



ProfitTool Inventory Control System

Bar Code Inventory Control

A White Paper on the Key Functions





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[ProfitTool Bar Code Inventory Control Module](#)

General Data Systems has developed the ProfitTool Bar Code Inventory Module utilities as part of an overall suite of utilities that encompass the ProfitTool Business Management System. This White Paper addresses the Bar Code Inventory Control aspects of ProfitTool.

The ProfitTool Bar Code Inventory Control Module follows the principles outlined by Mr. Dan Belanger – The Beltech Group, Inc. (www.beltechinc.com). Mr. Belanger has significantly contributed solid methodology regarding bar code inventory control and bin control logic coupled with warehouse logistics. For over 20 years, Mr. Belanger has successfully consulted directly with a variety of wholesalers throughout North America.

[Bar Code Inventory Control Defined](#)

Inventory Control can simply be defined as the accurate recording of all business transactions, changing stock balances up and down, maintaining accurate “Balance On Hand” and “Balance Available to Ship” of all stocking items in all warehouse locations.

An additional component of Inventory Control involves incorporating “Warehouse Bin Location” logic into the recording of these business transactions.

The Inventory Control Goal for all stocking wholesalers and distributors is to be in a position at all times to easily and quickly determine “How Much of an Item do I have” and “Where is it located in my Warehouse”.

Experts specializing in the field of Inventory Control Systems differ in specific processes and methods regarding warehouse logistics, bin control methodology and the implementation of various technologies to automate this control function. However, they do seem to agree that accurate record keeping is an absolute must to control inventory balances and bar coding dramatically improves the level of accuracy.

[Bar Code Inventory Control – Defining the Terminology](#)

Listed below is a narrative, which provides a definition of the several components associated with a bar code inventory control system.

[Bar Code Construction](#)

Bar coding is a type of morse code used to encode or put information into a universally recognized code language in the form of a bar code symbology. Encoded data can consist of a part number, serial number, supplier number, quantity, transaction code, or other type of data. A number of bar code standards have been developed and refined over the years into accepted languages called symbologies. Numerous bar code trade associations like (ANSI) American National Standards



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Institute, (HIBC) Health Industry Bar Code Council and (AIAG) Automotive Industry Action Group, have subsequently been established to regulate the use of bar code symbologies in accordance with accepted industry standards and specifications, as dictated by an industry.

Bar code symbologies come in two basic varieties. They can be either linear or two dimensional in their configuration. A linear barcode symbology consists of a single row of dark lines and white spaces of varying but specified width and height, as indicated by the example below.



LINEAR

Similarly, a 2-Dimensional symbology can be configured into a stacked or matrix format. Two dimensional bar codes are special rectangular codes which 'stack' information in a manner allowing for more information storage in a smaller amount of space.



2-D SYMBOLOGY

The amount of data that can be encoded in a linear barcode symbology is more limited than that of a 2-D symbology. A 2-D matrix symbology of 1 x 1 inch diameter, for example, can encode and store the entire US Constitution.

Bar Code Requirements

To establish a basic bar code system for automatic data collection, four primary components are required. They are – a bar code printer, a label for item tracking, scanning equipment for data collection and an external database for bar code data capture and relay.

Component 1 – The Bar Code Printer

The bar code printer provides the first vital component part in tracking information by generating the bar code label utilized in item tracking.

Component 2 – The Bar Code Label

Automatic identification is the essential first step in a barcode system which is accomplished by attaching a barcode label to an item for tracking. An item label can contain any combination of text, graphic or bar code information, yet it is the bar code symbology that facilitates and promotes the item tracking process.



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Component 3 – Scanning Equipment for Data Collection

The data collection phase occurs through the use of scanners that instantly and accurately read, capture and decipher the information contained in the barcode label. Scanners read information much faster and more reliably than humans can write or type. Thus, significantly reducing the rate or likelihood of error. Scanners also act as decoders deciphering the information contained in the barcode and converting it into a signal that can be understood by a computer system attached to a scanner.

Component 4 – Data Capture via an External Database

The fourth and final component to establishing a bar code system is the external database, in our case, ProfitTool Business Management System. Inventory barcode applications rely on the availability of external data computer systems to effectively identify a unique bar code with pertinent information about the Item from a related database. The computer system collects and interprets the data transmitted from the scanner and links the bar code reference point information to a detailed data file on that item. Such data files commonly contain various information on the item, including but not limited to, a detailed product description or price and inventory quantity, to enable transactions and activity to be effectively monitored in real-time. Without the advent of this external database, the bar code itself has no useful meaning or problem solving significance.



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The ProfitTool Bar Code Inventory Control System

ProfitTool Data File Master Records – Item Maintenance

The Item Master record, which contains all of the generic data fields of the item, has been enhanced for the bar code inventory control system. Specifically, the primary bin location, the manufacturers UPC code (if applicable) and a bar code label “setting” are control points for the system.

The screenshot shows the 'Item Entry' window for '12 LB GAUGE' (Air Pressure Gauge). The 'General' tab is active, displaying various fields:

- Item Number: 12 LB GAUGE
- Product Line: 0000 (Standard Product NY)
- Default Warehouse: 000 (Main Warehouse)
- Valuation Method: 2 (Average Cost)
- Standard Unit of Measure: EACH
- Purchase Unit of Measure: EACH (Factor: 1.0000)
- Sales Unit of Measure: EACH (Factor: 1.0000)
- Retail Price: 0.0000
- Standard Price: 95.0000
- Inventory Cycle: (empty)
- Bin Location: 265
- Item Category: (empty)
- Date Item Created: 10/31/2005
- UPC Code: 9791584872114
- Standard Cost: 67.0000
- Average Cost: 76.5715
- Last Cost: 0.0000
- Last Received: 08/05/2005
- Last Sold: //
- Product Type: F
- Weight: (empty)
- Commission: P
- Alternate Options: (checkbox)
- Taxable: (checkbox checked)
- Backorders: (checkbox checked)
- Bar Code: (checkbox checked)
- Item is inactive: (checkbox)

The Item Master record has fields to control:

1. Bar Code Flag for item label control.
2. Primary Bin Location
3. UPC Code(if applicable)

ProfitTool Data File Master Records – Item/Warehouse Maintenance

The Item/Warehouse Master record, which contains all of the generic data fields of the item at warehouse location, has been enhanced for the bar code inventory control system. Specifically, all available bin locations and their associated quantity on hand are maintained by the system.

The system controls up to three bin locations with associated quantities per item.

ProfitTool Data File Master Records – Item Bin Location & UPC Code Maintenance

The system provides for the establishment of a Master Bin Location file, which insures that all bin location information will be validated against a Master File.

The system also provides a "Bin Import" utility, which will accept data from a hand held computer of scanned item/primary bin location for automatically loading master file information.

If the Manufacturers UPC code is electronically available, a utility to load them into the system is provided.



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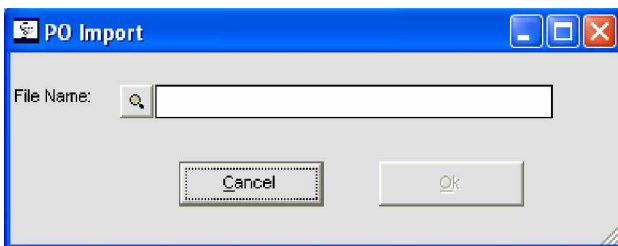
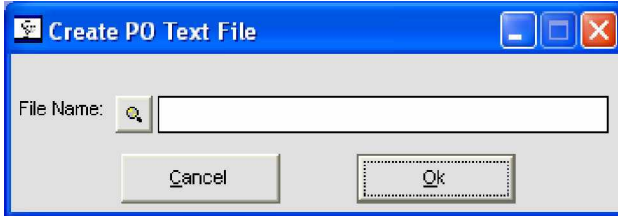
ProfitTool – Bar Code Receiving & Put-A-Way

The Item receiving and put-a-way function is one of the most vital aspects of accurate inventory control. The ProfitTool System provides an ability to download all open POs into a hand held computer, which will then be used to validate all PO receipts and put-a-ways.

As part of this function, ProfitTool will produce a bar coded PO receiver, which will be scanned to validate the PO number. Additionally, the bar code label Item control flag (see Item Master File) will trigger the system to produce the necessary bar code labels for those items on that PO that are not labeled by the manufacturer.

The PO receiver will also direct the put-a-way function as it will print in primary bin location sequence, however, showing all assigned bins. As each item to “stocked”, the bin location and item will be scanned and validated against the PO database within the hand held unit. When properly verified, the quantity received will be entered on the hand held unit and verified against the open PO quantity. If the Item had a Serial/Lot number set, the hand held would require the scanning of the appropriate serial/lot number. If there was not an exact match, the hand held would display both values and request verification

Once the PO put-a-way process has been complete, the hand held unit will be placed into a PC cradle unit on the network, and then uploaded into the ProfitTool system.



Utilities are provided to download open POs into the warehouse hand held computers and upload them back into the ProfitTool system where the results of the receiving and put-a-way process are recorded.

ProfitTool – Bar Code Shipping

The Sales Order picking and shipping process is initiated with a download of the sales order(s) that are to be picked at any given time. The download function opens a ProfitTool browse window, which will allow for the selection of a single sales order and/or multiple sales orders to be downloaded into the hand held unit.

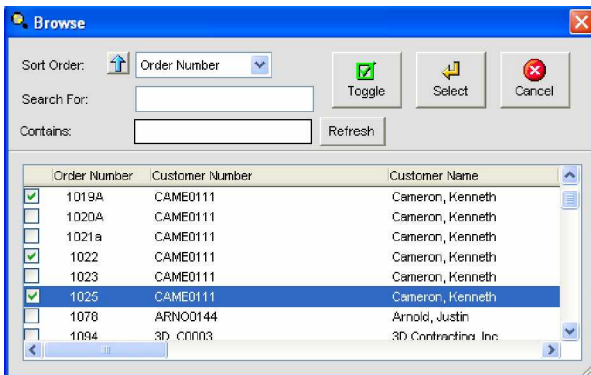
Two picking options are provided within this process:

1. A bar coded paper picking ticket can be printed from the system, sorting the items in bin location sequence and would be used to route during the picking process. No hand held unit would be required for this process.
2. If one desires to pick the order(s) using the data downloaded into the hand held unit (paperless pick), the system will offer two methods to pick. (1) Route the picking operation by sales order in bin location sequence. (2) Combine the sales orders, sequencing all items in bin location sequence.

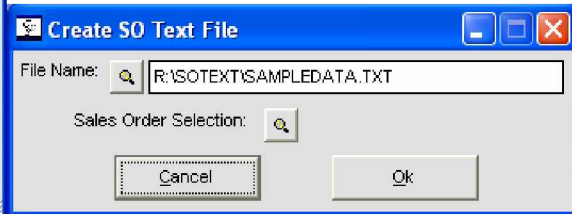
(Note) – The paperless pick function will require the verification of the sales order number, item, bin location and quantity.

Once the sales order(s) have been picked and have arrived at the packing/shipping area, the process would be as follows:

1. The SO# would be scanned off a pick ticket or entered on the hand held and verified. The Item(s) would be scanned and matched against the Item Number, the UPC code or the Vendor Part Number.
2. The quantity being shipped would be entered and matched against the open SO quantity. If there was not an exact match, the hand held would display both values and request verification. If the Item had a Serial/Lot number set, the hand held would require the scanning of the appropriate serial/lot number.
3. A SO shipment import function is part of the SO module and the appropriate sales orders would be electronically recorded in the system, with all files being updated to reflect the shipments. An optional "Print Packing Slip(s)" function would be added to this upload process, which would produce a packing slip for those shipped sales orders.



A simple utility allows for the selection and download of the sales orders into the hand held unit.



ProfitTool – Bar Code Inventory Cycle Counts

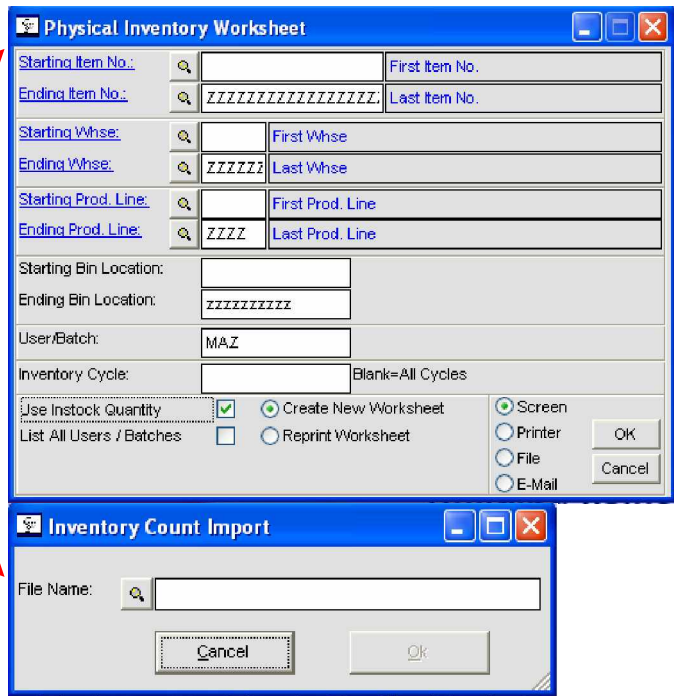
The inventory cycle counting process begins with the operation of creating “electronic count sheets” within the ProfitTool system. This operation will capture the “in stock” quantities based on the run-time selection criteria and store them in a separate data file for further processing.

Unlike the other bar code applications, no data is downloaded into the hand held units. The counting process entails scanning the bin location and item numbers of all the items that have been qualified for cycle counting, entering into the hand held the in stock quantity. If there are serial/lot numbers involved, these would also be scanned.

An import function is part of the Physical Inventory Module, which would upload all the scanned quantities to be matched up against the in stock quantities being stored within the ProfitTool system.

Along with the standard ProfitTool Journal, which lists all computer’s in stock quantities and scanned counted quantities, the system would produce a Bin Location Exception Report.

1. ProfitTool provides many options for selecting Items for cycle count.
2. Inventory counts are easily uploaded into the ProfitTool system for validation.





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ProfitTool – Bar Code Inventory Bin Location Adjustments

The Physical Inventory Count utility will allow for the correction of quantity, and bin location discrepancies that may occur within the processing of all your business transactions.

Warehouse	Item	Lot/Serial No.	Physical Count	Primary Bin Qty	Alt Bin 1 Qty	Alt Bin 2 Qty
000	12 LB GLIAGE		32.0000	30.0000	2.0000	

ProfitTool provides a data entry utility to correct quantity, cost and bin location discrepancies.

Wrap Up

Thank you for taking your time to review this material. This White Paper can only begin to scratch the surface on this intricate subject. The experienced staff at GDS would be more than pleased to discuss your specific Inventory Control problems and work with you in bringing about a solution to those problems.