ZETTLER

The ZETTLER Generation 6 Detector Range

LEADER IN DETECTION TECHNOLOGY FOR GENERATIONS.

At Johnson Controls we have a reputation for leading innovation. One way we do this is by enhancing our detection technology to provide our customers with the most advanced solutions for the varied challenges they encounter.

Throughout our long history we have perfected the capabilities, intelligence and technology inside our detectors, working to improve safety, in even more complex environments.

LEADING INNOVATION

Each year, Johnson Controls invests millions of dollars and countless hours in the development of new technologies to help safeguard lives, property and the environment. Our innovations are based on the needs of our customers, the outcome of a thorough understanding of their unique industries and the challenges and opportunities they face.

RESEARCH AND REVOLUTION

Supported by our advanced research and development facilities, and modernized manufacturing platforms throughout the world, our solutions deliver measurable value, performance and sustainability to our customers.

CUSTOMER FOCUS

At the forefront of innovation, we pride ourselves on an ongoing commitment to integrate invaluable insight from it's customers, changes in the environment and people who use and interact with our products, ensuring we are always evolving our product innovations to suit their needs.

We work with our customers to achieve their safety and business goals by finding smarter ways to protect where people live and work - a promise we have delivered on for over 60 years.

PERFORMANCE & RELIABILITY

At Johnson Controls we understand that a fire detection system is crucial to the safety and protection of a building or environment at all times. People rely on this system every day to help keep them safe and alert them at the earliest possible sign of danger.

Detectors in our Generation 6 range have been developed to ensure optimum detection performance and reliability intended to assure false alarm resilience at all times and provide a fast response to threats of fire.

GENERATIONS OF LEADING TECHNOLOGY

1st Generation 1960s

2nd Generation 1970s

3rd Generation 1980s

4th Generation 1990s

5th Generation 1990s

GENERATION 6 MX ADDRESSABLE FIRE DETECTORS

INTRODUCING THE SIXTH GENERATION OF DETECTION TECHNOLOGY

A new Generation 6 MX Addressable Fire Detector

- BETTER ENVIRONMENTAL PERFORMANCE
- BETTER DETECTION PERFORMANCE
- GREATER FAULT TOLERANCE
- SAFER, EASIER & QUICKER TO INSTALL
- LOWER LIFETIME COST

A FAILSAFE SYSTEM YOU CAN RELY ON.

The Generation 6 detector range is designed for multiple environments providing ideal fire detection monitoring for numerous fire risks.

Commercial Buildings

Retail

Restaurant

Hotel

Office

Factory/ Warehouse

Hospital

ADVANCED TECHNOLOGY INSIDE THE CHAMBER.

Determine a real fire with more precision; significantly reducing false alarms

The sixth generation of detection technology from Johnson Controls has advanced so it can alert you in the case of a fire at the earliest opportunity. The detectors are designed to provide best-in-class discrimination of false alarms through their advanced chamber design.

BETTER PERFORMANCE

Improved reliability with a fully coated thermistor designed to withstand contamination.

BETTER ENVIRONMENTAL PERFORMANCE

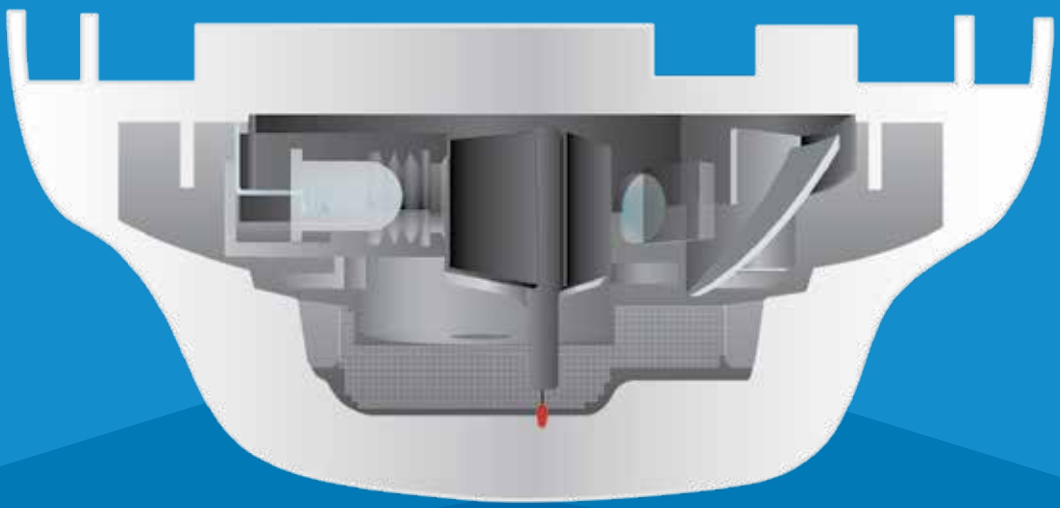
The new optical chamber screen is designed to help protect the detector against insects, which can cause false alarms if they enter the chamber.

GREATER FAULT TOLERANCE

Circuit boards are specifically treated to resist moisture and prevent false alarms.

LOWER LIFETIME COSTS

Generation 6 detectors have been specially engineered with drift compensation which ensures sensitivity will stay at a constant level even with severe chamber contamination, for example caused by dust.



BETTER PERFORMANCE

Unique antistatic material and surface coating to achieve persistence of smoke to enter the chamber as quickly as possible.

GREATER FAULT TOLERANCE

The advanced chamber is designed to prevent steam and dust particles from entering the chamber, avoiding false alarm disruptions.

BETTER PERFORMANCE

Engineered with the most sophisticated infrared technology for detecting real fire risks.

EARLIEST DETECTION THROUGH 3oTEC TRIPLE SENSING TECHNOLOGY.

Today we know that the majority of deaths caused by fire are a result of exposure to poisonous products of combustion and 70% of victims are likely to have been seriously injured or died between the hours of 11pm and 7am in their sleep.

High risk environments are places where people sleep such as hospitals, care homes and hotels. Another challenge for accurate fire detection is false activation of the alarms caused by dust, steam or cigarette smoke.

The triple sensing technology inside the 3oTec detector is designed to overcome these challenges.

Since introducing the first CO detector Johnson Controls has advanced its understanding of the advantages of integrating CO, optical smoke and heat sensors to offer smart triple sensing capabilities in one detector. The 3oTec detector is designed to provide the ultimate, cost effective, solution for false alarmmanagement.

Highly sophisticated technology within the 3oTec detector works to interact with the panel using fuzzy logic algorithms. This means that the detector is programmed to constantly send information about the heat, smoke and CO levels in the room to the panel, which uses this information to help determine if there is a real fire risk present.

The sensitivity of the detector to smoke, CO and heat can be adjusted to suit the environment and time of day so the protection provided can be most effective for the conditions of the environment.

The 3oTec triple sensing detector benefits from our multi-dimensional fuzzy logic algorithms, designed to significantly improve false alarm resilience. Apart from selecting the 3oTec detector because of the three integrated sensors, it is also necessary to select the right mode for the different environments and needs. The possibility to choose between seven different detection modes, e.g. the universal or resilient mode, can improve detection and false alarm resilience even more.

BEST DETECTION PERFORMANCE WITH FASTLOGIC TECHNOLOGY

Technology Designed to Eliminate Unwanted Alarms.

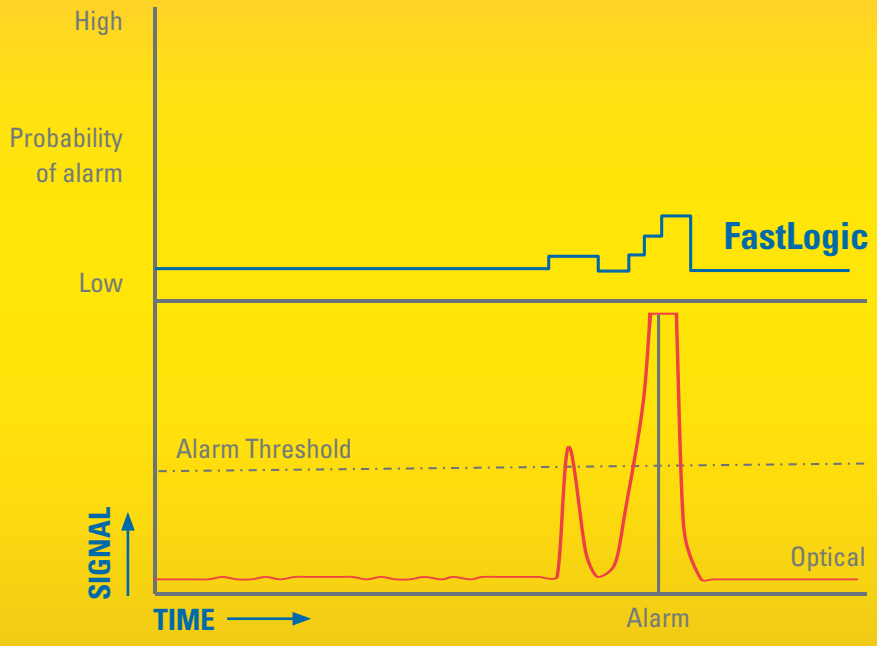
Best Detection Performance with FastLogic Technology

The detectors in a room are sending information on the levels of heat and smoke to the panel. The panel uses sophisticated FastLogic algorithms to understand signals from the detectors and determine whether the levels indicate what can be a real threat or fire risk. Developed in conjunction with the University of Duisburg, which has a database of almost 100,000 fire/non-fire situations (recorded data from over 80 years, the expert algorithm uses this data to determine the likelihood that this is a real fire by referencing data from thousands of real fires using FastLogic.

The FastLogic algorithm is designed to achieve faster detection of real fires and slower (preferably no detection) of false alarm sources. This intelligent algorithm assists with early detection in the case of a fire.

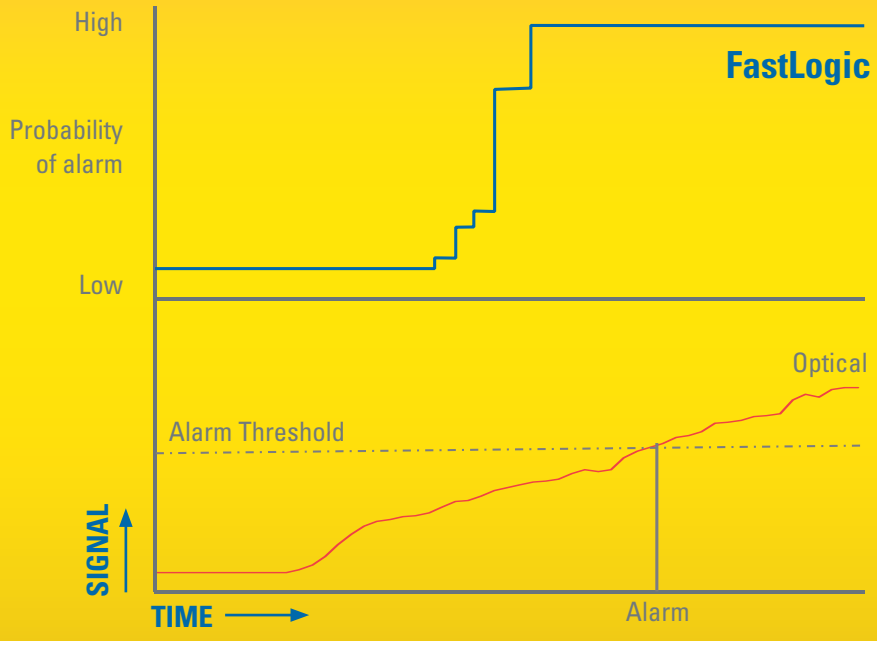
Opening the door of a steam filled bathroom

Although the detector reaches the threshold for long enough to signal alarm, FastLogic analyses the signal pattern and calculates a low probability of it being a fire. Even with FastLogic alarm level set to less than 50% probability, no alarm is raised.



Cotton fire

FastLogic calculates that the detector response has a high probability of being a fire. Even with the FastLogic alarm set at 100% probability, alarm is raised more rapidly than without FastLogic.



PIONEERING TECHNOLOGY FOR LOWER LIFETIME COSTS

At Johnson Controls it is our mission to provide smart solutions that help protect your environment. Our Generation 6 fire detectors are built to be quick, easy and ladder-free. They also feature an extended 10 year service life, meaning you can benefit from lower costs in the long term.

Generation 6 Time Saver Mount

The Time Saver Mount provides a quick, neat and easy installation aid when mounting detectors on false ceilings. Most important of all, the Time Saver Mount allows detectors to be commissioned and working before the ceiling is installed. This simplifies the project management of large complex installations.

Extended Service Life

Each Generation 6 unit you install can save you costs by delivering a longer and more reliable service life. The Extended Service Life (ESL) feature extends the service life of the detector by raising the alarm threshold as the device ages. The new optical chamber utilises all of the available dynamic ranges of the sensor. This means the detector is able to achieve the maximum amount of drift compensation. What this means is you can have the longest service life possible whilst maintaining the approved level of sensitivity. Drift compensation allows a detector to typically enjoy more than twice the service life of previous generations of detectors.

Unique Engineering Management Tool

The ZETTLER 850EMT is a revolutionary engineering tool that can significantly simplify and speed up installation as well as documenting the system commissioning and service records. With its intuitive colour touchscreen display and advanced bi-directional remote infra-red communications to the Generation 6 detectors the 850EMT is an invaluable aid to the installation, commissioning and service engineer. Where customers want to carry out their own first line service, the 850EMT can also be a valuable addition.

3oTec 10 Years Lifetime

In the early years of the 2000s, CO detectors needed to be changed at shorter intervals. Johnson Controls' dedication to research coupled with in-field experience, has enabled us to develop our Generation 6 detectors, to save costs by delivering a longer and more reliable service life.

The Extended Service Life (ESL) offered with the Generation 6 range extends their operating lifetime by raising the alarm threshold as the device ages. This means the detector is designed to achieve the maximum amount of drift compensation, while delivering longer service life with the approved level of sensitivity. Incorporating this technology extends the life expectancy of ZETTLER 3oTec detectors by up to 10 years.

The life expectancy of ZETTLER fire detectors is comparable to the life expectancy of optical detectors. As CO detectors, they provide a very early warning of slow smouldering fires and can be used to protect areas that would cause optical detectors to false alarm.

3oTec detectors now offer up to 10 years lifetime expectancy – instilling confidence in the capability of your detection system.

TrueInsight Cloud Services Reducing the Energy Footprint

The Generation 6 detectors use very little power during operation, but a single unnecessary service breakdown visit during its lifetime can double the lifetime energy consumption of the installation. One of the single biggest benefits of TrueInsight cloud services and remote diagnostics is that it can eliminate unnecessary breakdown visits and ensure a single visit is all that is necessary. Using predictive diagnostics it is even possible to achieve this before the system fault appears.

850P and 830P Photo Detector

- A choice of sensitivities gives this detector a broad range of applications.
- Used in benign environment where any potential fire will be slow burning can be protected using the optical detector.

Available modes:

Mode 0 - Optical

THE GENERATION 6 DETECTOR RANGE.

The perfect detector.

850PH and 830PH Photo Heat Detector

- Ability to detect a wide range of fires from flaming to smouldering types.
- Combined optical and heat multi-sensor detector is the preferred choice for a range of applications including light industrial, retail and office environments.
- Operates in a number of approved modes and sensitivities that can be dynamically selected to suit different environmental conditions.

Available Modes:

Mode 0 – Optical
Mode 1 – High Performance Optical
Mode 3 – Optical & Fixed Heat 60°C
Mode 4 – Heat Rate of Rise
Mode 5 – Fixed Heat 60°C
Mode 6 – High Performance Optical & Fixed Heat 60°C

850H and 830H Heat Detector

- Can operate in fixed temperature and rate of rise modes with a number of approved sensitivities.
- Used in areas where high levels of dust are present or where the environment precludes the use of smoke detectors.

Available Modes:

Mode 0 – Fixed Temperature Heat 60°C (A2S)
Mode 1 – Temperature Rate of Rise for Normal Rooms (A1R)
Mode 2 – Temperature Rate of Rise for High Background Temperature (CR)

850PC and 830PC 3oTec Triple Sensor Detector

- Provides the ultimate technology in detector performance and false alarm rejection.
- It is a multi sensor that monitors smoke, heat and CO levels in concert designed to accurately determine the presence of fire.
- False alarm rejection properties make it the ideal choice for hotel bedrooms where steam from bathrooms is a common source of false alarm.
- Designed for use when the environmental conditions are challenging for example industrial, retail, transport hubs, and healthcare.

Available modes:

Mode 0 - Universal Mode
Mode 1 - Resilient Mode
Mode 2 - Temperature Rate of Rise for Normal Rooms (A1R)
Mode 3 - High Performance Optical with Temperature Rate of Rise (A1R)
Mode 4 - Temperature Enhanced Carbon Monoxide Detection
Mode 5 - Carbon Monoxide Toxic Gas Detector
Mode 6 - Temperature Enhanced Carbon Monoxide Detection with Temperature Rate of rise (A1R)

FIND THE RIGHT DETECTOR AND MODE FOR YOUR REQUIREMENTS.

With the 3oTec detector from the Generation 6 range, you have the flexibility to alter the device's sensitivity to heat, CO and smoke depending on the application, risks and time of day.

Apart from choosing the correct detector, it is important that detectors are set to the correct operating mode that suits the area being protected. Generation 6 multi-sensors provide the flexibility to dynamically adapt to an environment depending on the application, risks and time of day. The mode of operation of the 3oTec detector will determine sensitivity to smoke, heat and CO ensuring optimum detection sensitivity at all times.

Multiple modes of operation can be used concurrently with both the photo-heat and 3oTec multi-sensors. As an example, this would enable a 3oTec multi-sensor to operate as a high performance optical detector, a heat detector and a heat compensated CO detector simultaneously, with different alarms causing different actions. This ability to employ multiple modes can be used to provide alarm verification without the need for multiple devices.

	Clean room Data processing suite	Offices Retail Hospitals, Hotels Light industrial Residential Passenger cabin	Warehouse with diesel fork-lifts Heavy industrial ferry (car deck)	Livestock pen mill Laundry Changing room	Kitchen Engine room Test beds	Atrium Theatre Hangar Oil rig Turbine hall
850P 830P Photo Detector	✓	✓				
850H 830H Heat Detector			✓	✓	✓ Mode 0	✓ Modes 1 or 2
850PH 830PH Photo Heat Detector	✓ Modes 0 or 1	✓ Modes 0, 1 or 5	✓ Mode 3	✓ Mode 3 with FastLogic	✓ Mode 5	✓ Modes 0, 3 or 5
850PC 830PC 3oTec Triple Sensor Detector	✓ Modes 0, 3 or 4	✓ Modes 0, 1 or 3 Mode 1 in front of showers		✓ Modes 1 or 4	✓ Mode 1	✓ Modes 0, 1 or 3

APPLICATIONS AND ENVIRONMENTS

COMMERCIAL

Risk. In large commercial buildings there are often multiple tenants occupying the space for different activities, including office space, call centres, canteens, small shops, and gyms. It is a challenge to find detection solutions that can satisfy the need of a multi-use building and help you limit unwanted false alarms.

Solution. Generation 6, 850PC Multi Sensor Detectors can help you overcome this problem. The Multi Sensor Detector has six detection modes, and employs three detection channels; heat, smoke and combustion gas (carbon monoxide).

These channels are combined in software designed to provide optimum detection based on the occupancy and risk. If either or both of these change, the detection mode can be changed to suit. Changing modes can be as simple as pressing a button on the panel, or if permanent change is required, it's a simple reconfiguration in software. Simple and inexpensive compared to other solutions.

MANUFACTURING

Risk. One of the most common causes of unwanted alarm within a factory comes from the bi-products of the manufacturing process.

Solution. The Generation 6, 850 PH and PC multi sensor detectors can be programmed using day and night modes. This means at certain times of the day, when the building is fully occupied and running and the risk of fire going undetected is generally lower, the smoke elements can be turned off or to low sensitivity and then turned back to their normal mode and sensitivity during unoccupied periods when the building is likely to be most at risk.

HOTEL ENVIRONMENTS

Risk. In an hotel environment, en-suite shower facilities will often generate steam when in use. This could trigger the fire detection sensor, resulting in a false alarm and possibly inconvenienced and dissatisfied customers.

Solution. Installing a Generation 6, 850PC Multi Sensor Detector in each bedroom with extreme low sensitivity to steam.

The detector is still highly sensitive to the products of combustion generated by a smouldering fire, based on its ability to sense the combustion gas, Carbon Monoxide and can raise an alarm even before a normal sensitivity smoke detector.

HIGHEST LEVELS OF REGULATORY COMPLIANCE

Approvals

The Generation 6 detectors have global certification from many approval authorities and comply with the latest regulatory standards.

- Construction Products Directive (CPD), fulfilling the requirements of:
  - EN 54-5:2000 + A1:2002 - Heat Detectors
  - EN 54-7:2000 + A1:2002 + A2:2006 -Smoke Detectors
  - EN 54-17:2500 -Short-Circuit Isolators (only 850 series detectors)
- CEA 4021 (2003) - Multi Sensor Detectors
- VdS 2806 (1999) -Fire Gas Detectors
- Product family standard EN 50130-4 in respect of Conducted Disturbances, Radiated Immunity, Electrostatic Discharge, Fast Transients and Slow High Energy
- EN 61000-6-3 for Emissions
- SIL2 Certified (only 850 series Marine Detectors)
- Rated to IP44 in accordance with BS EN 60529:1992 + A2:2013

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