White Paper

Traffic Count Systems in Retail Applications

Different types of businesses rely on various key metrics to provide an instant, general indication of their health and to identify performance trends. Hotels look at occupancy rate, theaters measure tickets sold, and doctor offices use patient visits.

For many businesses, one of the most important basic metrics is traffic; how many people came through the door. Collecting traffic data can be as simple as utilizing an existing sensor on entry/exit doors, or adding a sensor to the entrance(s) to get a basic count of people entering the premises. That information may be all that's needed for a small store with a single sales area and checkout counter.

For both simple and more sophisticated counting systems, store owners/managers look beyond the simple metric of total visitors. They can use traffic count information to see how a store performed on a given day and how well it's done in the past. Owners and managers can also use this information to help analyze sales effectiveness, gauge the value of their advertising and promotions, predict staffing levels, and more.

This white paper will:

- Provide an overview of traffic counting systems
- Describe the benefits of using existing security systems to gather traffic-count data
- Explain how traffic count data can be used to enhance store operations and increase sales
- Provide valuable information about other non-retail opportunities for traffic count technology

Section I. Traffic Count Technology

In the not-so-distant past, it wasn't unusual to see a store employee stationed at the front door with a simple counting device. As each visitor passed through the door, the employee pushed the button and added to the hourly or daily tally. In some cases, stores used turnstiles as both a counting and theft-protection method.

Today's equivalent of that basic approach is a light break-beam sensor across the entrance(s) that adds to the tally each time the beam is broken. This method has the advantage of being very simple and can be self-contained. Each day or at any desired interval, an employee simply reads the current count and calculates the difference between the current and previous count to calculate today's number of visitors. These systems are also available with the capability to communicate, wired or wirelessly, with a remote application that collects and stores count data.

The beam is limited in effective distance, making these sensors good for entrances of up to approximately 25 feet. They are inappropriate for some mall-based stores with entrances wider than the beam's range.

The other limitation is that these sensors are only effective at entrances. Many store owner/managers are also interested in what areas customers visited once they were inside the store. It's difficult to find appropriate placement for break-beams inside most stores.

A similar, basic counter is a door contact that trips each time a door is opened. Obviously this technology is also limited to only door entries.

Motion detectors provide a more versatile technology. The detectors may be higher-cost than a beam, but they have fewer limitations for placement and can be configured to meet specific needs. By adjusting the angle of the sensor and width of the beam, precise areas can be surveyed by the detector. They also have the advantage of being mounted out of reach, avoiding tampering or damage.

A higher level of counting technology is represented by cameras. Whether visual or thermal, they provide many of the same benefits as motion detectors. The cameras are configured to focus on a specific target area and register a single count when a visitor enters and leaves the area. The added benefit is that they can, with the appropriate software, track and count more than one target at a time, something beyond the capability of motion detectors. The drawback of camera systems is their higher complexity and cost, with the additional need for special analytical software.

Section II. Dedicated Traffic Count Systems Vs Multi-Purposed Security Systems

Dedicated counting systems using any of the sensor technologies listed above are widely available. However, it is interesting to note that most of the sensors utilized by these counting technologies are also commonly used in security or alarm systems. Not surprisingly, security system manufacturers, including DMP, saw the logical opportunity to capitalize on the existing sensors to capture traffic count data.

The benefits are readily apparent. By transforming selected sensors into multifunctional devices, premises remain protected while also providing optional traffic count data. The owner/manager also may opt to add sensors, beyond what's needed to protect the premises from intrusion, to enhance their traffic-count precision. These sensors can be positioned as needed to track traffic through specific areas of the premises. Of course these sensors also perform the dual duty of both counting traffic and detecting intruders.

The availability of wireless sensors makes it possible to precisely position, and quickly and easily reposition, these detection areas as needed. This can be done to readily modify the area being surveyed to measure traffic in different department/areas of the store, analyze a specific product area to determine the impact of advertising on traffic, or to improve the accuracy or effectiveness of a sensor.

By repurposing existing sensors and relying on the control panel as the counter, there is no need for redundant transmitters, or the additional loggers, controllers, and converters required for a dedicated traffic count systems. End users are also saved the additional expense required to run AC power to the traffic-count sensors.

Using the existing security system for traffic counting also eliminates the need for additional hardware on the back end. Traffic count data is captured in the security system control panel and can be accessed using the existing interfaces or applications. Finally, there's no need to learn and maintain separate traffic count software. This feature is simply added to as an option to the existing security system software.

For the DMP panels, up to 10 zones can be configured for traffic count. That enables counts for 10 different entrances or areas of the premises. Data for all zones is continuously captured and traffic counts totaled by zone.

With the DMP system, there's no need to actually log in to the panel to check traffic data. The traffic count feature is optimized for mobile devices and presented as a tab in the DMP Virtual Keypad App. Each time the alarm system is armed, the data is pushed to the user(s) for review. Only the essential data is presented, providing at-a-glance data for each zone. Reports and raw data are also available for download for deeper analysis.

DMP Traffic Count feature screen shot showing
previous-to-current week comparison for five zones

This mobile availability of traffic count data is a timesaver for store owner/managers of a single location because they can receive the data wherever they are. It is especially beneficial to multi-store operations because region or area managers can automatically and instantly receive count data from all locations when each alarm system is armed at the close of business.

Section III. Value Beyond Simple Traffic Counts

The greater value of traffic count data in a retail setting is using it as an essential factor in some simple calculations that provide actionable information about store operations, and create the opportunity to improve store management and drive higher performance.

Visitor Conversion Ratio

Traffic count tells you how many visitors you had. Visitor Conversion Ratio tells you how many of those visitors actually became customers. It's calculated with the simple formula:

Number of Sales/Visitor Count = Visitor Conversion Ratio

When comparing store to store, or comparing performance of a single store over different time periods, the Visitor Conversion Ratio provides a good performance metric. However, it simply points out improvement opportunities.

Consider this scenario:

	Store A	**Store B**
Visitors	200	100
Number of Sales	50	50

Store A had twice as many visitors but the same number of sales as Store B. Why don't visitors become customers? Why didn't more of the visitors to Store A become customers.

- Were advertised items not available?
- Could visitors not find the items they came looking for?
- Were checkout lines too long so visitors abandoned their items?

Those are questions store managers need to explore. When corrective actions are implemented, future Visitor Conversion Ratios provide the feedback needed to gauge their effectiveness.

Staffing Decisions

One of the reasons for a low Visitor Conversion Ratio could be understaffing. Perhaps no one was available to assist the visitor with finding or selecting an item. Maybe the line at the register was so long that the visitor abandoned a planned purchase. Traffic count data can help correct these problems by ensuring proper staffing levels.

Once a store has accumulated sufficient data, managers can begin to use that historical data as a powerful predictive tool that enables estimates of future traffic. Traffic estimate is calculated:

(Traffic last week/Traffic same week last year) X Traffic this week last year = Traffic this week this year

So if:

Traffic last week was 600

Traffic for the same week last year was 400

Traffic this week last year was 420

then:

(600/400) X 420 = 630

Armed with this estimate of upcoming traffic count, it is possible to make more-educated staffing decisions. As more data is accumulated, more accurate estimates will be provided. Still, it is only an estimate that must be adjusted for other factors that may positively or negatively affect actual traffic in the coming week. That could be everything from weather and economic differences to store renovations and advertising.

Over time, traffic count data can also reveal useful sales intelligence that includes:

- What are the highest and lowest traffic days of the week?
- How much does traffic improve following an advertisement?
- How does traffic change during promotions and sales?

All useful things to know.

Section IV. Traffic Counting in Other Applications

Traffic counts are widely used in retail applications but many other organizations and facilities also put this data to good use. Museum, libraries, various agencies and bureaus, and other facilities are interested in how many visitors they have each day. Often, these publicly-funded entities utilize traffic count information to help justify funding and grants.

Typically the sophistication of these systems is lower than those for retail locations because a simple count of visitors is all that's required and most have a traditional entrance that can be outfitted with a break-beam or door contact sensor. Museums or traveling displays gain valuable information in knowing how many people passed through a specific area or viewed a particular exhibit, requiring some additional traffic count technology.

Regardless of the application or sophistication of the traffic count need, these facilities should already be equipped with a security system. They can therefore realize the benefits of incorporating traffic count into their alarm panel rather than needlessly investing in a separate, standalone system.

Shrink Reduction

There are four sources of shrinkage: employee theft, shoplifting, administrative errors, and vendor fraud. The biggest source is employee theft, accounting for over 40% of the total shrink. A 2014 survey by Chain Store Age showed that retail shrink averaged 1.48% of total sales in the US. Reducing shrink requires a multi-faceted loss-prevention program. Store security systems can be easily and affordably modified to provide the key element of such a program. By auditing or comparing Daily Sales numbers with Customer Traffic Count data one can potentially determine when shrinkage or internal theft may be occurring.

DMP security system control panels include a traffic count capability, and even include electronic access control features. With it, store owners can limit access to designated rooms or areas only to authorized employees. Implementing access control requires adding an electronic lock and credential reader to each area to be secured. The most common credential readers are card or fob readers, or keypads where employees can enter their PIN. With access control devices in place, story owner/managers can assign access rights to authorized employees, allowing only them to enter the secured areas. An additional level of security is provided by the system log that records a history of the precise time each employee entered the area. This provides a valuable audit tool in investigating theft and a strong theft disincentive.

The traditional method of access control is, of course, standard door locks and keys. There are several drawbacks to relying on this physical security approach compared to electronic access control. There are typically multiple keys in circulation at any time, making it difficult to keep track of who has them. Another problem is that keys can be lost or stolen. In addition, there is the problem of retrieving keys when an employee leaves the organization. Retail has notoriously high employee turnover and many of those employees leave on bad terms. Whether keys are lost, stolen, or in the hands of disgruntled ex-employees, securing the store requires rekeying many or all of the locks. That is an expensive proposition that may take several days to implement. With electronic access control, the store owner/manager simply updates the ex-employee's record in the access control system database to render their card, fob, or PIN useless. These databases are typically housed online, enabling the owner/manager to make updates from anywhere they can access the Internet.

Section V. Maximizing Security Systems ROI

A fundamental concept of the continuous improvement process is that if you can't measure it, you can't improve it. Every store wants to increase sales, and deploys a variety of techniques to make that happen. Promotions, sales, events, staffing changes, store reconfigurations, and signage updates are just some of many things that might be attempted. How successful were they? Sales volume is a good indicator, but it doesn't tell the whole story.

A foundational component of improved retail sales and enhanced store management is measuring how many people come into your store. This data becomes a factor in a number of calculations that enable store owner/managers to determine effective ways to boost sales.

Every store is – or certainly should – already be equipped with a security system. DMP security systems include the ability to add the traffic count feature. Rather than install a separate traffic count system, with the related capital and operating expense, smart store owners/managers leverage their investment in their existing security system by simply activating the traffic count feature.

Access control features can also be affordably and easily added, further extending the functionality of the security system and providing added store-management features.

Incorporating security, traffic count, and access control in a single system reduces capital costs, reduces maintenance, and simplifies operation since there is only one system to learn. The benefits delivered by such a multi-tasking system will very quickly return the store owner/manager's investment through increased sales, enhanced store management, and reduced shrink.