

## **FIVE TIPS** TO HELP YOU OPTIMIZE SMOKE DETECTION IN DATA CENTERS AND TELECOMS FACILITIES



Fires pose a real threat to data centers and telecommunications facilities. If they go undetected, they can spread quickly, putting employees at risk while destroying expensive hardware and irreplaceable data. With profitability, reputation, and business continuity at stake, having an effective smoke detection system capable of identifying the first signs of a potential fire is vital. Here are five tips to help you design a smoke detection system that can protect people and mission-critical infrastructure while simplifying fire safety management.

## ASSESS THE RISKS

1.

Begin by focusing on three key areas to get an overview of the factors contributing to fire risks: electrical systems, mechanical systems, and administrative practices. Electrical systems can present a risk if they malfunction, overload, or degrade over time. In mechanical systems, however, the risks are likely to stem from a malfunction in the HVAC system, the generator, or fuel lines. Finally, administrative factors can contribute to fire hazards due to human error and poor housekeeping practices, such as inadequate storage protocols.

## KNOW YOUR ENVIRONMENT

2.

To ensure effective smoke detection and sampling, be aware of the environmental challenges that data centers and telecommunications infrastructure present. For example, cooling configurations, airflow characteristics, air temperatures, and pressure differentials can vary drastically from one area to another and will have a direct impact on smoke propagation. With a large quantity of electrical equipment packed densely in tight spaces, datacom facilities often host a range of microclimates with high temperatures and heat loads. They can also feature high-security areas where access is limited, making installation and maintenance of smoke detectors difficult. These together with other factors such as existing containment strategies, high airflow, and complex ceiling configurations, will determine the choice of smoke detection technologies and the location of the devices.

## UNDERSTAND THE STRUCTURAL CHALLENGES

3.

From underground service tunnels through to electrical cabinets and open areas such as lobbies, data centers and telecommunications facilities contain a range of environments with unique requirements. These may not be covered by fire safety standards, meaning a bespoke, Performance-Based Design (PBD) may be needed. It is vital to pay attention to parameters such as ceiling height, concealed spaces, room geometry, and equipment dimensions to understand how they will affect airflow patterns, ventilation, and, ultimately, the way smoke is detected.

## KEEP IT ACCESSIBLE

4.

Accessibility should always be at the heart of a smoke detection system design. It enables quick response to potential alerts, and easy installation and maintenance. Awkward locations, such as raised floors, ceiling voids, and underground vaults, can make system maintenance a time-consuming task that can lead to downtime or even security breaches in secure areas. Luckily, you can address this challenge early on by selecting smoke detection devices that can be mounted in easy-to-access areas, with the extensive sampling hole network feeding in information from hard-to-reach locations.

## FOLLOW REGULATIONS

5.

In datacom settings, smoke detection systems sometimes have to adapt to specific building and environmental conditions that require a PBD. But they will also need to comply with local fire codes, industry standards, and end-user practices. These often relate to factors such as sensitivity of sampling and location of detectors. It is always important to conduct an appropriate commissioning smoke test; especially in critical infrastructure environments like data centers. Trusted manufacturers are ideally placed to advise on how to design a solution that ticks all the boxes and goes beyond best practice to enhance safety.

Clearly, there is a lot to consider when it comes to optimizing smoke detection in data centers and telecommunications infrastructure. Receiving the earliest possible warning of potential threats is essential, and the right technology can help you gain better control over potential risks. Leading manufacturers, such as Xtralis, leverage very-early-warning aspirating smoke detection (ASD) to identify the first signs of a potential fire, while it is still in the smoldering stage. This gives you enough time to investigate and identify the risk, enabling better-informed actions in relation to evacuation, fire containment, safeguarding valuable assets, and protecting business continuity.

To find out more about how to optimize smoke detection in your facility, download our [Design Guide for Telecommunications and Data Processing Facilities](#)