WHITE PAPER

Superior Emergency Management

With Massive Operational Savings

Smarter Security

More intelligent. More secure.

Protect the People, Assets, and Corporate Information within a Building

In an emergency situation, crucial time can be lost trying to ensure all employees, contractors, and visitors in a facility are accounted for. First Responders need to know whether search and rescue is required for people still inside, and if so, they need to know what specific areas need to be searched. This has been done in the past with assigned staff monitors at "Muster Stations" checking off names on a clipboard to see that everyone is safely out of the building and accounted for, but this has been proven to be error-prone and can be improved. For example, if a person is in another part of the facility when an emergency occurs and evacuates from there as they should, it can take some time to advise their own Muster Station coordinator where they are and that they are safe. In many cases, this critical information is never communicated. Using identity cards to automate this count improves things but often, in the rush to evacuate, cards are left behind on desks so the count is not complete.

Another important use for population counts in specific areas of a facility is the ability to automatically match, in real-time, the needs of the building occupants to the operating settings of the Building Automation systems in their area. This results in the assurance that all occupants are comfortable in their space, but it also ensures that the Building Automation systems are able to run more

efficiently, or even shut down completely, when they know that there are no occupants in a specific area. Tests have shown that operating cost savings of 20-30% or more can be realized using this simple technique. Some buildings do this on a timed sequence, shutting down air handlers and cooling systems after normal working hours, and switching lighting systems over to "motion sensor" operation, without any idea that there may still be people working in the building. Project teams working late for a delivery deadline suffer in less than ideal environmental working conditions, and if they are working at their desks without moving around, the lights will go off.

What is needed:

To accurately monitor and generate population counts for a facility, as well as for specified areas within that facility, every person entering or leaving has to be counted as they pass through the various possible entry and exit points. These separate counts then have to be collected and correlated immediately to generate a complete system-wide real-time count for the overall facility and for each predefined area within the facility. Clearly this would have to be performed by some sort of automated process with highly accurate sensors throughout the facility to count the people entering and leaving those spaces. An example of the types of output such a system can generate is shown in the table below:

Area	Current Population Jan. 21, 2019 @18:36	Notes
Total Facility	12	
Production Floor	0	Flammable Materials, Toxic Chemicals
Materials Test Lab	0	Flammable Materials, Toxic Chemicals
QA Test Lab	7	
Admin Offices	5	
Basement Maintenance Area	0	Flammable Materials

In this example, at this time in the evening, there are still a few people working in the Admin Offices and in the QA Lab, but the rest of the facility is completely empty. The Building Automation systems can safely scale back output for those spaces and turn out the lights. And if an emergency occurs, the First Responders know they only have two areas to search in the whole facility and they know exactly how many people they are looking for in each. As this table clearly shows, real-time population counts like this can significantly improve employee safety and reduce risks for First Responders, as well as reduce operating costs.

This capability to accurately know how many people are in a specific area also works to foil after-hours theft. In some facilities, it is relatively easy to get in during the day with a group of visitors and then hide until the rest of the space is empty. This leaves the thief plenty of time to search through and steal whatever it is they are interested in and then hide to repeat the process in reverse the next day to leave. With this accurate counting capability in place, security teams would know that someone was still in the area and either begin to search for them or simply watch for them to come out of hiding.

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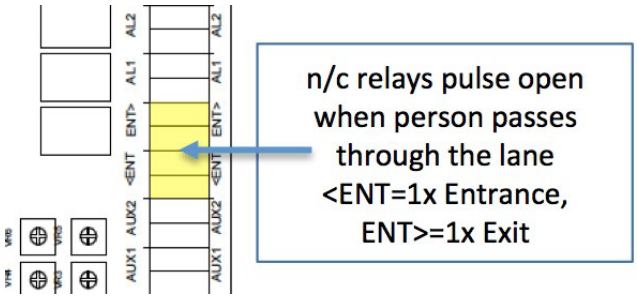
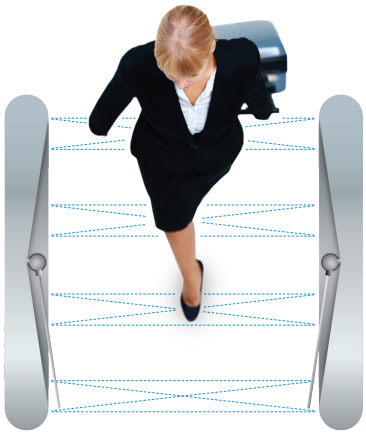
How the Solution Works

The automated people counting sensor relay outputs needed at every entry and exit point for such a system to work, are already built into the processor boards of all models of **Smarter Security's Fastlane® Turnstiles and Door Detectives**. Every time a person passes through a Smarter Security Fastlane turnstile lane, or a doorway with a Smarter Security Door Detective mounted on it, the unit will generate a count pulse. These systems are fully bi-directional so if they pass through in the entry direction they will generate a positive pulse count on the '<ENT' processor board relay output, and if they pass through in the exit direction they will generate a negative pulse count on the 'ENT>' processor relay output. These two outputs are Normally-Closed (n/c) dry contact relays and open for 1 second when someone passes through.





These pulse counts are generated for every person detected passing through any entry or exit point. The systems will even count those unauthorized users who don't badge in at all and tailgate in through a secure doorway behind an authorized user, or those who force a door or a turnstile open to get in. These actions will cause alarms to sound but counting them this way is designed to ensure that the count of people in the building is as complete and accurate as possible. In rare cases, it is possible to throw the population count off slightly if there is collusion between two people entering, and tailgate detection is somehow masked by their actions. If they are able to fool the system into not generating a tailgate alarm, there will only be one entry counted rather than two.

The pulse counts that are generated by the Smarter Security Fastlane turnstiles and Door Detectives, are designed to be collected and managed by the standard Access Control System (ACS) panels that already exist in most major facilities. These pulse counts are generated even if the door detective or turnstile is configured for free-entry, and free-exit, and no identity credential is required to pass through. In those situations the systems are not performing any access control function but simply counting the people going in and out. This configuration is often seen in office buildings during normal working hours when security is reduced. Then, after hours they are automatically reconfigured through secure IP commands to full access control with card entry requirements.

Alternate 'Completely IP-Based' Population Count

The Smarter Security Fastlane Turnstiles and Door Detectives have full IP connectivity built in, and any authorized user on the network can communicate with them. Each lane has a dedicated IP address when it powers up and they even generate their own web page. This IP interface lets the lanes be reconfigured on the fly from any location. For example, lanes at a specified entrance could be set to normal card-entry / free-exit during office hours but switch over to card-entry / card-exit afterwards. All lanes in that entrance could even be set to No-Entry / No-Exit if that entrance is not to be used outside of normal working hours.

Extending the capabilities of the web pages of each individual lane, the Fastlane Touchscreen Remote Controller is an IP-based device, designed to support and manage a combined total of up to 64 turnstiles or Door Detectives, simultaneously. On-screen display of the total building population is updated in real time based on information received from the various connected devices.

In addition to the self-generated web page and dedicated remote controller, a software application is available from Smarter Security called "Fastlane FastCount." This application has been developed for any Windows computer (Windows 7-10) connected to the same IP network as the turnstiles or Door Detectives. This app can be configured to provide real-time population counts in specified areas of the facility, as well as a combined total for the facility. For this to work as intended, Smarter Security Fastlane turnstiles and Door Detectives must monitor all entrances and exits for each area, and be connected to the network.

The IP interface can also support a CGI/XML script command line interface with the units. This permits anything that the web page, Touchscreen Controller, or FastCount app can do, including population counting, to be replicated by a third party software subroutine. Such a subroutine could potentially reside on any network server or on the access control system itself if such a program subroutine is supported.

The only Smarter Security Fastlane devices that do not yet have IP connectivity are the Door Detective Compact and Door Detective CL models, as well as the ClearStyle 200 and Clearstyle 400 barrier-free optical turnstiles. It should also be noted that the older processors in these units have reduced detection capabilities for persons exiting very closely together or running quickly, as they might in an emergency. The accuracy of the facility population counts may therefore be impacted if these four units are utilized.

Protection With an Eye for ROI

Population counts can be sent automatically to First Responders and the Emergency Management team at the facility, directly from the access control system, as soon as the first alarm of any kind is issued. This will save time, focus search and rescue efforts, and significantly increase Employee and First Responder safety as a result.

Such a system can also automatically manage the power consumption of the Building Automation systems in response to real population counts, and scale back power when they are not actually required. This will result in significant operational savings for the facility.

And these new sensors at every entry point will improve security throughout the facility, without any direct costs to the security budget. In addition to the substantial employee safety and risk avoidance benefits, the return on investment for this type of installation, due to Building Automation operations savings, will typically pay for the cost of the turnstile and Door Detective in less than a year.

Door Detectives provide entrance control and tailgate detection.

Fastlane turnstiles secure many of the world's most iconic buildings and are designed with cutting edge technology.