5000-RPS configuration software. It facilitates 24/7 remote access to support troubleshooting whenever and wherever necessary. Specialized technicians can now support the site remotely optimizing efficiency and staff allocation.

Remote Alert
To solve service queries preemptively and faster than ever before, integrators, business owners and technicians can receive immediate SMS and email notifications on alarms and faults directly from their installed systems. The powerful user management on the Remote Portal ensures that relevant notifications reach the right person reliably.

Remote Maintenance
Real-time fire system data can be analyzed on the Bosch Remote Portal to assess replacement efforts and investigate trouble sources before reaching the customer site. On site, the integrated walk test feature supports and simplifies system maintenance with its intuitive tablet and mobile computer interface. Store comprehensive documentation of maintenance activities with one click in automated reports to save valuable time.
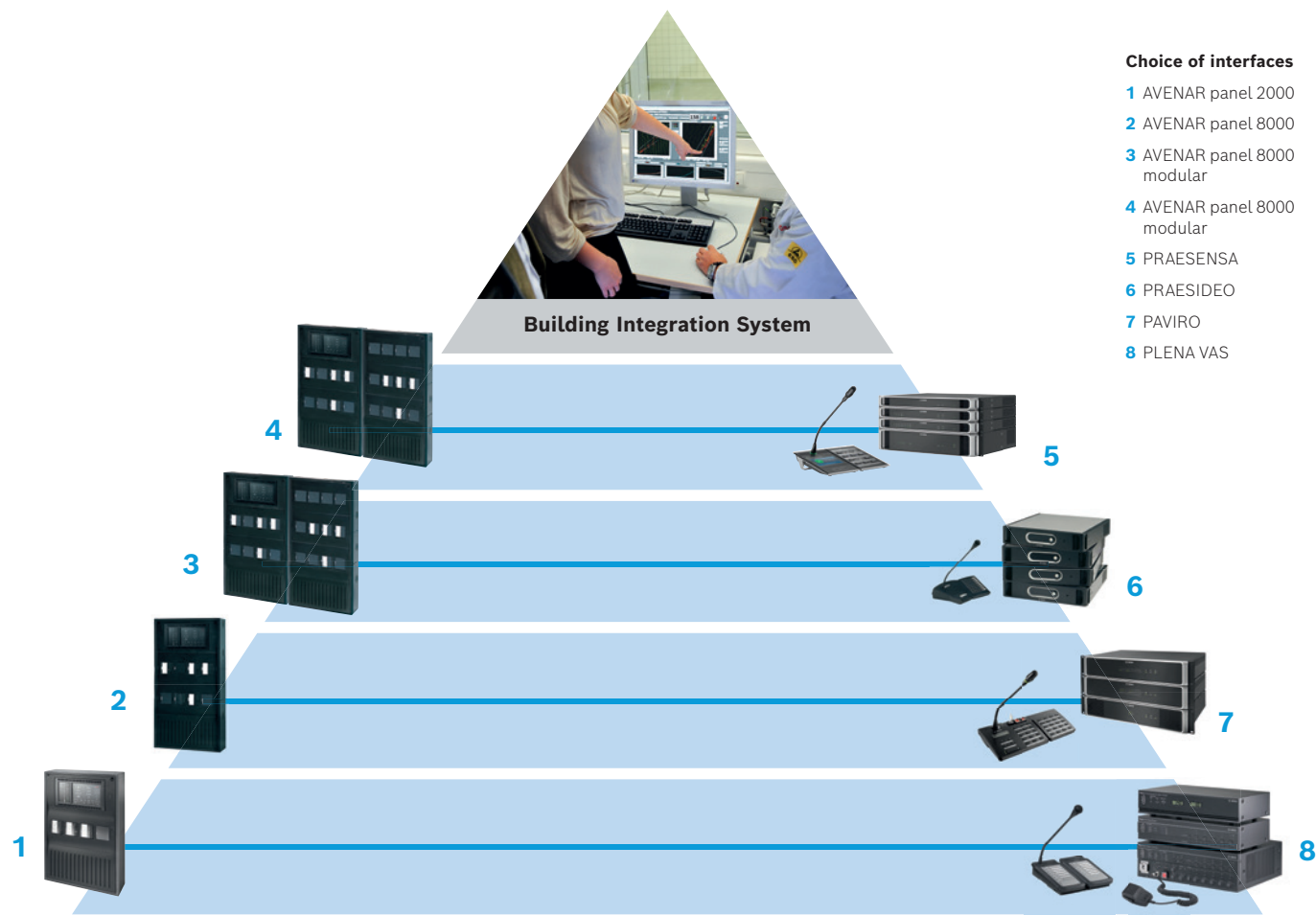
Remote Interact
This service enables the connection of Bosch mobile applications for safety managers, integrators and business owners offers instant push notifications for iOS and Android. It offers prompt information in case of fire alarms or system warnings. The secure connection via cloud infrastructure guarantees best in class cyber security measures.

> 25%
more efficient
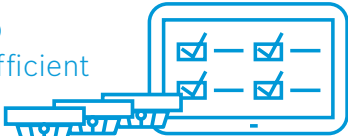
04 Sound performance that's easy to expand

Functional interaction

Choice of interfaces

1 AVENAR panel 2000
2 AVENAR panel 8000
3 AVENAR panel 8000 modular
4 AVENAR panel 8000 modular
5 PRAESENSA
6 PRAESIDEO
7 PAVIRO
8 PLENA VAS

Advanced voice evacuation
Bosch provides everything required for an advanced voice alarm system. Voice messages have excellent speech intelligibility, and signals are clear and easy to understand. The system can route pre-recorded messages and signals, and can provide background music and commercial announcements during everyday operation. Permanent supervision of system functions and loudspeaker lines adds extra reliability. PLENA voice alarm system supports smaller applications; PAVIRO is perfect for mid-sized tasks, while PRAESIDEO and PRAESENSA are a leading choice for larger venues.

Bringing it all togther
The system designs allows for expandability, and all the devices and peripherals work seamlessly together. In smaller applications, the PLENA voice alarm system interfaces with AVENAR panel 2000. For larger-scale applications, an intelligent IP interface connects our AVENAR panel with PAVIRO and PRAESIDEO voice alarm and public address systems. The eMatrix graphic user interface (GUI) of AVENAR panel 2000 and 8000 offers full control via a 7-inch screen. The intuitive interface provides a clear status overview of connected fire protection equipment and evacuation zones. All of these systems connect to a superior building management system via OPC or using a software development kit (SDK).

Fire alarm and voice evacuation with Smart Safety Link

Interfaced integration

Story Casa Sollievo bimbi Italy – Associazione Vidas
Founded in 1982, the Associazione Vidas has been providing free-of-charge social and health services for patients suffering from incurable diseases at home and the Casa Vidas hospice. In 2019 as the first pediatric hospice in Lombardy, Casa Sollievo Bimbi opened and now serves young patients and their families as a 'green'-certified, six-story building with comprehensive support on a total area of 6,400 square meters.

Ensuring the safety of patients was a priority from day one. The Associazione Vidas was looking for a single supplier with experience in equipping medical buildings to provide a centrally controlled, integrated solution for the institution. With integration and end-to-end security as the primary focus, the system relies on IP-based components and network architecture. Solutions include the Modular Fire Panel 5000 Series connected to 1,200 digital detectors for real-time fire alarm throughout the building. Combined with the PRAESIDEO Digital Public Address and Voice Alarm System, certified by security standards such as EN 54-16 and ISO 7240-16, the solution enables a new level of emergency response.
The connection between fire and voice alarm systems at Casa Sollievo Bimbi is created by the Smart Safety Link from Bosch. First, the IP-networked fire detectors in the building automatically pinpoint the exact location (floor, room, area) of a fire to emergency responders for a heightened sense of situational awareness.

Second, the system broadcasts voice announcements with clear evacuation instructions, which studies have proven to deliver time gains up to 30 percent for emergency response teams compared to a non-voice alarm signal. And third, the Smart Safety Link allows for a 'phased' evacuation of the building by different zones. Starting with addressing building occupants closest to the threat creates a highly efficient emergency response that avoids panic and directs people to safety via the shortest, safest escape routes.

To optimally prepare for emergencies, clinical staff can pre-record specific emergency evacuation plans on the PRAESIDEO Digital Public Address and Voice Alarm System. So in case of a threat, staff is free to help patients instead of spending valuable time on live announcements.

> "The collaboration with Bosch has been valuable, effective and efficient."
>
> Giorgio Troisi, General Secretary of the Associazione Vidas

05 Bosch Quality

Fire detectors from Bosch are tested beyond specifications

As it is our commitment to guarantee 100% product and service quality, all fire detectors must first prove their worth inhouse passing tests even beyond specifications. For this, we even have our own fire laboratory near Munich where fire-fascinated employees set fires professionally in order to make fire detection systems safer.

"It has always been an unbearable thought to me that someone could inspect one of my products and find it inferior in any way. For that reason I have constantly tried to produce products which withstand the closest scrutiny – products which prove themselves superior in every respect."

Robert Bosch, 1919

"With our own test laboratory, we can check our products prior to the official certification in order to make sure that we pass the test successfully and do not lose time-to-market."

Robert Rett, test engineer for sensors and peripherals,
Bosch Sicherheitssysteme GmbH

Playing with fire is welcome
Our team at the Fire Lab ensures top quality and performs test fires according to EN54 and UL268 standards. This is a necessary step to be approved by the testing institution VdS Schaden-verhütung GmbH. Before receiving the approval, every fire detection product on the market has previously passed various standard tests. These include a series of different fires that show how the detectors perform under different conditions. In order to prevent any delays in the certification process, we carry out the tests under the same conditions as in the VdS laboratory where each new product is inspected prior to the actual certification.

TF4, or test fire 4 is an example for one of these standard tests and involves burning a polyure-thane plate. After setting the material on fire, the plastic develops flames within seconds and soon fills the fire lab's test chamber also with thick smoke. The entire process is observed in the control room where we monitor on screens which fire detector has triggered an alarm after how many seconds.

Testing resistance to disturbance values
Furthermore, at our own fire laboratory we go even beyond the specifications and carry out self-conceived tests, which are not required, but necessary to ensure the highest reliability of the detectors. These disturbance tests make sure that our fire detection systems are resistant against any external interference variables. We control if the fire detectors trigger an alarm when they recognize cigarette smoke or steam (e.g. in the bathroom or kitchen) or if they can distinguish it from a real fire.

Smoke Tunnel
The disturbance tests are slightly different in order to see, if the video-based fire detection AVIOTEC detects fire and smoke correctly. Direct spotlights shine into the camera and ventilators blow smoke in all directions. Photo canvases have been used to see if AVIOTEC can detect fires correctly even against different backdrops. This shows how thoroughly AVIOTEC is put to the test to prove its reliability even under difficult conditions.

Electromagnetic compatibility
Besides ensuring that our fire detection systems perform in the event of a real fire, we also test emission and immunity in our internal EMC (electromagnetic compatibility) Lab. The detectors are checked for different types of emissions, e.g. radiated or conducted emission, and it must be proven that no voltage fluctuations and flickering occur. In addition, in the lab we control whether the products are immune to surge voltages, electrostatic discharge and radiated electromagnetic fields.
At the third laboratory, the Sensor Lab, we perform tests in a so-called smoke tunnel, that is identical to the official one at the test institute. Here we check our detectors' sensitivities and monitor corrosion properties – all this to be able to offer intelligent detection and superior protection.
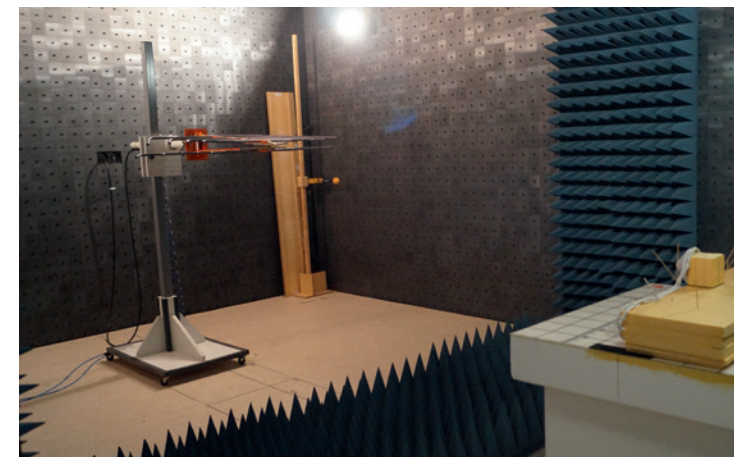
Mr. Rett – the arsonist by profession

Flames and smoke are his profession: In a laboratory near Munich, Robert Rett plays with fire to make fire detection systems safer.

Robert Rett is completely alone in the control room of Bosch's fire laborator y in Ottobrunn near Munich. Through a glass pane, he gazes into a white-tiled room that has polyurethane plates on the floor, and presses a button. He only triggers a small flame, but within seconds, the plastic starts to smoke, and only two minutes later the view into the room is completely blocked with thick, white smoke.

On the screen in front of him, Rett observes when and how the fire detectors mounted on the ceiling of the fire laboratory are triggered. This test, known as Fire Test 4, is one of the standard tests that all fire detection products made by Bosch Sicherheitssysteme must undergo. It is standard because it is one of many fire tests necessary to gain approval by the testing institution VdS (Verband der Sachversicherer) Schadenverhütung GmbH.

"We carry out all norm tests under the same conditions as in the test laboratory. Faults that only became apparent during the certification process would result in huge delays," explains Rett. Faults—that might mean that fire detectors are triggered too late or not at all. It could also mean that they are triggered although there is no fire. That is a problem because repeated false alarms mean that people no longer believe they are in any danger.

"Fire detectors protect life and property and must therefore be reliable," says Rett. For the last six years, the qualified electrician has been responsible for precisely that in the fire laboratory. "Knowledge about fires and the way we use them here in standard conditions is not something you can train somebody for; it just takes experience," explains Rett. This is exactly what fascinates this level-headed man, who is now piling up small logs for the next test.

Every time he works in the fire laboratory, there are different products or different conditions being tested. Today, in addition to a range of fire detectors, three AVIOTEC cameras, which are used to facilitate video-based early fire detection, are suspended from the ceiling. They are among the latest Bosch developments for public and industrial use in enclosed spaces: The networked cameras can reliably detect smoke and flames —as already shown in the first test, it is these cameras that report the fire in the laboratory first.
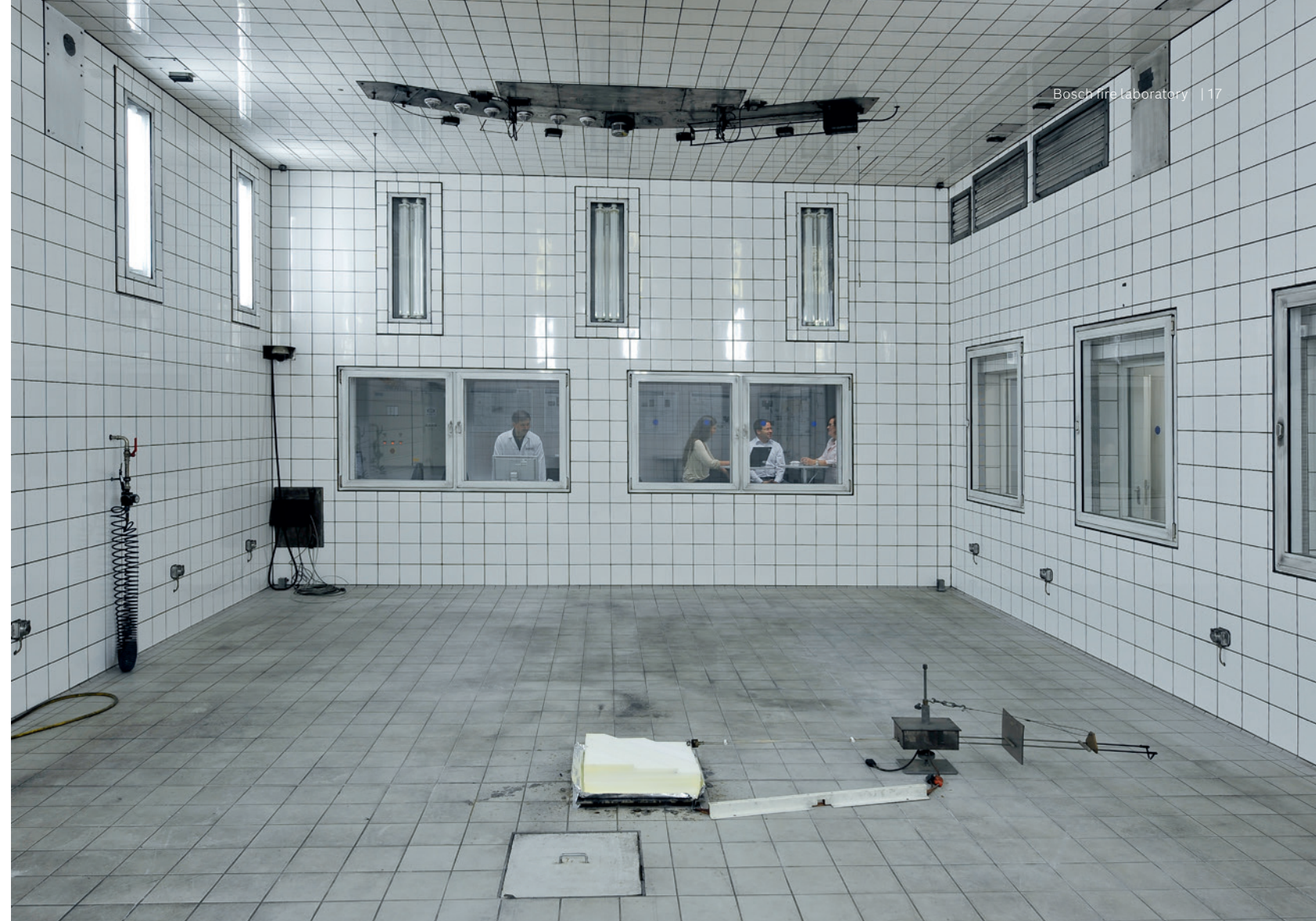
"AVIOTEC cameras are IP-based and can be used via a shared user interface within the network, which we have set up especially for this purpose. The system is then put through its paces," explains Rett. Spotlights that shine directly into the camera have been set up. Various ventilation conditions have been simulated using fans that blow the smoke in all directions. Photo canvases have been used to see if AVIOTEC can detect fires correctly even against different backdrops.

Rett also carries out this kind of especially conceived tests for conventional fire detectors. He refers to them as "disturbance tests," and they often consist of him using cigarettes, sparklers, or steam to test the alarms' reliability. Tests of this nature are not legally required, but as Robert Rett knows from experience: "Better safe than sorry."
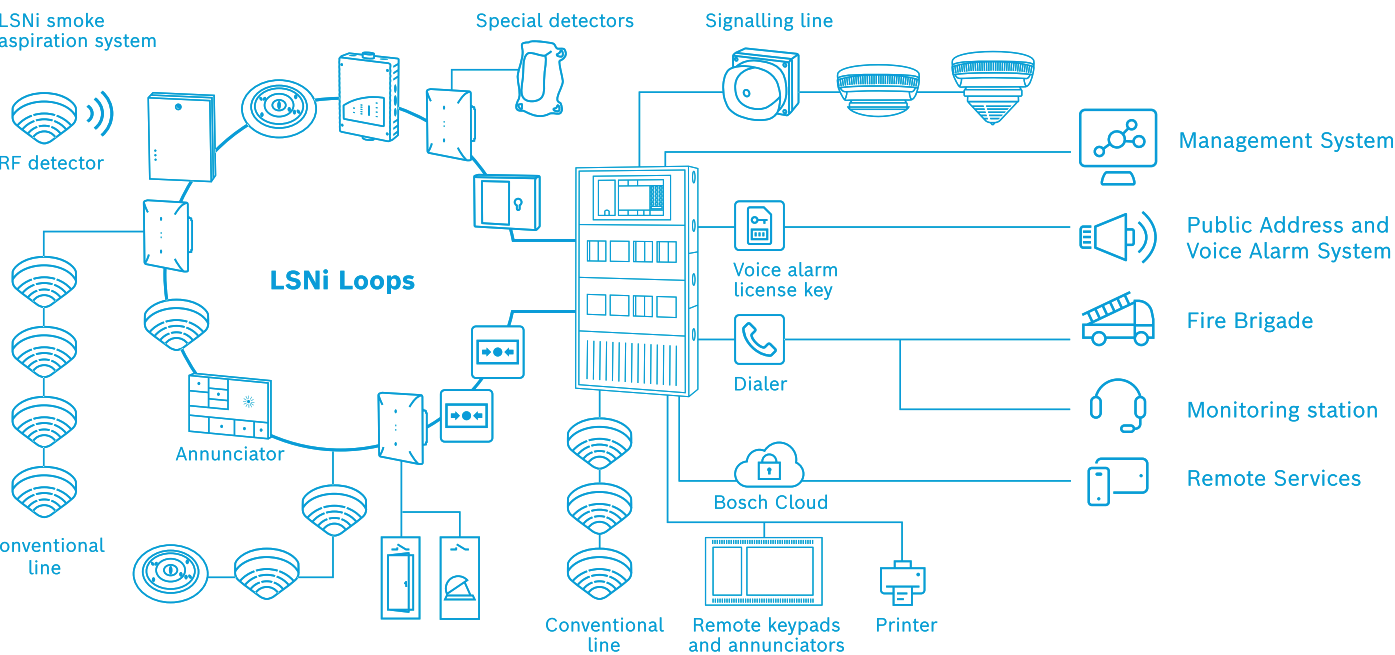
Get more info about our quality and testing

Did you know that...

Robert perfoms more than 400 test fires per year?

All you need to detect, report and visualize a fire

Bosch has an extensive range of addressable and conventional products in the fields of fire detection, voice alarm and risk management. These products allow you to realize a tailor-made and comprehensive concept for almost any project, without neglecting aesthetics, standards or market requirements.

LSNi smoke aspiration system

RF detector

Special detectors

Signalling line

LSNi Loops

Conventional line

Annunciator

Management System

Public Address and Voice Alarm System

Voice alarm license key

Fire Brigade

Dialer

Monitoring station

Bosch Cloud

Remote Services

Conventional line

Remote keypads and annunciators

Printer

System overview

Automatic fire detectors
We offer a broad range of intelligent automatic detectors with high reliability, used for premises and items with a medium or high concentration of valuable assets. Various detection technologies ensure early, state-of-the-art fire detection with practically no false alarms.

Special detectors
In buildings that do not allow the installation of point-type detectors, e.g. linear heat detectors, aspirating smoke systems, flame detectors and beam detectors provide customized protection.

Manual call points
Our range includes single-action and double-action manual call points which can be employed in our addressable LocalSecurityNetwork (LSN) as well as in conventional technology. Both large and small design types are available for different applications.

Sounders and strobes
When every second counts, sounders and strobes for local alarm actuation will signal the occurrence of a fire. Indoor and outdoor variants as well as uniterruptible versions and signaling devices that combine visual and acoustic alarms in just one device complete the range. Alarm indicators for fire detectors in false floors and ceilings are also part of the portfolio. They have a low power consumption and will give you distinct advantages.

Wireless
With our generation of wireless detectors, we offer a flexible fire protection solution that works almost entirely without cabling. It is therefore ideally suited for historical buildings, for retrofitting and expansion of existing buildings, and for temporary installations. Thanks to the combination of two frequency bands and highly reliable mesh technology, the new wireless fire alarm system offers high system availability and maximum protection. The solution consists of a gateway, which is connected to the fire alarm system by cable, as well as up to 30 detectors and 10 manual call points, which communicate with the gateway by radio and can therefore be installed anywhere without cabling.

Get best-in-class fire systems providing precision and accurate performance to discover, inform and visualize incidents to achieve faster responses and thus minimize damage and downtime.

Uninterruptible Sounders
The FNM-42OU Series, available in indoor and outdoor variants, never fail to perform with their low power consumption and high volume, significantly reducing operating costs. With their own high performance energy source, they ensure non-stop notification, and enable fast responsiveness and steadfast operation.

Interface modules
Input, output or combined high- and low-voltage relays for the controlled activation of a group of signaling devices and for the connection of conventional peripherals: The interface modules in the 420 Series have been specifically developed for connecting to the LocalSecurityNetwork improved version, which will help you optimize your fire detection scenario.

06 Product overview
AVENAR all-in-one 4000

With AVENAR all-in-one 4000, we offer a range of signaling devices that combine visual and acoustic alarms in just one device. Optionally, any fire detectors of the AVENAR family can be combined with the signaling device in one device, so that a cost-saving and space-saving complete solution is created that can significantly reduce installation and maintenance costs. The signaling devices are certified according to EN54-3 and EN54-23 Category C, for ceiling mount, and W, for wall mount, and with protection class IP 42 are suitable for almost all applications in buildings.

Use case hotel floor

= 24 devices on one floor on one loop

Alarming part
(including battery)

EN54-23: optical signalling, flasher ring with 12 LEDs
EN54-3: acoustical part, 32 preprogrammed tones with up to 97 db(A)

(Unit-) base
For easy (pre-) mounting and cabling

Detector base
Fits with detector or cover
Option for detector removal protection

Cover part
With detection, combination with AVENAR detector 4000 series
Without detection, cover in red or white color

Overview: Variance of type C, W and O

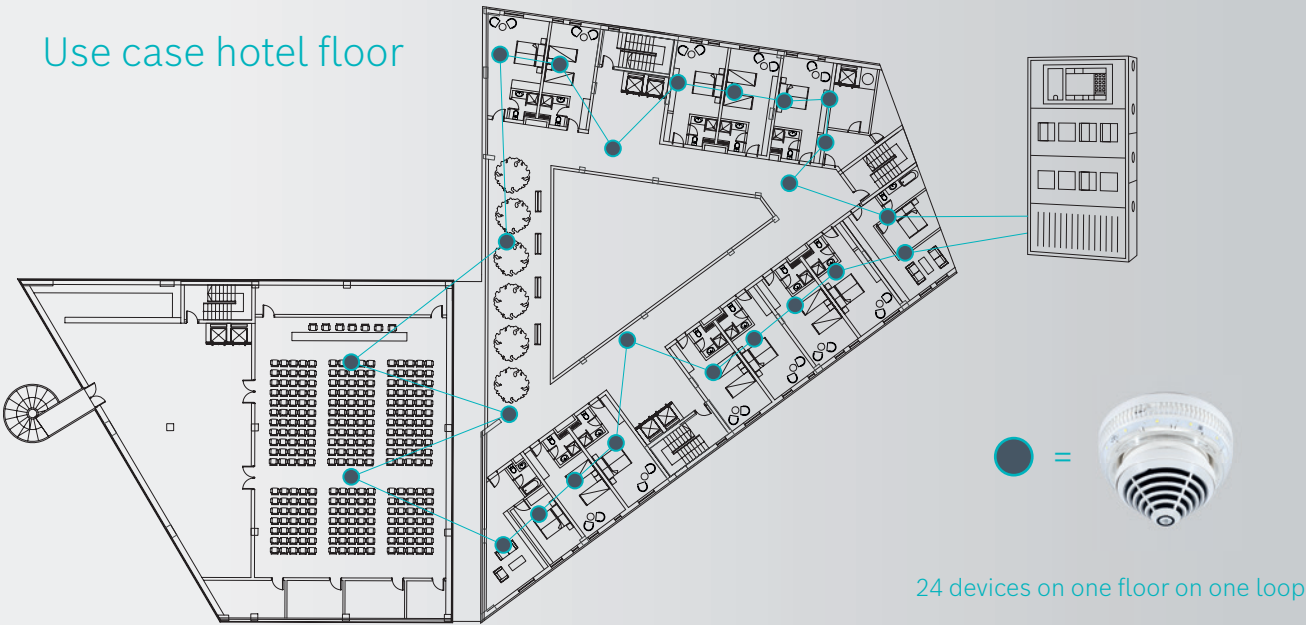|	Ceiling	Wall	Open
Mounting	Only ceiling mounting	Only wall mounting	Ceiling and wall mounting
Illumination area / square	Best choice for small room heights because of well defined standard	Best choice for small room heights because of well defined standard and also used in addition where ceiling mounted devices do not fully illuminate the room area	Best choice for rooms with heights above average because there is no standard and dimensions are defined by the manufacturer
Flexibility	No flexibility, (limited up to 3m mounting height, no wall mounting possible)	No flexibility, (limited up to 2.4m mounting height, no ceiling mounting possible)	Flexibility (mounting height open, for ceiling and wall possible)
Values	Defined by standard	Defined by standard	Defined by manufacturer
Power consumption	Comparatively lower as with O variant	Comparatively lower as with O variant	Higher (mostly)
Verticals			

Up to 125 devices on a ring bus
AVENAR all-in-one 4000 is characterized by its extremely low power consumption, so that up to 125 devices can be installed on just one ring bus. The integrated battery with a service life of up to 10 years also ensures uninterrupted alarming even if the bus fails. This means that complex and expensive E-30 cabling to ensure functional integrity will not be necessary for the installation.

Focus on usability
When developing the AVENAR all-in-one 4000, we have given particular importance to simple installation and handling as well as flexible application options. The signal heads can be pre-assembled and are equipped with plug-in terminals, which significantly simplifies and speeds up installation. For different areas of application, you can choose between three intensity levels for both optical and acoustic alarms. On top, you can combine any fire detector from the AVENAR family with the signaling device. This means that you can also exchange fire detectors separately as part of your maintenance work, even without replacing the signal transmitter, which keeps maintenance costs low.

"With up to 125 devices in a loop, we are defining a entirely new category in fire detection. This opens up completely new possibilities and considerable savings potential for planners, installers and operators."

Sebastian Wehr, Product Manager at Bosch Building Technologies.

07 See it before it spreads

From daylight to no light: AVIOTEC Video-based fire detection

For additional safety and security even when conditions are not ideal, sometimes you need more than one pair of eyes. The latest technology ensures early detection for all kind of light situations.

Reference Mouka – Nigeria Manufacturer Mouka Ltd. –
Fire and smoke detection in seconds raises safety of hundreds of employees

Faster and more accurate:
Bosch's video-based fire detection system represents the next generation in threat-detection capabilities. Utilizing a unique, scientifically tested physical detection model, Bosch technology spots fires and disturbances, predicts behavior to reduce false alarms and speeds up reaction times – helping you stop threats before they spread. AVIOTEC, is VdS- and CSIRO-certified and the perfect answer for facilities used for industry, transportation, warehousing and adjoining outdoor areas to minimize detection time with low false alarm rates.

Improving the rescue chain through fast detection and situational awareness protects lives and minimizes damage.

VdS
G 217090

Outdoor fire detection close to buildings where almost no other detection technology available with artificial intelligence based algorithms reducing unwanted alarms

At a glance

▶ **Detection of flames and smoke**
Identify even hidden fires, smoldering fires and burning liquids

▶ **Fast detection at the source**
Detect fires where they start, speeding up reaction times, improving rescue response and minimizing damage at the site

▶ **0 lux detection**
Optimize surveillance together with IR illumination

▶ **Outdoor applications close to buildings**
Ensure dependable operation via innovative KI-algorithms

▶ **Live streaming**
Monitor environments in real time and speed up rescue response times

▶ **Video storage**
Perform root-cause analysis with recorded videos

Did you know that...

Our AVIOTEC IP starlight 8000 camera can detect fires directly at the source within seconds?

Read the whole story about Mouka Matresses

08 Intelligent detection for superior protection

Bosch offers a series of fire detectors which combine unsurpassed reliability with outstanding detection performance.

Dual Ray Technology
Detectors equipped with Dual Ray Technology are precise enough to detect the smallest visible disturbance values, such as steam or smoke, resulting in fewer false alarms.

1 | Blue LED
2 | Infrared LED
3 | Scattered light
4 | Photodiode

Did you know that...
The Dual Ray technology in our detectors precisely distinguishes between smoke and water steam?

Early detection even in most challenging conditions
In the world of fire detection, precision and reliability are essential. AVENAR detectors 4000 series offer eight automatic fire detectors with different kinds of sensors. They include optical and dual-optical detectors, some of which also provide multi-criteria detection including thermal and/or chemical detection. The combination of these three specific types of sensors is an approach invented by Bosch.

AVENAR detector 4000 uses Bosch's own Intelligent Signal Processing (ISP) technology, which achieves the highest level of intelligent fire detection. A heat detector is also part of the range. Some models include rotary switches for manual addressing in stub topologies, while models without such switches allow cost savings in ring topologies, where addressing is automated.

Protect people, property and premises
For the next step in precision, the detector series also includes four variants with the innovative Dual Ray Technology for even more accurate and early fire detection everywhere. It distinguishes visible disturbance values, such as dust, steam and cigarette smoke, by determining smoke density and particle sizes. It does this by comparing the intensity of scattered light from the differing wavelengths of two LED sources, one infrared and one blue. These technologies offer customers early detection in even the most challenging environments, including night clubs, parking garages and computer rooms.

Added together, these many features result in the highest reliability, and the assurance that an alarm is only signaled in a true emergency.

A clean solution – Linen supplier Synergy Health standardizes on Bosch Dual Ray Technology

Synergy Health is a global company specializing in the sterilization of medical equipment and the supply of linen, particularly for the healthcare sector. The company offers a comprehensive range of services across the Netherlands – including the rental and washing of bed linen, professional clothing and linen for operating rooms.

During a complete replacement of its fire protection systems, Dutch linen supplier Synergy Health installed Bosch fire panels and detectors in eight subsidiaries.

In Synergy Health's laundries, high fire risk meets very demanding environmental conditions due to humidity, steam and dust. The company therefore needed a solution that could detect smoke and fire as reliably as it could differentiate between real alarm conditions and disturbance values to minimize costly false alarms. AVENAR detector 4000 Series with Dual Ray Technology proved to be the answer.

eSmog: The next level of precision

Decrease invisible false alarm causes

**Bosch fire detectors
maximize detection performance**
Modern buildings are increasingly equipped with
complex technical infrastructure. This trend leads
to a tendency of increased electromagnetic pollution,
which creates challenges for any installed electrical
equipment. It is estimated that between 20%-30%
of today's false alarms have undetermined causes.
It is hard for technicians to prevent the situations if
the root cause is not clarified.

**Mobile phones and escalators can create
disturbance**
With its eSmog feature, AVENAR detector 4000
takes these new circumstances into account. Its
robustness against electromagnetic pollution and
its information about invisible disturbance values,
such as escalators, mobile phones and routers, allow
the system integrator to identify and resolve critical
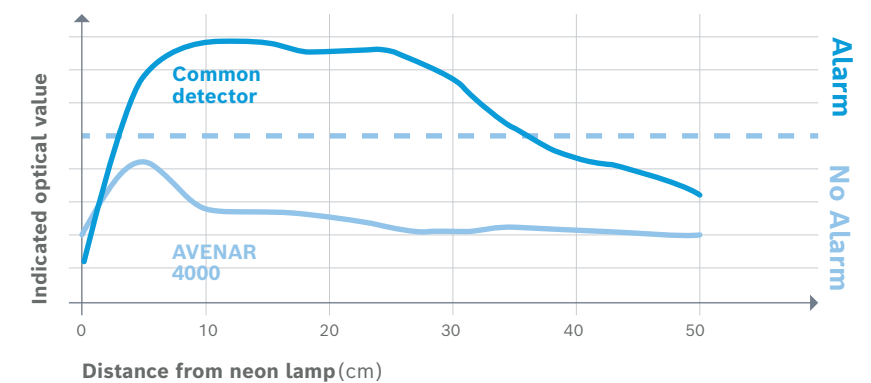conditions even quicker, saving time and money.

In addition, stability and detection performance are
further enhanced during operation and maintenance
by constantly measuring the electromagnetic
exposure of each detector and calculating mid- and
long-term averages. These are used to predict the
exceeding of threshold values even before possible
false alarms can occur.

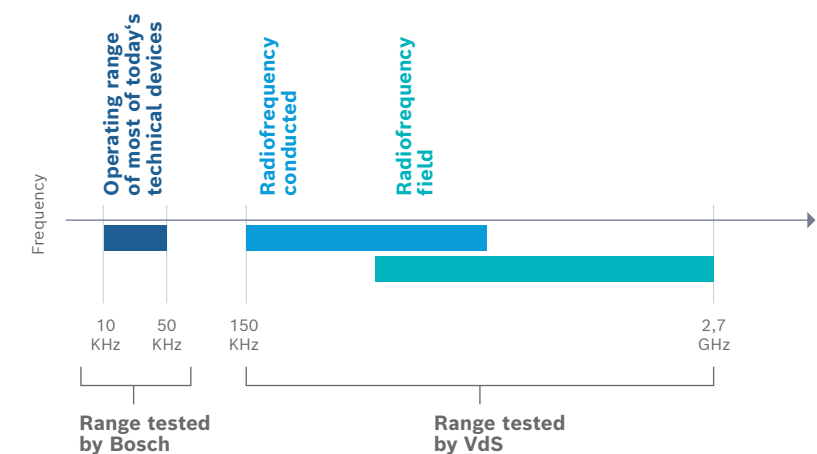**Increased electromagnetic robustness**

The graph shows the optical value of the detector which varies because
of the influence of electromagnetic fields when no smoke is detected
(as a function of the distance).

Electromagnetic indication and monitoring

Common electronic devices are emitting electromagnetic fields
with a frequency that is not tested by standards and norms.
Changing technical environments require high electromagnetic
robustness to operate absolutely impeccably.

09 Invisible protection on any ceiling, ultra slim and easy to clean

10 Monitored planning: Transparent and close to reality

The 500 Series is totally different, because it uses a virtual optical chamber. It is ultra-slim and lies flush with the ceiling – a distinct advantage which does not detract from the appearance of attractive rooms. Color rings that can be mounted in the detector also allow the units to be perfectly coordinated with the color of the surrounding ceiling.

New Safety Systems Designer – your fire planning tool covering the full chain

The Safety Systems Designer – an easy-to-use tool
Thanks to generic terminology and intuitive navigation, there is no training needed – saving you costs and time.

Discreet styling outside, Bosch know-how inside
The 500 Series has style built in. Inside it is packed full of proven know-how from Bosch. And that is something you can rely on. The unique technological approach ensures that you have made the right investment for the future.
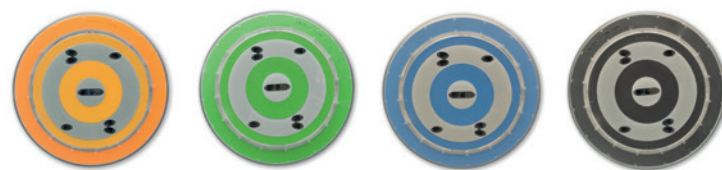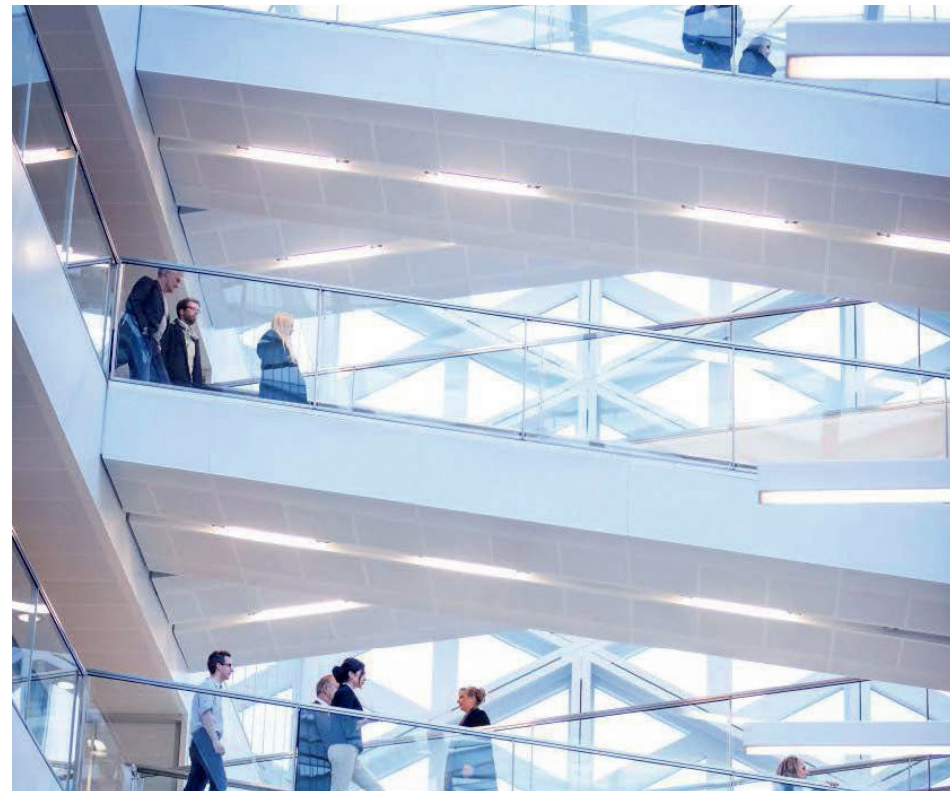
Award collection – not dust collection
The fact that there is a virtual optical chamber inside the Smoke Detector 500 Series means that it does not stick out of the ceiling. The smooth surface does not gather the usual visible dirt in rooms with high dust build-up. So it offers high reliability and it is easy to clean. On top of that, it saves service time and costs. The level of dirt build-up is continuously measured. A trouble signal indicates when a unit needs to be cleaned.

Powerful technology
The 500 Series is a scattered-light fire detection system with a dual detection area. Because the sensors monitor two independent light areas in open space, the detector is extremely reliable. The invisible detector is also available as a multi-sensor detector with a carbon monoxide (CO) gas sensor. This combination of scattered-light sensor and CO gas sensor allows alarms to be evaluated using intelligent signal processing methods. This greatly decreases the likelihood of false alarms and increases the number of possible applications since this detector even works well in environments that are unsuitable for standard photoelectric detectors.

Giving architects more freedom
The low mounting profile of the 500 Series makes it invisible on any ceiling. The unique mounting method blends in easily with decor, allowing architects to focus even more on design and the general appearance.

The modern way – to secure aesthetics
Reliable fire detection with a touch of style: Bosch presents the invisible fire detector. A completely different concept combining a pleasing design with up-to-date technology.

Planning fire alarm projects – a challenging task
This demanding business requires the inclusion of different parties at various planning stages along the complete value chain. Hence, we offer a solution that is perfectly adaptable to your daily business. In addition it provides quick answers when it comes to initial budgeting and calculation. All features combined, Bosch provides an unmatched platform for your business. In the future, the Safety Systems Designer will be the only software you need to plan and calculate fire alarm systems.

Project planning for fire protection on the next level
Bosch's newest planning and support tool enables users a precise design according to EN-54 regulations, including the allocation of peripherals on different loops. Taking into consideration the actual topology, the Safety Systems Designer ensures that every project detail is taken into account. This is made possible through a complete plausibility check and the automatized as well as customized provision of a comprehensive documentation, fitted precisely to your needs.

11 Solutions that go beyond expectation

All around the world, Bosch solutions exceed customer expectations. The expertise and know-how of our partners and the quality of our technology make even the most demanding and complex environments safer.

> "The Mercedes-Benz project is an important reference for us. It shows the level of integration and customer focus made possible by Bosch solutions. Our system has succeeded in meeting the specific needs of automobile manufacturers in the next generation of car production facilities."
>
> Ivan Konukhin, Bosch Security and Safety Systems Russia

Improvement of security and safety systems after fire incident
Richetti Food Industry
Richetti SpA is an Italian co-packer company, specialized in the production of chilled and frozen snacks for the food service and retail channels. After a serious fire that happened in one of the production plants, Richetti had to make fundamental changes to the installed security and safety systems. After the incident, they decided to improve the security and safety systems of each location. AVIOTEC video-based fire detection was one of the first proposals for early and reliable detection of smoke and flames, because the system features a unique physical detection model that ensures the reliable differentiation of disturbances and real fires, providing a reliable solution against costly false alarms. After a test phase that demonstrated the functionality of this special solution, AVIOTEC devices were installed in critical areas of the plant – two special cameras along the production line and one in the warehouse near the cardboard stock.

> "The experience with Bosch has been immense."
>
> Valerio Nisi, Technical Manager of Richetti SpA

Early warning fire alarm systems for Mercedes-Benz car manufacturing plant
Aspirating smoke detection secures the automotive production facility in Russia
Located outside the Russian capital, the new Mercedes-Benz passenger car factory is a showcase for Industry 4.0 automotive manufacturing. To ensure the safety of more than 1,000 employees at the facility, Bosch provided a fire alarm and security system, replete with voice evacuation capabilities to meet the specific safety needs of modern-day car factories.

One-roof concept
From chassis welding to windshield installation to painting, the plant combines all production steps in the same building as part of a 'one-roof concept'. But from a fire safety perspective, the 'one-roof concept' with its tall factory ceilings and open floorplan poses challenges. The reason: Conventional, point-type fire detectors exceed their performance limit when it comes to detecting smoke particles inside such a vast, air-conditioned space. Working closely with the client, it was

quickly clear, that early fire detection would take a solution just as innovative as the futuristic car factory itself. Working on a tight timeline, the Bosch experts selected a fitting smoke detection technology: aspirating smoke detectors. Perfectly suited for large warehouses, the detection units are located within a pipe system that constantly 'inhales' samples of air, which are checked for smoke particles via intelligent signal processing technology. They can detect fires in the beginning stages (called the "smoldering" phase) even before visible smoke is released. The system also suppresses environmental factors that typically cause false alarms in car factories, including dust, flying sparks and electrical interference for maximum reliability.

Mactan-Cebu airport required a modular and expandable fire detection system
But, how to update a networked fire alarm system during normal, everyday operation?
Mactan-Cebu International Airport is one of the most important airports in the Philippines, with 12 million passengers walking through its doors annually. To ensure safety for all, a new fire monitoring system, using the latest Bosch technology was installed there. Since the installation was scheduled and planned section by section, airport operations were not disrupted – and visitors were not able to notice anything.

There are two terminals at this central hub. After around 30 years of operation and service, Terminal 1 was in need of renovation, including necessary updates to its aging fire alarm system. The experts have already installed and networked around 400 new heat detectors in offices, shops and restaurants in Terminal 1 – and the system is to be expanded further.

Facilitating everyday tasks
The airport now meets high security standards. The smart core of the Bosch Fire Monitoring System (FSM) features a graphical user interface to display, analyze and monitor the smoke detectors, and enables the entire hardware system to be networked. Digital building plans allow security staff to precisely locate any fire risk or where a fire alarm has been triggered. Other user functions deliver, among other things, the event log, in which all processes and actions can be recorded and evaluated. All in all, this centralized, intuitive and serviceable system allows for efficient monitoring and control. In addition, airport staff can be trained to logically and systematically troubleshoot or search for any cause of technical issues with this new technology.