



# Retail Market RFID Solutions



A Motorola FX7400 fixed RFID reader is used for point-of-sale data collection in the foreground while in the background, a sales associate uses a lightweight Motorola MC3090-Z RFID handheld to conduct frequent cycle-counts.

## Business Challenge

Success in the highly competitive retail environment depends on how well retailers are able to master a number of major business objectives. To maximize sales opportunities, retailers need to make sure that the right product is on the shelf and available for the customer at the right time. To help increase margins, operating and labor costs need to be minimized, and the revenue loss associated with shrinkage must be minimized or eliminated. And to ensure repeat customers and the development of a continually growing loyal customer base, retailers must deliver a differentiated, consistent, and positive customer experience — critical since today's consumers have so many purchasing options, from major department stores and boutique shops to a world of online retailers.

Compounding the difficulties in keeping product in stock is the rapid pace of product innovation and an increasingly short product life cycle — retailers must cope with the regular release of 'new and improved' versions of various products. The multitude of choices that are often associated with products (such as size or color) further complicates inventory management. From MP3 players to the latest fashions, consumer trends change quickly, making it hard for retailers to ultimately predict demand and duration.

Inadequate stocking levels translate into missed opportunities and sales — while overstocking to ensure that the right product is available at the right time leads to excessive capital requirements for inventory that can reduce profitability. And the financial impact of both of these situations — stock-outs and surplus — are staggering. The top 100 retailers lose an estimated \$69 billion annually due to stock-outs.<sup>1</sup> Inventory carrying costs are approximately 25 percent per year of the average inventory — surplus required to protect against out of stocks directly impacts the bottom line. And product availability is a significant factor in customer satisfaction and loyalty — industry studies reveal that consumers are likely to switch retail stores if they experience out-of-stock items just two or three times.

Item-level RFID applications can help retailers improve inventory and replenishment processes, increase visibility into shrink, and automate tasks to reduce labor costs.



***RFID provides retailers with real-time inventory visibility — with very little effort. RFID readers designed specifically for retail like the Motorola FX7400 can track shelf, sales floor and backroom to frontroom product movement. And the real-time inventory information provides the data needed to improve buying decisions, increase the velocity of the replenishment cycle and reduce stocking levels.***

Daily inventory counting could provide the information retailers need to better manage inventory. Armed with a better understanding of what is on the shelf, what is in the back room and real time sales trends, retailers would be able to place smaller, more frequent and more timely orders — enabling just-in-time inventory. Retailers would be able to reduce their inventory investment levels while providing customers with a better selection and more current product. But the time and cost associated with manual inventory takes is prohibitive. Instead, inventories are often only completed on an annual or semi-annual basis — and the use of paper and pen in this process invites errors, making it difficult to make the best buying decisions.

#### **The RFID Solution**

Item-level RFID applications can help retailers address these age-old issues by improving inventory and replenishment processes, increasing visibility into shrink, and automating many tasks to reduce labor costs. The end result — the right product is available at the right time for the right customer.

With RFID, retailers can significantly reduce lost sales, overhead, shrinkage and the cost of labor while increasing productivity and profit.

#### **Improve inventory management with real-time inventory visibility**

RFID gives retailers real-time inventory visibility with very little effort. RFID's automated bulk data capture enables rich inventory visibility as goods travel throughout the store. On the loading dock, RFID speeds up the inbound receiving process, enabling instant reconciliation of shipments against purchase orders without an 'open-box' audit process. As a result, merchandise — especially high priority and seasonal items — reaches the sales floor faster and more efficiently.

Once items are on the sales floor, RFID can ensure ample stocking levels are maintained. Equipped with a handheld RFID reader or mobile RFID cart, employees can take a complete inventory in several hours. Inventory data can then be automatically compared to required stocking levels, and a list of all items that need restocking — complete with the amount needed — can be instantly sent to the workers in the stock room.

With RFID, the daily inventory becomes an easy reality. The statistics are well documented. During an extensive pilot conducted by Liverpool, one of Mexico's largest retailers, inventory time was reduced by 80 percent.<sup>2</sup> Levi Strauss reported that one retailer can now take a full inventory every morning in about 30 minutes.<sup>3</sup> In one Falabella store, one of the largest department store chains in Latin America, associates are able to count up to 9,000 items in an hour using an RFID reader on a mobile cart.<sup>4</sup> And in another retail shop, RFID enabled two employees to take a complete inventory in just under three hours — a task that previously required a minimum of 72 man hours (six to eight employees spent six to eight hours each, twice a week).

From specialty stores to entire departments in a big box store — including both the front and back room — RFID provides the real-time data buyers need to avoid out-of-stock situations. With an accurate daily count, buyers are more educated with better data, able to see exactly what is selling and at what rate. Armed with this information, buyers can respond more quickly, placing more timely orders for merchandise that is selling fast, while minimizing the investment in slower moving stock. The proof is in the numbers. When Falabella conducted a six-month pilot in one of their 56 stores, the result was an impressive 25 percent reduction in out-of-stocks.<sup>4</sup>

The real-time inventory visibility also allows retailers to reduce their stocking levels without endangering the ability to ensure the right product is available for the right customer at the right time. Inventory turns are increased and the capital requirements for inventory are reduced, improving cash flow and overall profitability.

With RFID, retailers gain an unprecedented view of inventory, a rich understanding that enables a new level of business agility. They now have the data needed to improve buying decisions, increase the velocity of the replenishment cycle, and reduce stocking levels. Inventory turns are increased, capital requirements for inventory are reduced, and cash flow and overall profitability are improved.

### **Ensure timely management of promotions**

Product promotions are a key vehicle in retail, especially for consumer packaged goods (CPG) companies. A considerable amount of money is

often spent on each promotion. Through the power of RFID, retailers and manufacturers can easily gain the visibility and intelligence required to monitor and analyze the day-to-day success of a promotion. From high profile promotions that involve special manufacturer-sponsored displays to retailer-created programs that promote new items on the store shelves, RFID automates the collection of the considerable amount of data required to maximize the sales and revenue opportunities related to promotional programs.

#### ***Manufacturer-level promotions***

Manufacturer-sponsored promotions are very costly. There is the cost of the floor or shelf space in the retail store, the displays and the general campaign costs — including direct mailers and television advertising. There is also the cost of the merchandising agents to check that the retailers are honoring their end of the display agreement — for example, to make sure the display is placed on the store floor on the right day, and in the right spot.

Improper management of manufacturer-sponsored promotions can have a significant impact on the retailer, manufacturer and customer. If displays are not placed on the sales floor at the start of the promotion, every day that passes can represent a significant loss in sales for that product — a losing proposition for both the retailer and the manufacturer. And the cost of a delay is high — according to CPG giant Proctor & Gamble (P&G), manufacturers and retailers can enjoy 20 percent more sales just by ensuring that displays and promotional products arrive on the sales floor on time.<sup>6</sup> In addition, there is an impact on customer loyalty and retention. If customers visit a store in response to viewing an advertisement or other promotion and the item is not available, customers are less likely to return to the store in the future.

RFID can provide the visibility needed to maximize the success of manufacturer-driven promotions for both manufacturer and retailer. When RFID tags are placed on promotional displays, RFID readers capture the movement into the retail store at the receiving dock, and again when the display is moved from the back room to the sales floor. As a result, manufacturers can see when the displays arrive at the retailer, and when they are placed out on the sales floor. Armed with this real-time information,

With item level RFID, retailers can significantly reduce lost sales, overhead, shrinkage and the cost of labor — increasing productivity and profit.

## The benefits of RFID

- Up to a 50 percent reduction<sup>7</sup> in out-of-stocks for targeted merchandise, resulting in increased customer satisfaction and sales
- 15 to 20 percent reduction in restocking efforts,<sup>8</sup> reducing labor costs
- 90 percent reduction in labor associated with inventory counts<sup>9</sup>
- 35 percent reduction in employee shrinkage through improved monitoring of inventory movement<sup>10</sup>
- 15 percent reduction in inventory levels, reducing working capital as well as carrying cost requirements<sup>10</sup>
- 20 percent increase in sales due to promotions compliance and higher sell-through rates
- Reduction in receipt of counterfeit items

manufacturers can instantly spot which retailers need a reminder call to move displays from the storeroom to the sales floor — and any displays that might be delayed or lost in transit. And when RFID tags are placed on product associated with promotions, RFID readers at the dock door enable the instant and automatic identification and reconciliation of shipments to purchase orders. As a result:

- Shipments can be processed more rapidly, again helping to ensure that product is on the shelf the day the promotion starts.
- Manufacturers can monitor the status of shipments, ensuring that promotion-related product is received on time — and that the retailer can take advantage of every day of the promotion.

Proctor & Gamble reported that one of the company's most profitable applications of RFID technology was a promotional campaign and product launch management application. In one promotion, RFID delivered a 350 percent increase in

the speed of the stocking cycle: product was stocked on the store shelves just three days after shipment from the company's distribution center — a process that usually takes 14 days.<sup>11</sup> This allowed the company to achieve 92 percent product availability by day three of the launch — the industry average is 60 to 80 percent.<sup>5</sup>

### **Store-sponsored promotions**

With RFID, the retail store also has the data required to maximize the success of store-sponsored promotions. With real-time inventory data, managers can see:

- How much product is on the shelf at any point in time during the day, ensuring timely replenishment from the back room
- The rate at which product is selling and available inventory, enabling more timely placement of orders to ensure availability
- A real-time trend analysis, enabling better and faster strategic decision-making. Armed with the right data, retailers can determine how to address a slow moving promotion — for example through a price drop or by placing a different item on sale.

### **Reduce shrinkage — and the opportunity for counterfeit product to reach your shelves**

According to the University of Florida's 2006 National Retail Security Survey Report, shrinkage costs retailers in the US alone \$40.5 billion dollars — with 46.8 percent attributable to employee theft, 31.6 percent to shoplifting, 14.4 percent to administrative and paperwork errors and 3.75 percent to vendor error. A 2007 study conducted by R4 Global Solution revealed that item-level RFID tagging can help reduce shrinkage by as much as 40 percent in retail stores.<sup>6</sup>

Regardless of whether you sell high-end electronics or commodity items such as DVDs and razors, item-level tagging at the point of manufacture enables easy and automated tracking of product as it moves through the supply chain. Visibility into case and pallet shrink at receiving and shipping docks becomes a significant theft deterrent. Readers at dock doors can instantly and automatically detect receiving



***With RFID, incoming shipments can be verified and reconciled in seconds. There is no mistaking how many cases or pallets were shipped, how many were received or what exact items were received, reducing the possibility for vendor fraud and administrative error.***

and shipping anomalies. And advanced capabilities provide real-time alerts when abnormal product movement is detected — such as the simultaneous movement of a large number of items or product that is moving backwards through the supply chain (for example, a shipment waiting for put-away that is moving back out onto the shipping dock). And if suppliers have not yet implemented item level tagging, retailers can still realize the benefits by tagging items as they enter the premises.

The authenticity of items can also be easily validated at every stop in the supply chain, providing instant visibility in the event of an attempt to insert counterfeit product into the supply chain as a substitute for stolen product. And the ability to track the chain of custody and authenticate product provides valuable information toward identifying the source of the ever-present, but undefined category of “shrink.”

In the store, RFID improves loss prevention measures by providing an additional layer of intelligence to existing, proven technologies such as Electronic Article Surveillance (EAS). While EAS

can only detect shoplifting or employee theft after it has occurred, RFID can alert store personnel to a potential shoplifting event before it happens. For example, if an unusual amount of items were removed simultaneously from a store shelf, or high-valued items taken to an incorrect or even off-floor location, the activity could be captured by the readers, the retailer could be alerted instantly and security cameras activated to monitor the event. In addition, RFID is wholly complementary to existing EAS theft prevention systems. Where EAS will only tell you that an item has just left the store, RFID will enable you to see exactly what was removed from the store — and through what exit. These possibilities, coupled with RFID as a deterrent, bring a new level of intelligence to the monitoring and movement of product.

To find out how you can leverage RFID to improve inventory management and overall profitability in your retail operation, please visit us on the web at [www.motorola.com/rfid](http://www.motorola.com/rfid), or access our global contact directory at [www.motorola.com/enterprise/contactus](http://www.motorola.com/enterprise/contactus)

## CASE STUDIES

The following case study scenarios illustrate the many benefits retailers can achieve through the deployment of Motorola RFID solutions — including a significant reduction in stocking levels, increased customer satisfaction and sales.

### CASE STUDY #1:

#### National Consumer Electronics Retailer

##### Company Profile

Annual sales: ..... \$20.5B

Number of retail outlets: .....850

Misplaced goods/Out-of-stocks: .....8 percent

A national consumer electronics chain struggled to maintain adequate stocking levels of popular electronics on the sales floor. With popular products moving off the shelf at a blistering pace and complex model configurations, it was difficult for the retailer to know what was on hand at any given time to support accurate replenishment orders. Too often, an out-of-stock product was in the back room or misplaced, but busy store associates never realized a stock-out existed or failed to locate the desired item before the sales opportunity was lost. As a result, to protect against lost sales, the retailer maintained higher levels of inventory, increasing capital expenditures and carrying costs.

RFID was implemented to automate the inventory process and provide real-time visibility into stocking levels. Using a mobile RFID reader on a cart, employees are now able to take a full store inventory from the back room to the store floor in a few hours — a task that previously took days and was completed on an irregular basis. The automation afforded by RFID enables the retailer to accomplish what was previously impossible — a full inventory count is now taken on a daily basis with more than 99.5 percent accuracy. As a result, shelf inventory is readily visible, stock-outs and low levels are quickly identified, and misplaced items are easily located — increasing product availability, sales, and profitability. And the granular real-time information enables the easy identification of consumer buying trends — down to which cell phone faceplate color was popular in a given season — to optimize ordering and sales opportunities.

With RFID, the retailer improved decision-making in ordering and replenishment, and gained the ability to quickly locate a specific item in the store — even if it was sitting in the back room or on the wrong shelf out on the retail floor.

#### Net results from deploying RFID:

- 16 percent reduction in misplaced goods and out-of-stocks
- 3 percent increase in sales due to reduction of out-of-stocks and ability to move priority items to the sales floor faster – resulting in \$600M in incremental revenue
- 15 percent reduced labor costs through process automation in restocking and inventory counting
- 13 percent reduction in safety stock levels due to improved visibility and more accurate forecasting
- Increased customer satisfaction and loyalty — items are in stock, and sales associates are available to provide shoppers with more personalized attention

### CASE STUDY #2

#### Consumer Product Manufacturer

##### Company Profile

Annual sales: ..... \$16.74B

In-store promotion compliance rate: .....56 percent

A global leader in consumer packaged goods (CPG) sought to maximize the marketing dollars spent on in-store product promotions. The company invested heavily in purchasing in-store promotional product displays, but 44 percent of the company's retail partners failed to move displays to the sales floor on time. As a result, both retail stores and the manufacturer missed critical promotional windows and opportunities to increase sales — in addition to confusing and frustrating customers who expected to easily find a particular product promotion within the store.

RFID was implemented to track promotional activity at the store level. RFID tags were applied to promotional displays, which were read by in-store

RFID readers that alerted both the company and its retailers when displays reached the back room of the retailer, as well as the retail sales floor. Armed with this data, both companies could identify and correct problems at the store level as they occurred, ensuring that displays were not lost in the back room or elsewhere in the supply chain. In addition, RFID revealed where promotions were working and where they weren't, giving the company the much needed visibility to better manage promotions planning and execution — and improve bottom-line results. For example, the company discovered which retailers did not place displays on the sales floor on the agreed-upon date, and why: in some instances, the displays were too large for the designated areas. The company was able to proactively re-engineer more universal displays and address other issues brought to light with the increased display visibility.

**Net results from deploying RFID to assist in the execution of real-time promotions:**

- 89 percent in-store promotion compliance rate (a 60 percent increase)
- 19 percent increase in promotional sales from better execution
- Improved customer satisfaction and loyalty — advertised promotions are in stores and easily located
- Better intelligence to determine which promotion strategies are most effective — and to better plan future promotions

the store, administrative paper errors, lost or stolen incorrect shipments, losses at the distribution center and theft of goods inside the supply chain — limited visibility into product movement through the supply chain made it difficult to identify where shrinkage was occurring in order to assign the necessary corrective action.

The company implemented RFID to protect high-end, vulnerable items such as laptops, cell phones, and computer displays. The ability to track pallets, cartons, and individual items moving throughout the supply chain gave the retailer an unprecedented level of visibility into the path of high-valued products. This new vision allowed the immediate identification and resolution of process and delivery error. And the ability to record every movement of merchandise through the supply chain enabled the automatic creation of a detailed audit trail that assigned accountability to each employee involved — distribution center workers, delivery drivers, loading dock employees and more. Such accountability served as an effective deterrent to employee theft throughout the supply chain, and enabled the immediate identification of missing product. In addition, real-time RFID data augmented the loss prevention capabilities of the store's existing EAS system. The retailer could now spot the suspicious movement of items from shelves before the merchandise was removed from the store, enabling proactive action to help prevent the potential theft.

**Net results from deploying RFID for shrinkage prevention pilot:**

- Enabled management to identify and target the top two causes of shrinkage: employee theft accounted for nearly 50 percent and shoplifting accounted for 35 percent
- Overall shrink was reduced 25 percent<sup>13</sup>
- Bottom line annual savings through the deployment of RFID: \$425,000 (based on a 50 percent gross margin and an increase to the gross margin of 42.5 basis points)<sup>13</sup>

**CASE STUDY #3**

**National Office Supply Retailer**

**Company Profile**

**Annual sales:** ..... **\$1B**

**Number of retail outlets:** ..... **500**

**Estimated annual loss from shrinkage:** ..... **\$20M**

A national office supply retailer estimated a loss of 2 percent of the annual sales due to shrinkage — above the national average of 1.57 percent, and well above the national average of 0.69 percent for office suppliers.<sup>12</sup> While shrinkage could be attributed to multiple factors — employee and customer theft in

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- 2 RFID Journal; RFID Heats Up in Latin America; Mark Roberti; May 28, 2007; <http://www.rfidjournal.com/article/view/3344/>
- 3 InformationWeek; Real-World RFID: Wal-Mart, Gillette And Others Share What They're Learning; Chris Murphy; May 25, 2005; [http://informationweek.com/story/showArticle.jhtml?articleID=163700955&\\_loopback=1](http://informationweek.com/story/showArticle.jhtml?articleID=163700955&_loopback=1)
- 4 RFID Journal; Falabella Plans Second Item-Level RFID Pilot; Mary Catherine O'Conner; August 29, 2007; <http://www.rfidjournal.com/article/articleprint/3585-1/1/>
- 5 RFID Journal; P&G Finds 'RFID 'Sweet Spot'; Jonathan Collins, May 3, 2006; <http://www.rfidjournal.com/article/articleview/2312/>
- 6 RFID Journal; Item-Level RFID Gears Up; Mark Roberti, <http://www.rfidjournal.com/article/articleview/3650/1/445/>
- 7 AMR Research Report, results found in targeted merchandise categories
- 8 Langdoc, Scott, & Romanow (2005, October 6): RFID and Retail: Little Return for Case and Pallet Tagging
- 9 Kurt Salmon Associates, 2005: Moving Forward with Item-Level RFID in Apparel/Footwear
- 10 Typical projected savings as reported in: Alinean; Shrinking the Supply Chain Expands the Return: The ROI of RFID in the Supply Chain; Analyst Thomas Pisello; August 2006
- 11 RFID Journal; Gillette Fuses RFID with Product Launch; Mary Catherine O'Connor; Mar 27, 2006; <http://www.rfidjournal.com/article/articleprint/2222-1/1>
- 12 2006 National Retail Security Survey; University of Florida; Richard C. Hollinger, PhD, Director and Amanda Adams, Graduate Research Associate
- 13 Numbers based on a scenario in: Winning Trends in Loss Prevention, Benchmark Study: 2008; Retail Systems Research (RSR); Paula Rosenblum, Managing Partner and Steve Rowen, Editor



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