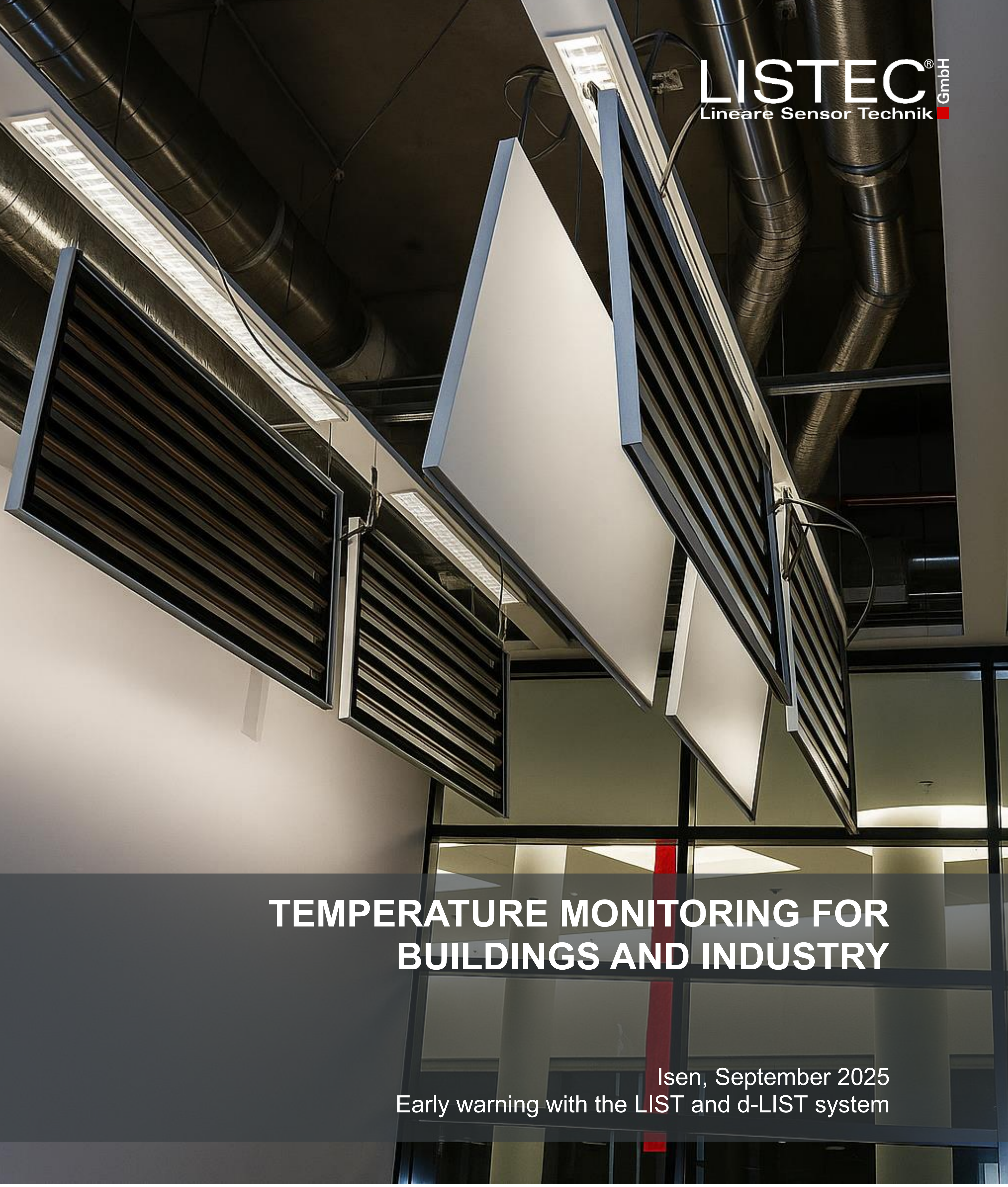

LISTEC® GmbH
Lineare Sensor Technik

TEMPERATURE MONITORING FOR BUILDINGS AND INDUSTRY

Isen, September 2025
Early warning with the LIST and d-LIST system

This white paper describes the challenges of fire protection in buildings and industrial facilities and shows how the LIST and d-LIST linear heat detection systems from LISTEC GmbH reliably detect temperature changes, localise fires at an early stage and thus initiate timely measures to protect people, buildings and property.

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1. Introduction & Press Reports

In times of increasing automation and technical densification, the demands on the safety of buildings and industrial facilities are constantly rising. Reliable and early fire detection is of crucial importance, especially in areas with high technical density or infrastructure that is difficult to access. Numerous press reports in recent years have repeatedly highlighted fire incidents in technical rooms, data centres and industrial facilities.

Fires in buildings and industry.
Examples from press reports:

October 28, 2025, Dahme-Spreewald
Fire station in Märkische Heide burned down

https://www.rbb24.de/panorama/beitrag/2025/10/brandenburg-brand-feuerwehr-haus-maerkische-heide-schaden.html

October 02, 2025, Baden-Württemberg
Freiburg: Major fire in industrial area – Keep windows and doors closed

https://www.tagesschau.de/inland/regional/badenwuerttemberg/swr-bw-newsticker-am-morgen-freiburg-grossbrand-in-industriegebiet-fenster-und-tueren-geschlossen-halten-100.html

2. Fire hazards & triggers

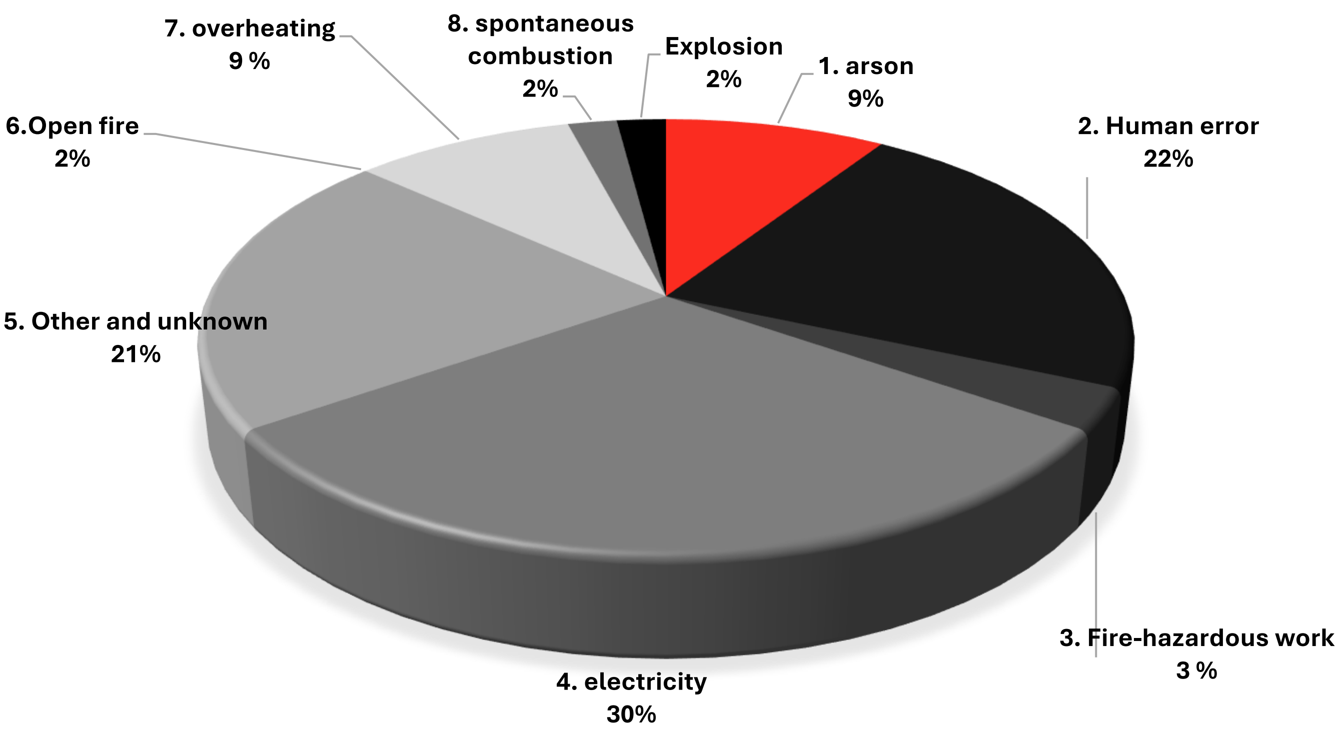
Whether in office complexes, industrial halls or technical facilities, many areas are difficult to access, confusing or affected by environmental influences such as dust, moisture, or heat. Classic point-type fire detectors (e.g. smoke or heat detectors) often cannot be used reliably in these areas.

Typical problem areas are:

- **Cable ducts and risers:** High energy densities and heat generation due to electrical loads can lead to insulation damage or short circuits.
- **Suspended ceilings and raised floors:** Restricted air circulation and accumulations of dust or cable bundles increase the risk of smouldering fires.
- **Roof structures:** Fluctuating temperatures, sun exposure and material ageing promote overheating and fire development.
- **IT and distribution cabinets, battery rooms:** Electronic components and batteries are sensitive to temperature increases and can overheat.
- **Washrooms, kitchens, industrial production areas:** Steam, moisture and smoke development impair conventional smoke detectors – linear temperature monitoring is much more reliable here.

The IFS conducts around 2,000 fire cause investigations each year. These investigations mainly focus on fires that have caused significant damage to buildings. The IFS collects the investigation results in its damage database and evaluates them statistically. This results in fire cause statistics, which are published annually.(1)

STATISTICS ON CAUSES OF FIRES IN BUILDINGS



(1) Source: https://www.feuertrutz.de/ifs-veroeffentlicht-brandursachen-statistik-2024-2407202

3. LISTEC solutions

LISTEC GmbH has been developing, manufacturing and distributing sensor cable systems for early fire detection and temperature monitoring for over 30 years – **'Made in Germany'** near Munich for customers worldwide. Thanks to their robust, enclosed design, our sensor cables are ideal for use in demanding environments in building and industrial applications. These environments often involve complex conditions: high energy densities, dust, moisture, heat generation and areas that are difficult to access make reliable fire monitoring difficult. In cable ducts, riser routes, false ceilings, roof structures or in IT, technical and battery rooms in particular, early detection of temperature rises is crucial to prevent fires and protect people, equipment and property.

The LISTEC sensor cable system has integrated temperature sensors at defined intervals, which enable precise localisation of temperature changes along the entire length of the cable – whether in industrial production areas, electrical distribution systems or building services installations. This allows critical zones to be reliably monitored and potential sources of fire to be detected at an early stage. With this technology, LISTEC has been ensuring maximum safety and operational continuity for decades – in buildings, industrial plants and technical infrastructures worldwide.

Temperature monitoring of buildings and industry

Seamless temperature monitoring of buildings is essential for early fire detection and efficiency monitoring. The LIST and d-LIST systems can enable significant improvements in this area.

- Protection of human life
- Comprehensive early fire detection and alarm systems
- Temperature monitoring
- Control of cooling and extinguishing systems
  (see existing VdS protection concept S619004 PV-Protect)
- Control of systems and disconnection from the grid

Advantages of the LIST system (SEC 20 + LISTcontroller) and d-LIST system (SEC 15 + d-LISTcontroller)

- Resistant to dust/dirt/gases/vibrations
- Differential and maximum temperature evaluation
- Installation possible in single-branch operation or with multiple branches
- Measurement resolution (always 0.1 °C, internally 0.0625 °C for d-LIST)
- Repeat accuracy (always ± 0.1 K along the entire cable length)
- Exact localisation through individual sensor address (important in combination with fire extinguishing systems and in the event of damage for insurance claims)
- Sensor distances freely selectable, individual identification through cable markings possible at any time
- Systems are generally maintenance-free, resulting in long-term cost savings
- Low commissioning and maintenance costs
- Calibration-free and location-specific resolution in the event of a fire throughout the entire service life
- Use of individual sensors for object monitoring can be integrated into sensor cable installations

4. Application/ Installation /Monitoring

LISTEC sensor cable systems are ideal for a wide range of applications:

- Cable ducts & cable trays
- Suspended ceilings & raised floors
- Roof structures
- IT, server & battery rooms
- Kitchens, washrooms, production facilities

These have different requirements for sensor cable fastenings. Thanks to a variety of cable fastenings, our SEC 15 and SEC 20 sensor cables are not only easy to install, but can also be customised:

- Plastic or stainless steel fastening clamps
- Cable ties for rope mounting
- Plastic dowels with galvanised or stainless steel screws
- Drilling and setting tools for fire protection dowels

Polyamide cable clamp CLIC 15 / CLIC Top 17

Cable ties for rope assembly FEMC

Stainless steel cable clamp MDC

Stainless Steel Cable Ties FECT 201-A4

5. Certificate excerpt

The **LIST / SEC 20 system and d-LIST / SEC 15 system** are, among others, VdS-approved systems in accordance with EN 54-22:2015+A1:2020:

Anerkennung
Approval

VdS

von Bauteilen und Systemen
of Components and Systems

Inhaber der Anerkennung / Holder of the Approval

LISTEC GmbH
Am Sandberg 34
DE-84424 Isen

Anerkennungs-Nr. / Approval No.	Anzahl der Seiten / No. of pages	gültig vom (TT.MM.JJJJ) / valid from (dd.mm.yyyy)	gültig bis (TT.MM.JJJJ) / valid until (dd.mm.yyyy)
G 221004	14	26.06.2023	25.06.2027

Gegenstand der Anerkennung / Subject of the Approval

Rücksetzbarer linienförmiger Wärmemelder /
Resettable line-type heat detector
d-LIST

Verwendung / Use

in automatischen Brandmeldeanlagen /
in automatic fire detection and fire alarm systems

Anerkennungsgrundlagen / Basis of the Approval

VdS 2344:2014-07
VdS 2543:2021-03
EN 54-17:2005 + AC:2007
EN 54-22:2015 + A1:2020

VdS Schadenverhütung GmbH
Amsterdamer Str. 174
D-50735 Köln

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