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Highlighting the key changes in the Personal Protective Equipment industry, produced in collaboration with MSA Bristol

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DIGITAL INNOVATIONS
FOR FIRE SUPPRESSION

The fire suppression industry can benefit from
the use of data collection, IoT and remote monitoring

Data collection, connectivity (IoT), and remote monitoring have revolutionsed nearly every industry. Manufacturing equipment can be monitored to allow for predictive and preventative maintenance and minimise or prevent downtime. Warehouses can pick and ship more products with greater efficiency and less cost while improving inventory accuracy. Even with so many industrial and consumer items connected to the internet, experts predict that there will be billions of new connected devices in the future, and many industries are finding new ways to leverage this connectivity.

The fire suppression industry has yet to take full advantage of this technological capability. If properly implemented, remote connectivity holds considerable value. Data can be shared across systems so that the overall health of the fire suppression system can be monitored both on site

and remotely. This is becoming an increasingly crucial capability in an era where COVID-19 has resulted in fewer employees on site. Taking full advantage of data collection, connectivity, and remote monitoring can help to create the safest, most reliable fire suppression system possible. Remote monitoring can add considerable value by reducing

"Predictive maintenance uses advanced analytics that includes data on aging or wearing of specific key components."

risk, limiting liability, and increasing the value of any pertinent capital investments.

Currently deployed fire alarm control panels (FACP) offer considerable control of the fire suppression

system, but they typically offer only limited information about system health. If pressure is monitored, there is often no temperature compensation. If a container holding suppressing agent fails, there is often no indication as to which specific container failed.

Furthermore, all adverse events trigger the same alarm without indicating the cause of the alarm. Knowing the cause of the alarm can dictate the appropriate response. Accidental discharge caused by a faulty component or maintenance error will elicit a different response than an actual fire. In the event of an accidental discharge, knowing before maintenance personnel are dispatched whether the discharge happened during system maintenance or was the result of a damaged or worn component can reduce costs associated with troubleshooting the problem. Additionally, alarming will occur anytime the system is outside of specified parameters, and there is no early warning that a failure may

be imminent. Being able to correct a fault before a failure occurs can keep the system operating correctly.

One of the keys to making connectivity successful is data collection—gathering the right data and using it correctly. For example, system pressure, ambient temperature, and temperature compensated level of the agent in the storage tanks are crucial to monitoring the status of the system. Ensuring there is enough agent and enough pressure to properly disperse the agent is vital for the system to be operational. Actuator data such as firing pin position and whether the actuator is fully engaged on the discharge valve can indicate whether the system is capable of firing. Additionally, data concerning shock to storage tanks along X, Y, and Z axes can be critical to determining if an impact caused the system to accidentally fire. Finally, system fire and system test data can be logged for liability and insurance records. All this data would include

a non-erasable time stamp, which can later be used as evidence to determine liability.

Collecting data and being able to access it remotely allows for more than just monitoring system status. It would enable more efficient maintenance and the application of a variety of maintenance strategies.

Condition-based monitoring uses advanced analytics to determine the overall condition of the system, the actual degradation of system components or performance, and if there is a change in the system health. When a fault is identified, repairs can be properly prioritised before the system is disabled.

Advanced troubleshooting also uses advanced analytics combined with data from previous failures to identify the root cause of a problem more easily. This can greatly improve maintenance efficiency and supply the right spare parts for correcting the fault on the first intervention.

Predictive maintenance uses advanced analytics that includes data on aging or wearing of specific key components. Whereas condition-based monitoring and advanced troubleshooting aid in addressing problems when they arise, predictive maintenance allows problems to be addressed based on predictors that indicate the need for maintenance.

The benefits

The benefits of data collection and remote monitoring go beyond system maintenance. They add tremendous value to all stakeholders. OEMs, installers, maintenance companies, building owners, and end users are all protected against liability.

Data collection and monitoring will have a big impact on fire suppression industry stakeholders even if they do not move forward with solutions. Building and facilities monitoring is already providing incredible value to that

market. Data from natural gas and electricity consumption and HVAC system monitoring are becoming a part of many building monitoring dashboards. For buildings that already have fire suppression systems, there is no need to replace the entire system. The addition of the appropriate aftermarket sensors to the existing system can send the desired data to the building's current monitoring dashboard, maximising the utility of the monitoring systems that buildings and facilities are already using.

As this is relatively new territory for the fire suppression industry, all stakeholders must consider how IoT and data collection can be leveraged. As customers begin to realise the benefits that they are having on their other systems, they will look to see those same benefits being applied to their fire protection systems. The HVAC industry is utilising this technology, and they may seize the opportunity to include fire suppression data into their monitoring systems, which could doom OEMs, installers, and maintenance companies to becoming mere commodity vendors. Failure to invest in this technology could cripple the growth and profitability of the industry and your company.

To find out how TLX Technologies can add some of this technology to your systems visit our website: www.tlxtech.com