AlgoRex®: foolproof early fire detection.
Risk limitation can save lives
Most of the time, appropriate construction alone isn’t enough to prevent fires. Often, fire detection systems are needed to keep risk at acceptable levels. The higher the fire risk and the greater the potential for collateral damage, the greater the need for an early warning fire detection system.

Not only does a reduced risk level limit danger to life and limb, it ensures the very existence of a company. The greater the concentration in one place of production, stocks and IT, the higher the chances of a single fire ruining a thriving business.

Keeping a mere flame from becoming a catastrophic fire
The earlier a fire is detected, the faster and more readily is it extinguished – and the fire itself, or the extinguishing process, prevented from causing major damage.

But speed alone isn’t everything. The more sensitive a fire detector is to smoke, elevated temperatures or gases, the easier it is for dust, steam or heat to fool it. False alarms cost time, money – and nerves. Not to mention that you can never quite trust such a system again.

But AlgoRex® fire detection systems have seen to it that those days are gone forever. Our systems only react to real events. Deceptive phenomena are assessed and rejected without losing a beat.
We have conducted basic research into fires and associated phenomena for more than sixty years. Which accounts for the constant stream of revolutionary new products and applications emerging from Siemens Building Technologies.

Take AlgoRex®. Celebrated back in 1994 as a world first, it soon conquered the globe. Foolproof early fire detection filled everyone with awe and soon proved itself in practice. Today, millions of users depend on AlgoRex® completely.

Nor did we rest there. We recently started using algorithms to address extremely challenging situations, e.g. clubs or discos that use artificial fog. Special effects such as these setting off false alarms is a thing of the past. Present AlgoRex® installations are readily retro-fitted with new algorithms when they are put to a different use.

Another innovation is TeleRex®, the wireless fire detection system. As reliable as hardwired fire detectors, it is the perfect answer for museums and buildings of historic significance.

We keep perfecting AlgoRex® because to stand still is to take a step backwards.
Operating terminal development hasn’t stood still either. We soon took fast, error-free operation one step further by doubling screen size to make information easier to read and, should an event occur, added step-by-step instructions on what to do next.

In addition, remote diagnosis using new communications channels adds to the convenience – and speed – of servicing and maintenance by our service technicians.

By making it possible to add more operating centers and operating terminals, existing systems have become more flexible and adaptable to expansion or changes of use.

These few examples of recent AlgoRex® developments clearly show that instead of resting on our laurels, we produce a neverending stream of highly effective innovations.
Fire detection requirements do not change:

1. **Early detection of incipient fires**
   Fires should be detected at their earliest stage, before real damage occurs.

2. **High immunity to deceptive phenomena**
   A danger must be real before an alarm is given. Deceptive, innocuous phenomena must not trigger an alarm.

**Logical operation of fire detectors**
Early detection requires sensor sensitivity. Unfortunately this also sensitizes them to harmless phenomena.

The temptation is considerable to reduce sensor sensitivity to prevent false alarms, such as from a smoker standing directly beneath a sensor. But caving in to this temptation is to hamper early detection.

**AlgoRex® unties the Gordian knot**
Basic to AlgoRex® detection algorithms was a vast body of past experiences gathered from decades of evaluating thousands of test fires at customer sites and in our testing laboratories.

AlgoRex® detection algorithms distinguish between real fires and deceptive phenomena every time, and well beyond the requirements of the six EN standard test fires.

Our detection algorithms have achieved what was thought impossible, supreme sensitivity, combined with immunity to deception by harmless phenomena.

**Interactive technology, application-specific algorithms**
Interactive AlgoRex® detectors are used whenever demanding situations and high fire risk call for trustworthy alarms and detection. In other words, no false alarms ever again. We differentiate between clean, moderate and harsh ambience (see left column).

AlgoLogic, the evaluation and decision-making logic based on programmable application algorithms, combined with interactive signal processing, makes for supremely dependable detection and elimination of deceptive phenomena in our interactive AlgoRex® detectors.

Our service engineers use dedicated software to program our systems with custom parameters to adapt them to your unique situation.

**Features of the interactive detector series**
- optoelectronic sensor systems ensure superior reliability
- ecologically sound choice of materials
- modern design
- long life
- detector-processor-stored, application-specific algorithms
- automatically self-testing, built-in diagnostic algorithms
- unmatched immunity to deceptive phenomena and situational factors
- highly resistant to
  - electromagnetic interference
  - moisture, corrosion
  - dirt

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**Clean ambience**
Environments where deceptive phenomena are unlikely to occur.
Examples: archives, museums, senior citizens’ homes, hospitals, IT and telecommunications centers.

**Moderate ambience**
Environments with occasional deceptive phenomena.
Examples: offices, hotel rooms, shopping centers, convention centers, schools, prisons, storerooms, airports.

**Harsh ambience**
Environments with many kinds of deceptive phenomena.
Examples: manufacturing, workshops, restaurants, kitchens, smoking areas, garages, car assembly.
AnalogPLUS technology with detection algorithms
AnalogPLUS detectors with detection algorithms are ideal for moderate-risk applications with moderate levels of deceptive phenomena.

Addressable smoke and heat detectors feature multi-stage, intelligent signal evaluation. Centrally selected, detector-specific sensitivity adjustment, alarm verification and multiple detector linkage render AnalogPLUS detectors supremely reliable and impervious to deceptive phenomena.

Features of the AnalogPLUS detector series
- top reliability due to a high-quality, optoelectronic sensor system
- ecologically sound choice of materials
- modern design
- long life
- pre-programmed detection algorithms
- signal processing at detector and processing center levels make for superior reliability
- high resistance against
  - electromagnetic interference
  - moisture, corrosion
  - dirt

Collective technology
Collective detectors are ideal for straightforward applications and low fire risk situations.

Smoke and heat detectors using technology for detection within standard limits are reliable and of proven design.

Features of the collective detector series
- high degree of reliability due to high-quality, optoelectronic sensor system
- ecologically sound choice of materials
- modern design
- long life
- high resistance against
  - electromagnetic interference
  - moisture and corrosion
  - dirt
Fire detection systems for every application.

No two situations are alike. From our extensive and unique range of detectors we assemble custom combinations of smoke and heat, flame, linear and special detectors such as aspirating smoke detectors (ASD).

Manual call point

Applications
Used to initiate a fire or danger alarm manually. Suitable for extremely wet or dusty situations.

Features
- indirect initiation
- surface mounted in dry or moderately damp spaces
- equipped with special seals for damp, wet or dusty areas

User benefit
Fast, easy alarm activation in busy areas.

Available with collective AnalogPLUS or interactive technology.

Wide spectrum smoke detectors

Applications
Early warning in case of smoke generation and smoldering in environments susceptible to deceptive phenomena that may trigger false alarms.

Features
- responds equally well to different varieties of smoke
- dynamic analysis of detector’s smoke sensor signals

User benefit
Error-free detection, even in challenging environments.

Available with collective AnalogPLUS or interactive technology.

Heat detectors

Applications
Reliable heat detection for demanding applications. For monitoring spaces and equipment subject to rapid heat build-up or spaces unsuitable for other kinds of detectors for operational reasons.

Features
- error-free response to slow or rapid heat build-up
- well-designed differentiation abilities

User benefit
Fast detection of unusual temperature changes.

Available with collective AnalogPLUS or interactive technology.

Multi-sensor smoke detectors

Applications
Early warning in case of smoldering or open fires fuelled by solid or liquid materials. For use in manufacturing plants subject to occasional, short-term deceptive phenomena.

Features
- pre-programmed detection algorithms
- seamless detection of all manner of fires thanks to multi-criteria sensors
- combined evaluation of temperature and smoke sensor signals
- unmatched immunity to deceptive phenomena and environmental factors
- fully compatible for use with other detectors

User benefit
Unlimited, foolproof detection.

Available with AnalogPLUS technology.

Neural smoke detectors

Applications
Early warning in case of smoldering or open fires fuelled by solid or liquid materials. For use in sophisticated manufacturing plants subject to constant or occasional deceptive phenomena.

Features
- specific application algorithms, pre-programmed in the detector and at the detection center as a redundant system
- seamless detection of all manner of fires thanks to multi-criteria sensors
- dynamic smoke and heat sensor signal analysis within the detector
- fuzzy logic and neural network incorporated in detector
- outstanding reliability due to detector-based data processing and distributed system intelligence
- fully compatible for use with other detectors

User benefit
Unlimited, error-free detection.

Available with interactive technology.
### Linear smoke detectors

**Applications**  
Detection of smoke-generating flames and smoldering fires in high-ceilinged spaces.

**Features**  
- Analysis of smoke-induced reduction in light  
- Detection range 5 to 100 meters  
- Transmitter and receiver in a single unit

**User benefits**  
- Effective detection in high-ceilinged spaces  
- Low cabling and installation costs  
- Can be used as a bus for AlgoRex® fire detection systems

### Flame detector

**Applications**  
Detection of open flames outdoors or in enclosed spaces.

**Features**  
- Three-sensor analysis of infrared radiation  
- High-performance signal processing by means of fuzzy algorithms and wavelet analysis  
- Version for areas subject to explosion hazard

**User benefit**  
- Can be used as a bus for AlgoRex® fire detection systems

### Radio-linked fire detector

**Applications**  
Early warning in case of smoke-generating flames and smoldering fires.

**Features**  
- Identification of individual detectors at the interactive level  
- Seamless detection of all manner of fires thanks to multi-criteria sensors  
- Dynamic smoke and heat sensor signal analysis within the detector

**User benefits**  
- High degree of flexibility  
- Adaptations to different uses cost little

### Explosion-resistant detectors

**Applications**  
Early warning in case of smoke-generating flames and smoldering fires in spaces where explosions might occur.

**Features**  
- Identification of individual detectors at the interactive level  
- Seamless detection of all manner of fires thanks to multi-criteria sensors  
- Dynamic smoke and heat sensor signal analysis within the detector

**User benefits**  
- High degree of flexibility  
- Adaptations to different uses cost little

### Aspirating smoke detection systems (ASD)

**Applications**  
Detection of smoke-generating flames and smoldering fires in enclosed rooms and spaces.

**Features**  
- Wireless transmission based on the newly available SRD frequency  
- Bidirectional wireless technology boosts reliability

**User benefits**  
- Flexible early fire detection, including in inaccessible places  
- Can be used as a bus for AlgoRex® fire detection systems

### Air sampling smoke detectors

**Applications**  
Smoke monitoring in ducts for fresh, used and circulated air in air handling systems.

**Features**  
- Installation within ventilation system  
- Ease of assembly, thanks to a single air flow pipe  
- Externally accessible maintenance indicator

**User benefits**  
- Immediate discovery of irregularities in air conditioning and ventilation systems before pollutants enter rooms
The AlgoRex® line comprises a full range of detectors and control units for every need. We differentiate between full-size, modular control units and smaller, more compact models.

**Modular, full-size control units**
Full-size control units are designed to simultaneously accommodate interactive, AnalogPLUS and collective technologies. Complex equipment, including networking and voluminous fire event and extinguishing control electronics can all be installed in the size of housing that best fits the job.

**Small, compact control units**
This range of control units is suitable for collective alarm technology and/or AnalogPLUS bus technology.

**Networking with AlgoRex®**
AlgoRex® systems have all the features and interfaces needed for a straightforward network. Control unit staff enjoy a clear overview to enable them to initiate pre-planned, closely targeted interventions.

**Greater than the sum of its parts**
What more effective way to safeguard lives and property than the best in fire protection, intrusion protection, access control, video monitoring, and extinguishing and evacuation systems, united in a single danger management station that integrates and coordinates all sub-systems.

A station such as this is your guarantor of maximum security, particularly when it comes to protective measures and the coordination of intervention forces in case of an alarm.

**Ingeniously simple**
What makes the MM8000 so ingenious is its simplicity – all parts of the security apparatus come together at this danger management station, designed for easy, foolproof operation and intervention instigation at any desired location.

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**Alarm control unit examples**

**FC10**
Features
Small-scale, microprocessor-controlled, collective detector control unit. Innovatively applied, state-of-the-art technology for an optimum price-performance ratio. For hotels, the catering industry, shops, small businesses, upmarket homes, etc. Optional alarm transmission module, extinguishing control module (making the control unit suitable as a fire fighting command post).

**CS1140**
Features
Modular, microprocessor-controlled fire detection control unit. State-of-the-art technology implemented in an innovative way to achieve an optimum price-performance ratio. Processing of automatic and non-automatic detector signals:
- interactive fire detectors
- AnalogPLUS series fire detectors
- collective signal evaluation fire detectors

Decentralized, detector-based signal evaluation, with additional processing at the control unit.
Suitable for any situation
Whether 20, 200 or 2,000 fire and intrusion detectors under a single roof, not to mention access control, video monitoring, extinguishing and evacuation systems – the MM8000 delivers the greatest number of advantages and ease of operation, regardless of the size of the building. This danger management station is used to manage small buildings as efficiently as vast building complexes, or distributed installations. The MM8000 allows combining and networking of dozens of individual sub-control units. And it is designed with the flexibility to accommodate any future change in buildings or organizational structure.

Limiting damage or preventing it outright
MM8000 is the nerve center for a complete range of products, managing danger even under conditions of extreme stress well before it becomes a threat.

No chance of human error
The man-machine interface is one of the unique aspects of the MM8000 danger management station. Its straightforward, screen-based user navigation is an important success factor. Should an event or alarm occur, each step to be taken is displayed in turn – after the previous one has been acknowledged. There is simply no better way to prevent human error and generate appropriate responses.

A protected investment
The system makes use of the latest, universal standards. It is compatible with third-party systems and can be integrated in any situation as a scalable solution. This makes the MM8000 a safe investment, both in terms of the system as a whole and the lives and property it is designed to protect.

The smaller-size, wall-mounted MT8001
The MT8001 system terminal with touch screen shares its basic functions with those of the MM8000 model. It is at its best where there is no central control room or around-the-clock security staff. The MT8001 is also ideal for industrial plants and inhospitable environments. Because it is not PC-based, it is virtually predestined for operation under emergency power and wherever international approvals are mandatory. As part of a small installation, the system operates as an autonomous unit. Linked with a large system it simply becomes a part of it.
What is the point of investing a lot of money and careful planning in an alarm system that does not deliver when it matters most – in an emergency? Fire detection systems have to be fully reliable. They should never break down. AlgoRex® has the two ingredients indispensable for total reliability, around the clock, day after day: products based on innovative technologies and a comprehensive program of services and servicing.

Our customer service includes:

**Technical expertise and know-how**
Our service personnel are always on a learning curve. To provide our customers with even greater security, they regularly attend our training centers where they are familiarized with the latest technologies and developments.

**Documentation**
We keep complete records of your system and any subsequent changes or alterations made to it. Even years later you can learn everything worth knowing about your security system.

**User support**
A fast and efficient hotline, staffed by highly competent experts, the latest diagnostic aids and remote, online diagnostic capability means immediate support every time.

Our ZIF data logging program helps us offer our customers optimum security solutions. Using current measured values, the program generates a systematic analysis on site and defines the best solutions.

**Remote maintenance**
The latest software gives our specialists remote, password-controlled access to your system. Help is available in seconds, distance no longer matters and stress-inducing delays are a thing of the past.

**Technical service**
Your needs may change and so does security technology. That is why advice, planning, project design, modernization and maintenance of security installations are in a constant state of flux. Regular, person-to-person contact is an integral part of our customer service and facilitates quick responses free of red tape.
We use the FET Fire Engineering Tool to simulate the conditions a new fire detection system is likely to encounter before we actually build it. We input information about the building or space, as well as about the potential size of a fire, circulating air and the presence of deceptive phenomena. FET then immediately projects how the system would respond to a fire.

Thanks to our extensive network of subsidiaries, service outlets and spare parts warehouses, there is always a competent professional, backed by the necessary infrastructure, near you.

**Preventive maintenance**
Environmental factors and their relative potency may affect the efficiency of a system over time. Our targeted protective and preventive measures ensure the reliability of your security system at all times.

**Our standby service**
In the unlikely event that something unforeseen should happen – a possibility that can never be fully ruled out – you can depend on our help because we are on standby 24 hours, 365 days a year.

**Factory overhaul**
After years of use we test, clean and overhaul every part of your detectors at the factory to make sure they continue to serve you as reliably as they always have. And during the overhaul, we install replacement detectors to keep your system fully operational.

**Modular servicing program**
Because security systems are designed to meet different needs, they are of different degrees of complexity. We deploy only those servicing modules in our program needed to best service your system.
Thanks to its unique advantages, including genuine algorithms, interactive system technology, distributed intelligence, neural network and others, AlgoRex® is the fire detection system with guaranteed early, error-free detection.

AlgoRex® has consigned downtimes due to false alarms to history.

In fact, AlgoRex® delivers early, error-free detection with such reliability that, should an AlgoRex® detector generate a false alarm, we will pay the cost of any unnecessary fire-brigade response.*

AlgoRex® systems are straightforward: the system’s state-of-the-art technology and our field experience are reflected in simple, entirely logical operation.

Thanks to programmable algorithms and modularity, new needs and requirements can be accommodated quickly and simply as they arise.

We constantly improve AlgoRex®. Backward-compatibility, along with modernization software, help keep your system at the cutting edge of performance and preserve the value of your investment for decades to come.

And your CFO will appreciate the low AlgoRex® operating and maintenance costs.

* The laws of some countries impose limitations to our genuine alarm guarantee.
And furthermore:

**Well-founded basic research**
In the biggest fire testing laboratory in the world maintained by an alarm system manufacturer we have conducted research into fire, fires and associated phenomena for over 60 years.

**Unlimited development**
Our pioneering spirit is as alive as ever, decades worth of experience in fire detection technology notwithstanding. Our R&D department again and again makes good things better and keeps coming up with a steady stream of innovations – not least because we exchange ideas with others engaged in similar pursuits all over the world.

**Comprehensive application know-how**
AlgoReX® offers practice-proven detection solutions for every application.

**In-house production**
We manufacture all our fire detectors in our own plants and release them in the marketplace only after they have passed the most rigid quality testing.

**Project planning and engineering**
Our experts are ready to handle any project, from planning to execution – and we assume full responsibility for their work and the system as a whole.

**A complete program of services and servicing**
To ensure your system’s performance for many decades to come, we tailor our all-inclusive program of services and servicing to your individual needs and wishes.
The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.