ZETTLER

The ZETTLER Generation 6 Detector Range

The power behind **your mission**

Johnson Controls

Leader in detection technology for generations

At Johnson Controls we have a reputation for being innovation leaders. One reason we have this reputation is we enhance 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 to improve safety in even the most complex environments.

Leading innovation

Each year, Johnson Controls invests millions of dollars and countless hours to develop new technologies that 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, Johnson Controls prides itself on an ongoing commitment to integrate invaluable insight from its 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 more than 60 years.

Performance and 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. Our Generation 6 detectors have been developed to ensure optimum detection performance and reliability to provide false alarm resilience at all times and provide a fast response to threats of fire.

Six generations of leading technology

1st 2nd 3rd 4th 5th **Generation 6 MX addressable fire detectors** **6th Phase II**

Introducing the sixth generation of detection technology from Johnson Controls

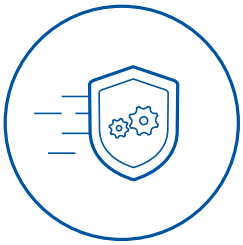
A failsafe system you can rely on

The Generation 6 detector range is designed for multiple environments and to provide perfect fire detection monitoring for numerous fire risks.

Better environmental performance

Better detection performance

Greater fault tolerance



Safer, easier and quicker to install

Lower lifetime costs

Advanced technology inside the chamber

Identify a real fire with more precision and significantly reduce false alarms

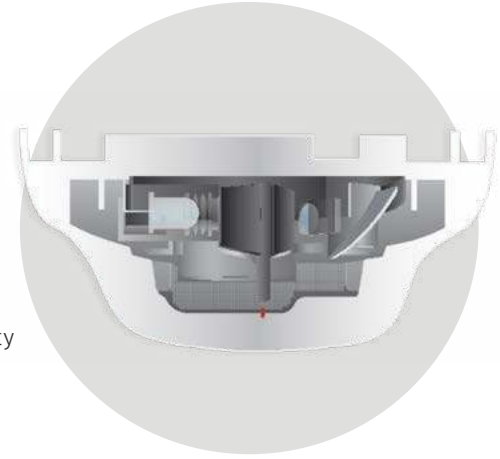
The sixth generation of detection technology from Johnson Controls has advanced so far it will now alert you about a fire at the earliest opportunity. The detectors are designed to provide best-in-class discrimination of false alarms through their advanced chamber design.

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

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

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.

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 possible detection through 3oTec triple-sensing technology

We know the majority of fire deaths are a result of exposure to poisonous products of combustion – 70 percent of victims are likely to have been seriously injured or died between the hours of 11:00pm and 7:00am while sleeping.

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 and 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 alarm management.

Highly sophisticated technology within the 3oTec detector works to interact with the panel using fuzzy logic algorithms. This means 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 mode can further improve detection and false alarm resilience.

Best detection performance with interactive FastLogic technology

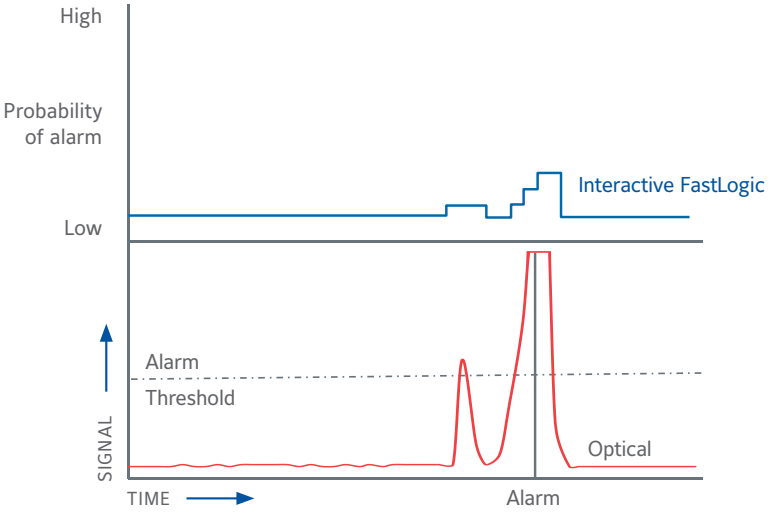
Technology designed to eliminate unwanted alarms – get the best detection performance with FastLogic technology

Room detectors send information on the levels of heat and smoke to the panel. The panel uses sophisticated interactive 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. This data goes back more than 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.

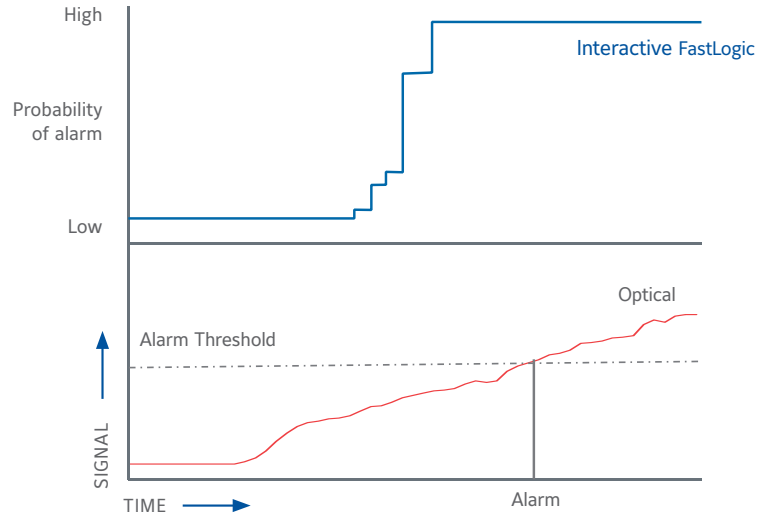
Opening the door of a steam-filled bathroom

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 percent probability, no alarm is raised.



Cotton fire

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



Pioneering technology for lower lifetime costs

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.

3oTec - 10 years lifetime

In the early 2000s, CO detectors needed to be changed at shorter intervals. Our dedication to research, coupled with field experience, has enabled us to develop our Generation 6 3oTec detectors to save costs by delivering a longer and more reliable service life.

The ESL offered with the Generation 6 range extends their operating lifetime by raising the alarm threshold as the device ages. 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.

TrueInsight cloud services reduce 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.

The Generation 6 Detector Range

855PC and 835PC 3oTec Triple Sensor Detector

Provides the best technology in detector performance and false alarm detection.

It is a multi-sensor that monitors smoke, heat and CO levels in concert 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 alarms.

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)

855H and 835H 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)

855P and 835P Photo Detector

A choice of sensitivities gives this detector a broad range of applications.

Used in benign environments where any potential fire will be slow burning and can be detected using the optical detector.

Available modes:
Mode 0 - Optical

855PH and 835PH Photo Heat Detector

Able to detect a wide range of fires, from flaming to smouldering.

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 and 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

Find the right detector and mode for your requirements

With the 3oTec detector from our 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 to suit 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, Forklifts, Heavy Industrial Ferry (Car Deck)	Livestock Pen Mill Laundry Changing Room	Kitchen Engine Room Test Beds	Atrium Theatre Hangar Oil Rig Turbine Hall
855 835P Photo Detector	✓	✓				
855H 835H Heat Detector					✓ Mode 0	✓ Modes 1 or 2
855H 835PH Photo Heat Detector	✓ Modes 0 or 1	✓ Modes 0,1 or 5	✓ Mode 3	✓ Mode 3 With FastLogic	✓ Mode 5	✓ Mode 0, 3 or 5
855PC 835PC 3oTec Triple Sensing Detector	✓ Mode 0, 3 or 4	✓ Modes 0, 1 or 3 Mode 1 in front of showers		✓ Modes 1 or 4	Mode 1	Mode 0, 1 or 3

Applications and environments

Commercial

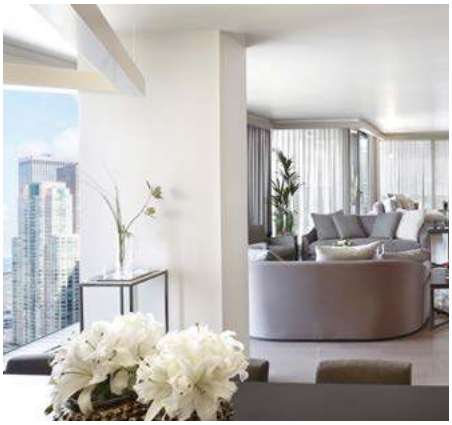
Risk: In large commercial buildings there are often multiple tenants occupying the space for different activities, including office space, call centres, canteens, small shops and gyms. It is a challenge to find detection solutions that can satisfy the need of a multi-use building and help you limit unwanted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

Solution: Generation 6 855PC 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 alarms within a factory comes from the byproducts of the manufacturing process.

Solution: The Generation 6 855 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 inconvenienced guests.

Solution: Installing a Generation 6 855PC 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, and can raise an alarm even before a normal sensitivity smoke detector.

Highest levels of regulatory compliance

Approvals

Our 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 855 series 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

Rated to IP44 in accordance with BS EN 60529:1992 + A2:2013

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About Johnson Controls

At Johnson Controls (NYSE:JCI), we transform the environments where people live, work, learn and play. As the global leader in smart, healthy and sustainable buildings, our mission is to reimagine the performance of buildings to serve people, places and the planet.

Building on a proud history of more than 135 years of innovation, we deliver the blueprint of the future for industries such as healthcare, schools, data centers, airports, stadiums, manufacturing and beyond through OpenBlue, our comprehensive digital offering.

Today, with a global team of 100,000 experts in more than 150 countries, Johnson Controls offers the world`s largest portfolio of building technology and software as well as service solutions from some of the most trusted names in the industry.

Visit **www.johnsoncontrols.com** for more information and follow @johnsoncontrols on social platforms.

For more information about ZETTLER fire detection technology visit:
www.zettlerfire.com

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