



## Reusable Container Tracking Solution

Optimize bin utilization and streamline shipping and receiving processes with bin level visibility

Company-based processes have started to mandate that extra efforts be applied to capital equipment accountability and to record genealogy of the finished products.

Manufacturers who use reusable containers to ship products to their customers or loan these containers to suppliers to ship back raw materials often find that these containers are either lost or that “over-due” containers are never returned.

Due to lack of visibility of these containers, companies are not only unable to charge their customers or suppliers a late fee or replacement fee for the unreturned containers but they also must procure new containers to keep their operations running smoothly.

With multiple manufacturing locations, multiple customers and suppliers, and multiple product types using these containers, the current system is not capable of:

- Tightening asset controls and accountability
- Auditing container inventory real-time and tracing container movement
- Streamlining the containers receipt and return processes

KeyTone and its partner, Intellex Corporation, are responding to these challenges by helping manufacturers streamline operations by improving container utilization and by providing more timely and accurate container and their goods information through the supply chain.

The innovative reusable container tracking solution from KeyTone and Intellex help companies automatically account for their pool of containers, a portion which are regularly missing, returned late, or damaged by customers. This solution results in higher accountability and improved utilization.

## Solution Brief: RFID-enabled Reusable Container Tracking

### Why RFID?

Companies may be inclined to stay with just barcode technology; however they will quickly run into limitations. Only RFID has the inherent capabilities needed to achieve traceability, as shown this table.



Key Features	Barcode	RFID
Supports multiple writes to allow "Assigned To" information written on the tag every time a container is assigned to a supplier or a customer	✗	✓
Automation of container check-in/check-out processes at various checkpoints at a distance of up to 100 feet	✗	✓
Sustain harsh conditions such as high temperature, chemicals, underwater, and uneven surfaces	✗	✓
Validate against container IDs and specific outgoing and incoming parameters to tighten control	✗	✓
Reusable tags	✗	✓

**Up to 80% of the cost of a reusable container is spent in asset recovery over its life.**

**However, most companies expend more effort on container pricing and selection than establishing an effective container management program.**

RFID can help organizations capture and store the unique "container ID" for each individual container. They can also store additional information such as SKUs in bin, quantity, and order #, assigned to information, etc.

Type of Data Captured	Business Benefits
Container ID	Automate inventory count and enable accurate bin inventory
Assigned To	Record the customer or vendor ID to whom the bins have been loaned
Bin Content	Record and update content of the bin
Order #	Enable traceability by associating order # against which each bin is being provisioned
Location	Reduce routing errors by ensuring that the right bin is at the right location

### ***KeyTone and Intellex RFID Solution for Container Tracking***

KeyTone and Intellex have jointly developed a comprehensive solution for container tracking that includes RFID readers, tags and bin tracking software application.

#### **RFID Enabled Containers**

Each Intellex RFID tag is programmed with a unique ID and permanently affixed to each container. Tags can also be programmed using a customer's existing numbering scheme.

In scenarios where there is also a need for visual identification, barcode labels with the same ID can be applied on the RFID tags. This will help the operators visually verify the container ID.

Intellex RFID tags are rugged, compact tags designed to withstand high and low temperatures, harsh environments, and moisture.

#### **RFID Infrastructure Setup**

Intellex RFID readers are installed at all the doors through which containers move. The system will record all the containers received, from whom they were received, and when they were received. It will also record all the empty containers that are assigned to the suppliers and when they are assigned.

The system can also be easily configured to record the contents of the container and the order information against which they were received in the facility. For instances in which these containers must be tracked within the facility, the system can be scaled simply by adding readers.

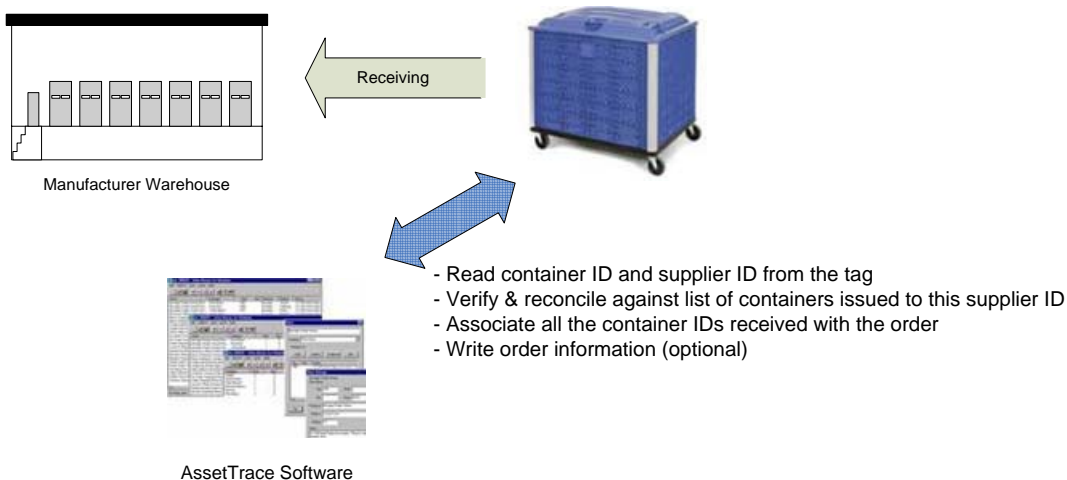
#### **Container Tracking Software**

KeyTone's Container Tracking software application - AssetTrace provides the following:

- **RFID Reader Configuration** – Installing and configuring a RFID reader is as simple as installing a desktop printer. The software abstracts the complexity of the device through a user-friendly graphic interface
- **Container Management** – Users can define or modify the attributes of each container that needs to be tracked. For example, in a chemical industry there are different types of containers based on dimensions, capacity, color, hazmat which needs to be associated with the container ID. The user interface helps users provision or retire containers easily in the system.

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- **Customer/Supplier List** – Users can manage customers and suppliers list who receive either empty containers or containers filled with the products.
- **Check-in/Check-out** – Allows users to enable any number check-in/check-out zones with RFID to track every tagged container that enters or leaves a zone in a given time period by comparing their IDs with various user-defined alerts and notifications
- **Continuous Monitoring** – Allows users to monitor asset movement in real-time in a given zone. It provides useful information like where is the container? Is it supposed to be here? Has the asset violated any operations process?
- **Alerts and Notifications** – Users can be informed of all the containers that violated any user-defined policy definitions via notifications through text messaging, audio and visual indicators.
- **Graphical Dashboard** – Provides real-time visibility into the activity and status of containers. The dashboard tells the users how many containers are received for a given order, receiving and shipping status, container movement through different processes.
- **Reports** – User can run pre-defined or customized reports to get a 360-degree view of all container's check-in/check-out statuses, container usage, visibility into container activity, and container count.
- **Find Container** – AssetTrace's powerful FIND capabilities allow users to instantly find a given container across multiple container types and zones.



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### **RFID Tags**

Choosing the right RFID tag is critical to the overall solution. The choices depend on various factors like:

- Amount of container information to be stored on the tag
- Read/Write distance requirements
- Form factor of the product or the product carrier to which the tag will be applied
- Warehouse environment



Intellex is a leading manufacturer of battery-assisted passive tags in a variety of form factors most suited for industrial applications and capable of sustaining harsh warehouse environment. These tags are long lasting and have exceptionally reliable read/write operation.

### **RFID Readers**

Choosing an industrial RFID reader boils down to 5 decisions:

- Is the reader capable of reading the tagged bin at any orientation?
- How good is the read range of the reader?
- Is the reader's form factor suitable for the application?
- Can the reader trigger any notification devices like light trees or alarms?
- Can the reader be mounted on any vehicle like forklifts, trailers, etc.?



The Intellex RFID readers provide industry-leading range and read/write reliability for applications such as asset tracking, yard management, and nested supply chain. They can read EPC-compliant passive tags, as well as next-generation battery-assisted passive tags. Intellex readers are based on Intellex's MultiProtocol capability which enables customers to future-proof their infrastructure by allowing interoperability with a wide variety of RFID tags.

The reader's advanced design ensures exceptionally high read/write accuracy. They perform reliably in real world environments around liquids, metals, and other RF-unfriendly conditions, ensuring accurate readability of fully-loaded pallets and containers.

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### Payback

The KeyTone and Intellex container tracking solution increases customer ROI and expedites payback from RFID technology investment within supply chain environments, whether the business driver is inbound/outbound process automation, better container traceability, or improved container utilization. In addition, customers benefit from the following:

- **Reduced operating expenses**
  - Minimized return transportation costs
  - Decreased obsolescence and loss
  - Lower labor costs through efficient use of resources
- **Improved container utilization**
  - Match container supply to demand
  - Create container inventory visibility
- **No shipping delays**
  - Plan shipments by knowing where these containers are

### Critical Container Management Information

Out-Of-The-Box Reports
Container allocation report (by supplier, customer, for a given period)
Container check-out report (by supplier, customer, for a given period)
Order-To-Container Receipt report (for a given period)
Container utilization report (for a given period)
Container reconciliation report (by supplier, customer, for a given period)
Container check-in report (by supplier, customer, for a given period)
For any specialized reporting needs, custom reports can be easily created to view specific sets of data.

**A RFID enabled container management solution by KeyTone and Intellex will provide organizations with the following benefits:**

- Reduction of lost containers
- Decrease in container search times
- Automation of container inbound/outbound processes
- Fewer shipment delays due to unavailability of containers
- Increase in container circulation rate
- Traceability of raw materials in production



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