Explosion-protected cameras: 4 things to know about them

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In industrial settings, sparks from electrical devices, IP cameras included, have the potential to trigger explosions. Having explosion-protected cameras, then, becomes critical. This article discusses what to know about these cameras.

Needless to say, industrial settings can be prone to fires and explosions. These disasters incur heavy damage to the manufacturer, not to mention casualties. According to statistics by the National Fire Protection Association, between 2011 and 2015 municipal fire departments in the U.S. responded to an estimated average of 37,910 fires at industrial or manufacturing properties each year, with annual losses from these fires estimated at 16 civilian deaths, 273 civilian injures, and US$1.2 billion in direct property damage.

There are many causes to fires and explosions in industrial settings. A blogpost by Nilfisk cited the following five major causes: combustible dust, hot work, flammable liquids and gases, equipment and machinery, and electrical hazards. According to the post, electrical fires can occur due to one or a combination of the following factors: wiring that is exposed or not up to code, overloaded outlet, extension cords, overloaded circuits and static discharge.

IP cameras need to be well protected in industrial settings. These cameras are electric devices that can emit sparks. They are also tasked with securing factory premises as well as, in some part, ensuring the factory is operational and management efficiency. Making them explosion-protected allows them to function normally in an potentially explosive environment, thus giving users peace of mind.

"Explosion-protected cameras should be installed in any area where there is a risk of explosion, which could come from a number of sources. Environments where flammable liquids, gases and chemicals are being used or manufactured, and those where significant amounts of dust or fine particles are being created, all carry a risk of catastrophic explosion. Explosion-protected cameras are designed to mitigate this risk, while still enabling high-quality video surveillance," said Ulrika Bretz, Product Marketing Manager at Axis Communications.

According to Bretz, explosion-protected cameras are suitable for industrial entities in a variety of sectors. "Environments where there's a genuine risk of explosion are more common than you might think. From the oil and gas sector to farming and food production; from industrial chemicals to timber processing,

hazardous environments where the risk of flammable liquids, gases and dust being ignited are those where explosion-protected cameras should be installed," she said.

Having discussed the points above, below we explore what to know about explosion-protected cameras.

What are explosion-protected cameras

So what are these cameras? What make them explosion-protected? The answer lies in the camera's enclosure.

"The industry term for explosion-protected cameras such as those from Axis is 'Ex d', where the device enclosure provides the protection. Explosion-protected cameras are enclosed in heavy-duty casings, typically made of stainless steel or aluminum, which are certified to protect against any spark being emitted from the camera which could provide an ignition source for an explosion," Bretz said.

What certifications are there to prove the cameras are protected

What certifications are out there to show proof the housing is protected? Bretz cited Axis's own examples. "The housing of Axis explosion-protected cameras is certified worldwide according to applicable standards: NEC (USA), CEC (Canada), IECEx (International), ATEX (EU), EAC Ex (Eurasian Customs Union), PESO (India), INMETRO (Brazil), CNEx (China), KCC (Korea) and IA (South Africa), covering Class I/II/III, Divisions 1 and 2, and Zones 1, 2, 21, 22, Groups IIC and IIIC. We believe this represents the highest level of standards that customers should look for," she said.

How should explosion-protected cameras be installed

The installation of explosion-protected cameras also requires special attention. "First of all, they shall be installed by a certified technician in a hazardous area," Bretz said, adding where to install the cameras depends on the application. "A moving PTZ camera is typically installed higher up to monitor a larger area, while fixed cameras are installed closer to the area of interest. An alternative to install a fixed camera with high zoom factor at greater distance is to install a high resolution camera closer to the monitored area, where one would get both the same level of detail but also a better overview of the area."

What analytics should be included in these cameras

Explosion-protected cameras can include the same set of analytics found in typical IP cameras. Since these cameras are deployed in industrial settings, analytics that detect smoke and flames can be helpful but should not be the only means of detection.

"While flame and smoke detection analytics are obviously beneficial in environments where there is a risk of explosion, it is also important to state that surveillance camera analytics for these areas should not replace other flame and smoke detection sensors," Bretz said. "More broadly, analytics to support good health and safety practices - such as the wearing of appropriate PPE and analytics to create alerts should people enter prohibited areas - can support safety and security in hazardous areas." a&S