Bar Code physical inventory system, reader programming

Process Specification and System Documentation

Version 1.1

Prepared For:

Generic Instrument Division

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System Overview

Generic Instrument Division plans to use bar code readers to collect physical inventory data at their facility in Anytown, USA.

Intermec portable bar code readers will be programmed to collect and verify physical inventory transactions. These transactions will be stored in the reader's memory, and later uploaded to a PC and incorporated into an Access database.

This document describes the program that will run in the hand held readers, and the functions of the Visual Basic program that will upload and download files to and from the readers.

The reader program will be written with Intermec's EZ Builder visual Programming tool, the upload/download program will be written in Microsoft's Visual Basic version 6.0.

All of the Access programming will be handled by Generic MIS staff.

Reader Programming

The user will be stepped through the physical inventory by prompts on the reader's screen. Visual and audible feedback will be provided to the user.

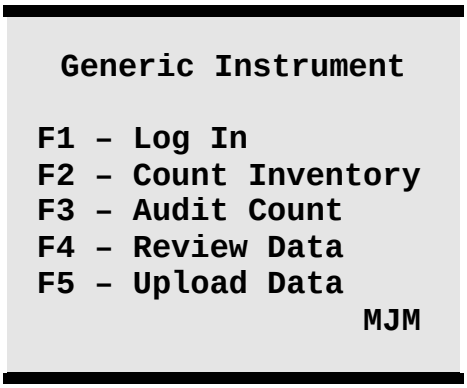
Scanning Transaction Screens

The scanning transaction will be written in EZ Builder and will be run on the Intermec Antares 2410 readers. Each reader transaction is basically a record of a physical inventory count for a specific item in a specific location. As each transaction occurs it will be written to a storage file in the reader's memory.

Main Menu

The Main Menu will appear as follows:

Pressing Enter will toggle the display choices on the screen. Any of the five menu choices (F1-F5) can be entered at either screen at any time.



Main Menu (8 x20)

Edit Logic: F1-F5

Valid Responses: F1-F5

Action: F1-F4
Proceed to Appropriate Scanning Transaction Screen

Programmer's note: The initials of the currently logged on user will appear in the lower right corner of most of the data entry screens.

Log In Screen

This transaction will allow a user to enter the initials and to record the stock room that they are counting.

Upon entry into the log in function, the following screen will be displayed:

Log In screen (8 x20)

Initials entry

Edit Logic: 1 to 3 alphanumeric characters, one character minimum required

Valid Responses: 1 to 3 A/N ,F4

Action: 1 to 3A/N (Valid Initials) go to Stock Room input
F4 - Return to Main Menu

Stock Room entry

Edit Logic: 3 or 4 numeric characters, three character minimum required

Valid Responses: 3 or 4 N ,F4

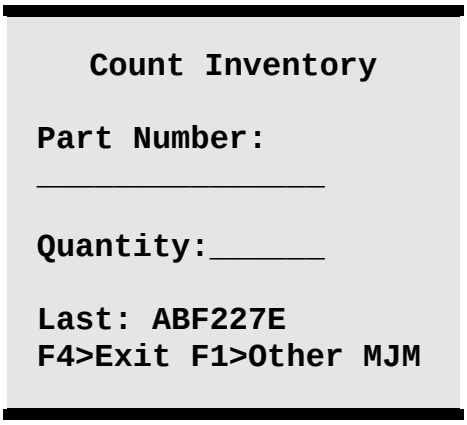
Action: 3 or 4 N (Valid Stock Room) store data and return to main menu
F4 - Return to Main Menu

Programmer's Note: A log in is required prior to any data collection. The user will not be permitted into the Audit or Count Inventory funtion unless a login has taken place.

Count Inventory Screen

This transaction records the physical inventory count.

Upon entry into the Count Inventory transaction, the following screen will be displayed:



Inventory screen (8 x20)

Part Number entry

Edit Logic: 1 to 15 A/N, F1, F4

Valid Responses: 15A/N ,F1, F4

Action: F1 – Go to FAS/MRP screen.

15A/N (Valid Label)
Search downloaded part number file for a matching number. If part number verifies, search the collected records for a duplicate scan.
If no duplicate is found, go to the quantity entry. A not exist flag of zero will be recorded in the collected record.

F4 - Return to Main Menu

Quantity entry

Edit Logic: 1 to 5 N, F4

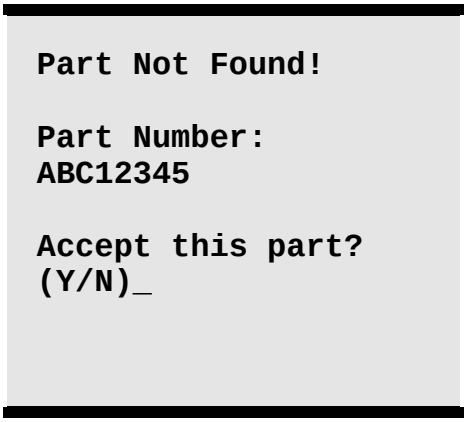
Valid Responses: 1 to 5 N , F4

Action: 1 to 5 N (Valid quantity) – record the record to the collection file. Clear the screen values and go to the part number entry.

F4 - Return to Main Menu

If the part number validation fails, i.e. no matching part number is found in the edit file, the operator will then be asked to verify the part number. The following screen will be displayed:

Programmers note: *This feature allows the user to record part numbers that are not currently recorded on the mainframe.*



Part error screen (8 x20)

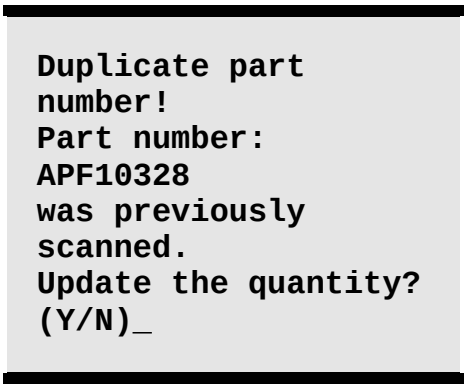
Edit Logic: Y or N

Valid Responses: Y or N

Action: Y return to the inventory count screen and go to the quantity input, leaving the part number on screen. Set the not exist flag to the value 1, which will be recorded as part of the record.

N return to the inventory count screen. Delete the part number and go to the part number input.

If a duplicate part number is detected, the following message will be displayed.



Duplicate Screen (8 x20)

Edit Logic: Y or N

Valid Responses: Y or N

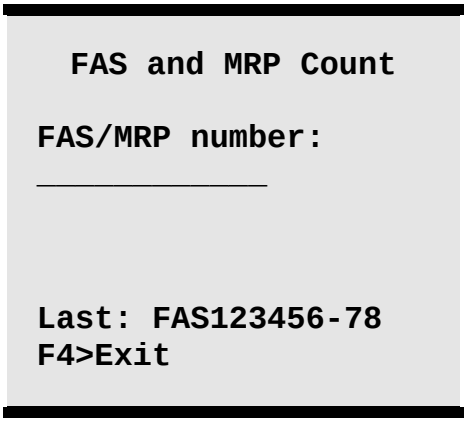
Action: Y – Set overwrite flag to on. Return to inventory count screen, leave the part number on screen and go to the quantity input. When the new quantity is entered, overwrite the old quantity in the record with the new value. This update affects the review file and the data collection file.
Set the overwrite flag to off.

N - Return to the inventory count screen, delete the part number from the screen and go to the part number input.

FAS and MRP Number Entry Screen

This transaction records the FAS number and MRP number to a separate collection file.

Upon entry into the FAS/MRP transaction, the following screen will be displayed:



FAS/MRP screen (8 x20)

FAS/MRP Number entry

Edit Logic: FAS@@@@@@@@@, MRP@@@@@@@@@, F4

Valid Responses: FAS & up to 9 A/N, MRP & up to 9 A/N, F4

Action: Search the FAS/MRP collected records for a duplicate scan. If no duplicate is found record the entry. Update the last scan prompt on screen, and return to the FAS/MRP entry.

F4 - Return to Inventory Count screen.

Programmers note: If the duplicate check fails, an error message will appear at the bottom of the screen. The entry is cleared and the program returns to the FAS/MRP entry.

Audit Count Screen

This transaction allows an auditor to spot check the data recorded in the hand held reader. This function is password protected. The password will be stored in a file and downloaded into the reader along with the part number file.

Upon entry into the auditing transaction, the following screen will be displayed:

Password Screen (8 x20)

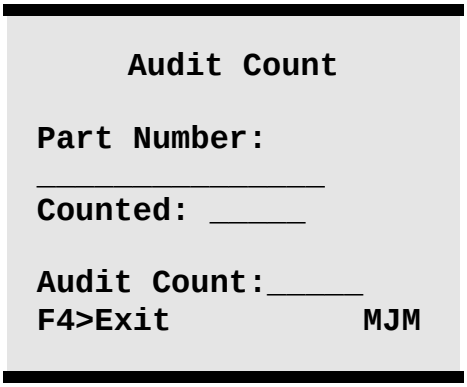
Edit Logic: 1 to 10 A/N, F4

Valid Responses: 1 to 10 A/N ,F4

Action: 1 to 10 A/N (Valid password)
Compare the entry to the password file. If it matches, go to the audit screen.

F4 - Return to Main Menu

Upon a valid password entry, the following screen will be displayed:



Audit Screen (8 x20)

Edit Logic: 1 to 15 A/N, F4

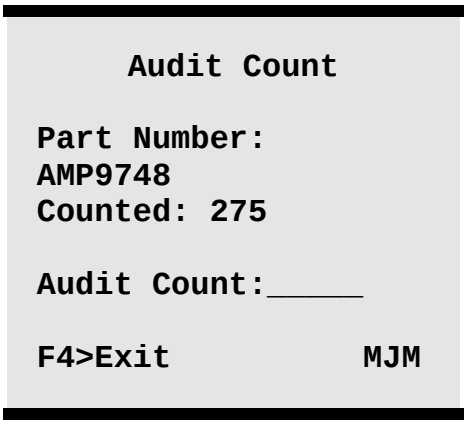
Valid Responses: 1 to 15 A/N, F4

Action: 1 to 15 A/N (Valid part number)

Search the collected record file for a matching part number. If found, put the counted quantity on screen and go to the audit count entry. If not found, display an error and return to the part number entry.

F4 - Return to the main menu.

If a matching part number is found in the collected records file, the screen will be updated and the auditor will be allowed to input an audited count.



Audit Screen (8 x20)

Edit Logic: 1 to 5 N

Valid Responses: 1 to 5 N, Enter

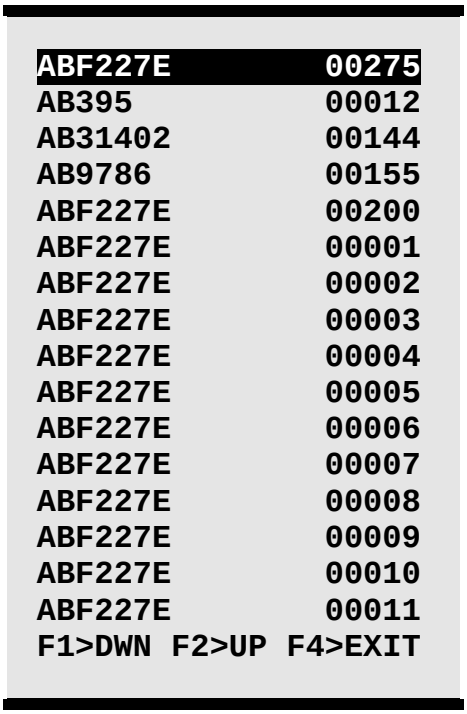
Action: If a number was entered, record audit count to the collected data record, clear the entered values on screen and go to the part number entry.

If the enter key is entered do not record any data, clear the entered values on screen and go to the part number entry.

F4 – Return to the main menu.

Review Data Screen

When the review data transaction is selected, the following screen will be displayed:



Review Screen (16 x20)

Edit Logic: F1, F2, F4

Valid Responses: F1, F2, F4

Action: F1 - Move the scroll bar down one line.

F4 – Move the scroll bar up one line.

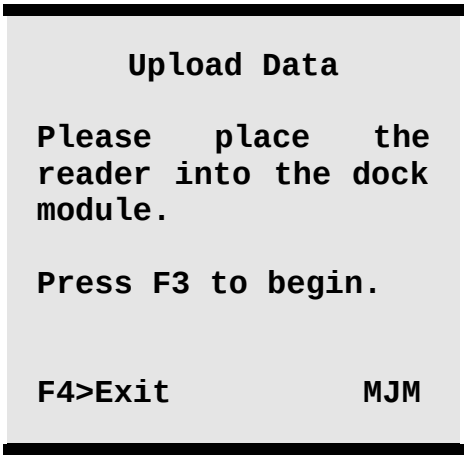
F4 - Return to Main Menu

Programmer's Note: This functions utilizes the EZ Builder scrolling list box object. This object is connected to a separate review file than only contains part numbers and the counted quantities that have been recorded in the collection file. This file will be updated if with any count changes, but otherwise, cannot be edited.

Upon entry, the first 19 records in the review file will be displayed, with the first record highlighted in reverse video. The user can scroll through the file one record at a time by pressing the F1 and F2 keys.

Upload Data Screen

When the transmit data transaction is selected, the following screen will be displayed:



Upload Data Screen (8 x20)

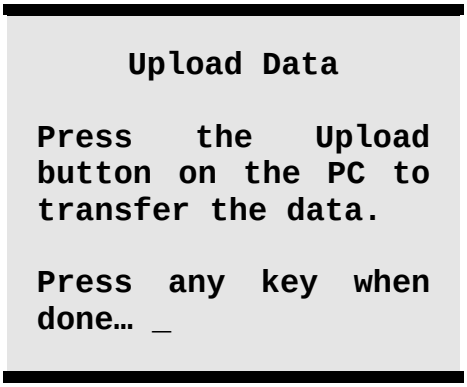
Edit Logic: F3, F4

Valid Responses: F3, F4

Action: F3 – Go to upload data screen 2.

F4 - Return to Main Menu

If the F3 key is pressed, the following screen will be displayed:



Upload Data Screen 2 (8 x20)

Edit Logic: N/A

Valid Responses: Any key

Action: Check the file length of the data collection file and the FAS file. If both are zero, the files were transferred properly to the PC. Clear the review file and return to the main menu.

If either file length is greater than zero, display an error screen and return to the main menu.

Upload Error Screen (8 x20)

File Specifications

There are five files that will be used in the bar code reader during the physical inventory program: a downloaded part number file, a review file, the data collection file, the audit password file, and the collected FAS file.

Part Number Edit File

Column Name	Data Type	Field Length
Part Number	**Character**	**15**

Collected FAS File

Column Name	Data Type	Field Length
FAS Number	**Character**	**15**

Programmer's Note: What is the correct length for an FAS number?

Audit Password File

Column Name	Data Type	Field Length
Audit Password	**Character**	**10**

Data Collection File

Column Name	Data Type	Field Length
Part Number	**Character**	**15**
Quantity	**Character**	**5**
Stockroom	**Character**	**4**
User ID	**Character**	**3**
Date (YYMMDD)	**Character**	**6**
Time(hhmm)	**Character**	**4**
Audit Count	**Character**	**5**
Not exist flag	**Character**	**1**

Review Data File

Column Name	Data Type	Field Length
Part Number	**Character**	**15**
Quantity	**Character**	**5**

File Notes

The part number file, audit password file, and the FAS file contain only one value per record, and they can be variable length.

The review file is fixed length, and in only used internally by the reader program. The part number is left justified, space filled. The quantity is right justified, zero filled.

The data collection file will consist of variable length fields that will be comma delimited.

Programmer's Note: Does Access require quotes around each data field for an import function to work properly?

Upload/Download Program

This program transfers data files to and from the Intermec 2410 bar code readers that collect issue transactions

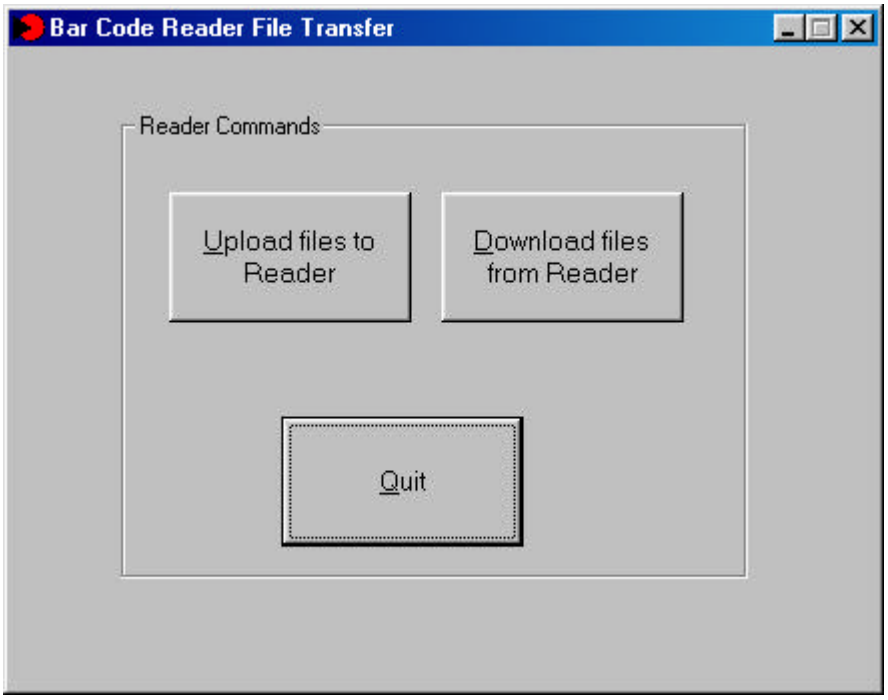
Installing the program

Insert the CD into the PC's drive, and wait for the set up program to run. If the set up program doesn't start within a minute or so, use Windows Explorer to navigate to the CD drive and double click on Setup.exe.

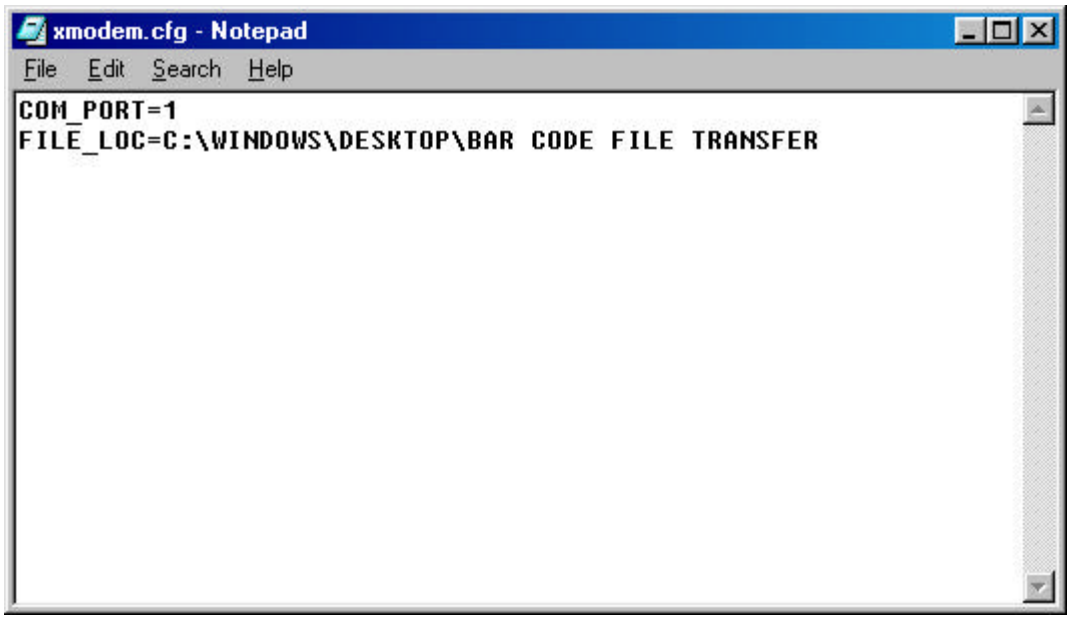
Note: If the setup program detects that some system files are out of date, you must allow it to update these files for the program to run. After the system files have been updated, you'll be instructed to reboot your computer. Next, you need to run the setup program again; follow the instructions on screen.

The program will be installed by default in c:\program files\Bar Code File Transfer. You can change this directory during the install process if you like.

To start the program, click on the Start button, select programs, then bar code inventory, then Generic file transfer to run the program. The screen will look like this:



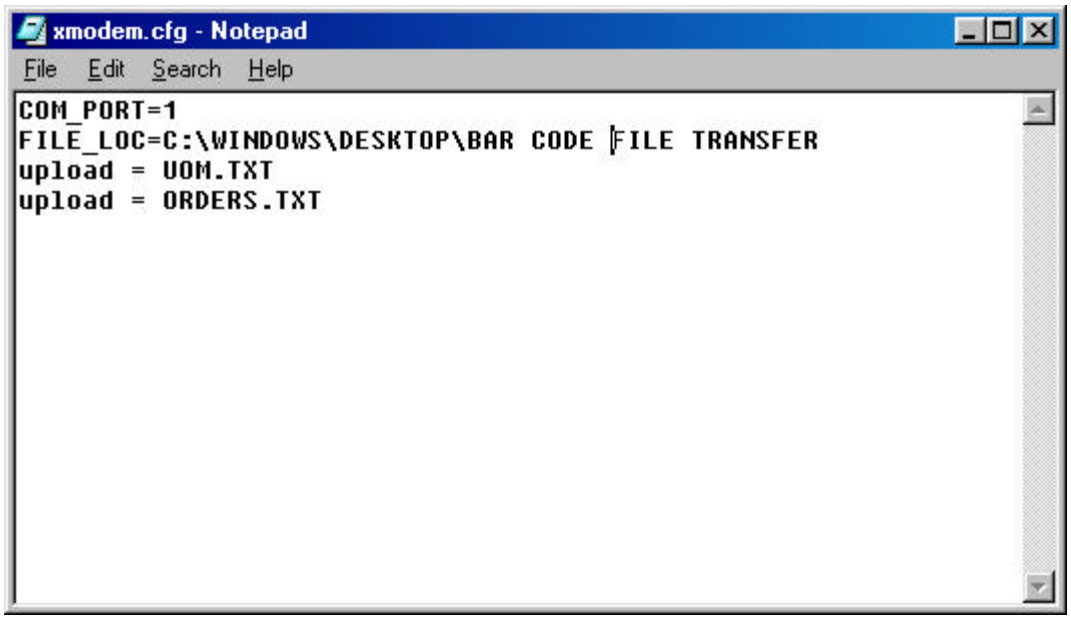
When the program is first run, a configuration file, xmodem.cfg gets created in the program directory. This configuration file controls the behavior of the file transfer program. Open this file with Notepad. If you chose to install in the default directory, the configuration file will look like this:



The first line is used to tell the file transfer program which Com port to use. Adjust this as necessary.

The second line tells the file transfer program the location of the files that will be uploaded from the PC to the reader (UOM.TXT, ORDER.TXT) and downloaded from the reader to the PC (data.dat, fasmrp.dat). Change this line as necessary. You must restart the program after you have made any changes to this file.

You'll need to add one or two lines to the configuration file in order tell the file transfer program which files are (if any) are to be uploaded to the readers. Edit the xmodem.cfg file by adding the following two lines:



You can upload files to the reader at any time. Place the reader in the dock and press the upload button on the file transfer program, and you'll see a dialog box that tells you the name of the file being uploaded. Next a file transfer screen will appear that show the status of the file transfer. If this screen shows a number of retries, press the cancel button and check that the reader is securely in the dock and that the cable is connected to the proper com port.

To download files from the reader, press the download button on the file transfer program's screen. You'll see several files downloaded with the same file name then file transfer status messages as the upload file. Downloading files from the reader can only be done from one specific reader screen.

Follow the instructions from the main menu on the reader to navigate to this screen.