

Forte Series 8760 System

User Manual

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Forte Series 760 - User Manual

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1.0 INTRODUCTION

Thank you for choosing Forté Technology, Inc. to measure the moisture in your product. Forté systems have been used successfully worldwide for over 40 years. Our systems will instantly and accurately measure the moisture in your product, but will also enable you to use this information for commercial invoicing, quality control, inventory control and energy savings.

This manual has been designed to assist you in calibrating and performing moisture measurements with your Forté system. The Operations and System Manual should be available for reference to clarify the instructions.

1.1 MANUAL ORGANIZATION & TERMINOLOGY

This manual is divided into various sections describing the hardware and software:

- A brief description of the Hardware
- A software overview
- An explanation of the Forté measurement procedure.
- Displays and Controls
- The calibration of the Forté system
- Service and technical support information

1.2 HARDWARE

The hardware of the system consists of the following:

- Pentium-based computer with monitor, keyboard, mouse, floppy disk, and CD ROM
- RocketPort serial adapter
- Bale-Press Moisture Measuring Assembly
- Signal Generator
- Serial Weight Input from Weighing Scale or customer's computer system.
- Optional printers, markers, and remote displays.

1.3 SOFTWARE

The software requirements are:

- Windows XP Professional or 2000 operating system
- Forté x760 Software
- Multiport device drivers
- Digital I/O drivers

The above hardware and software are integrated into a system to measure moisture, using a series of subsystems and menus.

1.4 NAVIGATING WITHIN A MENU

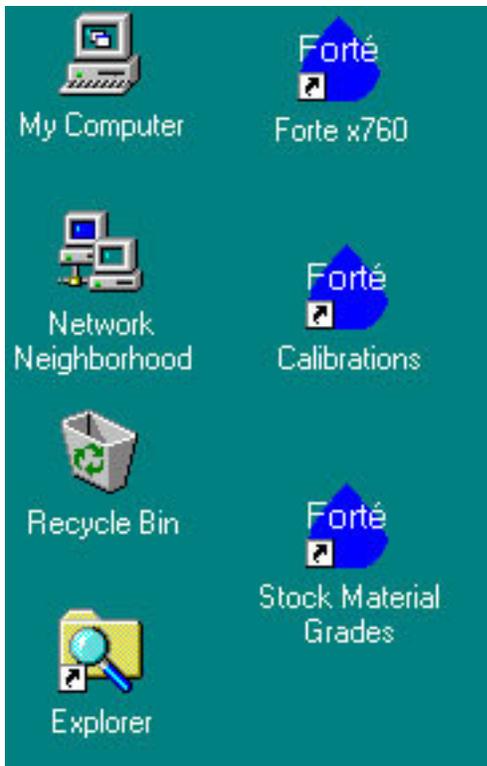
The data fields in the system can be edited in the usual Windows manner by using the mouse and cursor (pointing device) to move around the program. Highlight the item to be changed with the mouse and cursor, and “left click” to make changes. Alternatively the arrow keys can be used for navigating.

1.5 SOFTWARE OVERVIEW

The Forte Windows system is made up of 3 sub-programs that create 4 main windows. To start any of the 3 sub-programs double click on the appropriate Forte Icon (Shown below).

The 3 sub-programs are:

- a. Forte Stock Material Grades Program
- b. Forte Calibrations Program
- c. Forte x760 ON-LINE Measurement Program with Summaries



1.6 FORTE MEASUREMENT

The system collects information from a weighing scale, the Forte signal generator, as well as the date, time, and specific user defined product information. The output of the signal generator is a Forté “Number”. This is obtained by taking two frequency readings. One as the vane breaks the upper light beam and the second as the vane breaks the lower light beam. The Forté number is the difference between the two frequency readings. Using the Forte number and the weight the moisture content of the product is calculated. Therefore, for every bale tested, three basic operations occur:

- a. **WEIGHT READING** - The system takes a weight reading when the bale is on the scale and the scale has settled. Alternatively, weight is obtained from a plant computer. Individual data is checked against predefined limits.
- b. **UPPER READING** - The oscillator frequency reading when the upper light beam of the photo control unit is interrupted while the bales is being pressed.
- c. **LOWER READING** - The oscillator frequency reading when the lower light beam of the photo control unit is interrupted while the bale is being pressed further.

1.7 INITIAL SETUP PROCEDURE

There are three steps in setting up the Forté x760 System for initial use:

1. The system administrator must use the Forté Security program (as described in the Forte Security manual), to assign user names and passwords, to minimize access to calibrations and product definitions.
2. The parameters, for the material to be measured, need to be predefined. Please refer to the Stock / Material / Grade Subsystem. (Section 2, below) This creates definitions for all product types to be measured by the Forté System.
3. The system must be calibrated for each material, refer to Calibration (Section 3, below) for the procedure to collect sample data. Data includes gross weight, Forté number (moisture value) and average laboratory oven moisture. Create a calibration name, and enter the data to determine the calibration constants for that item.

To begin measuring the moisture for the newly calibrated product type, refer to the 760 On-Line Subsystem (Section 4, below). Select the Stock / Material / Grade in the combo box in the main window. The correct calibration will be assigned automatically.

1.8 COMMAND BUTTONS

Throughout the program the following buttons may appear:

“Apply” - This button allows the User to save recent modifications.

“Modify”- This button allows the User to enter new values.

“Cancel” – This button is used to continue without saving the modifications.

1.9 PULL DOWN MENU

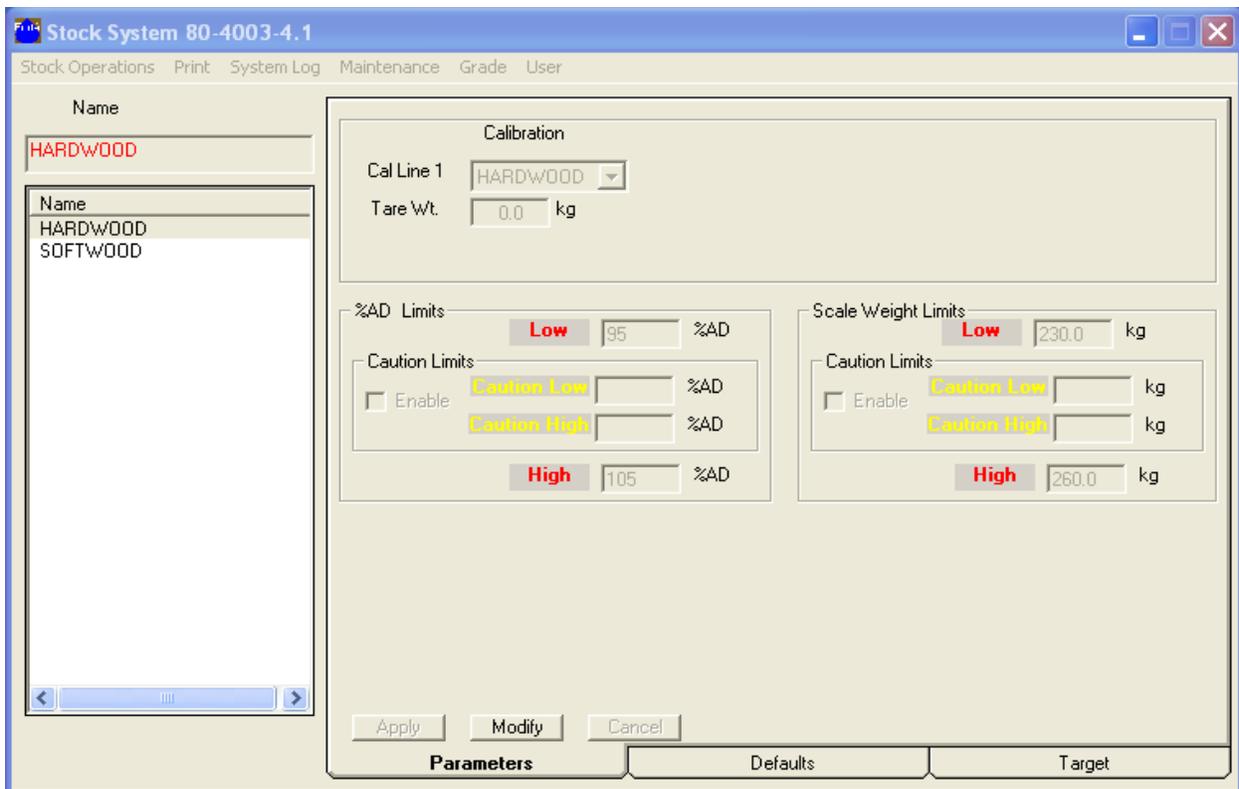
Pull Down Menus are used for making changes, define new fibers, deletions, etc. Changes made in a menu can be cancelled and old values restored by pressing “Undo” to any recent changes.

2.0 STOCK MATERIAL GRADE SUBSYSTEM

The purpose of this menu is to define the parameters for the measurement of the various materials for convenient recall under a stock or product name. This file includes the calibration to be used, commercial allowance, tare, and limits to be applied to measurements to provide warnings, and default values if required.

To start the Stock Material Grade Subsystem, double click the Stock Material Grade icon. Type “Grade” in the “Name” (case sensitive), then press “Submit”. Please note “Grade” is the default “name” to be used during start-up. The Systems Administrator can assign different passwords.

For each Stock, Material or Grade, there are three folders that contain constants to be specified by the user: Parameters, Default Values, and Targets or Allowances.



2.1 PARAMETERS FOLDER

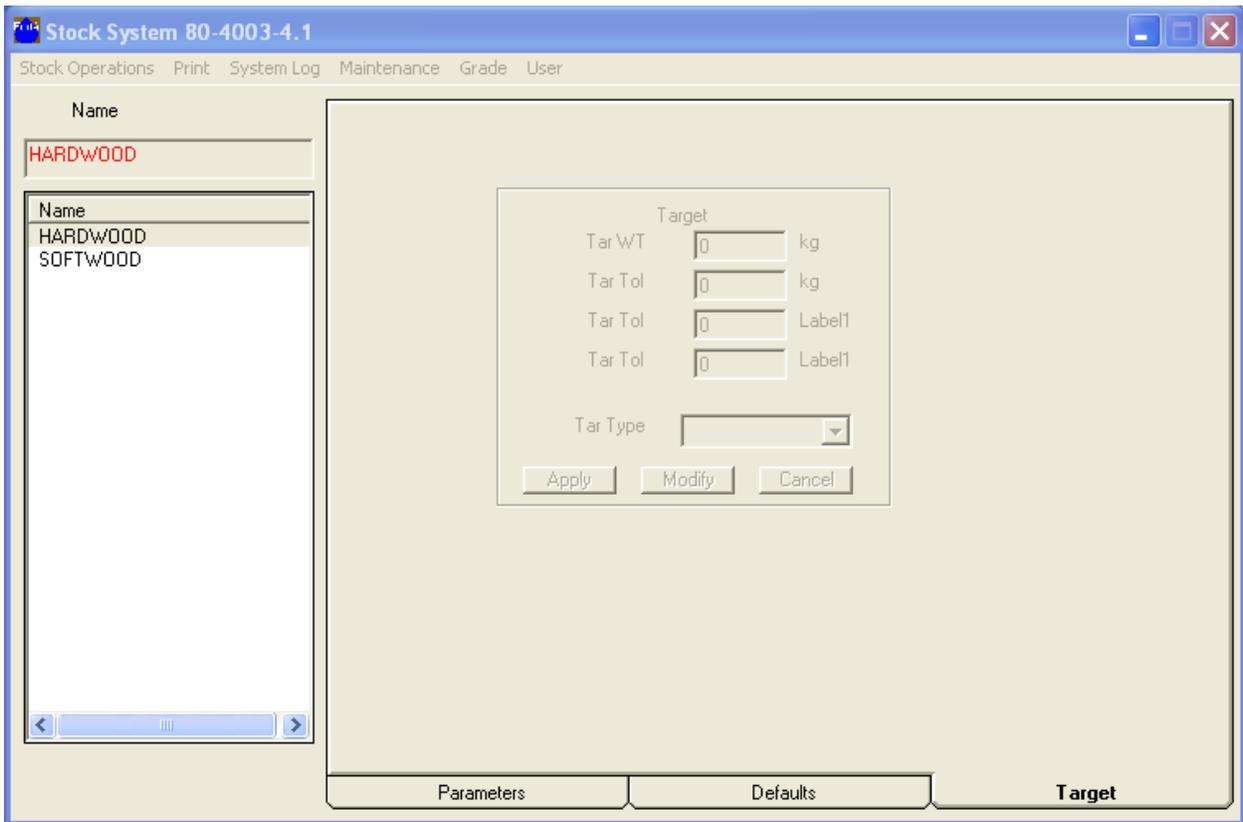
This folder assigns a Calibration to a selected Stock. It also establishes Low, Caution, and High limits for moisture and weight. It also allows entry of a Tare Weight and the standard moisture to be used for commercial calculations. The chosen moisture unit (AD, BD, MC etc.) is indicated, but can not be changed from this page.

2.2 DEFAULT FOLDER

This folder establishes Default Values for both the Forté Number and the Weight. This prevents an interruption in production, if the Forté system is used for control.

2.3 TARGET FOLDER

This folder establishes special limits and targets for calculated values.



3.0 CALIBRATION SUBSYSTEM

Calibrating the system is the most important part of the setup procedure. An accurate and proven method of finding moisture content **must** be used during the calibration procedure. The Calibrate Menu is used to automatically calculate constants 'A' & 'B' for each material and configuration. Raw data includes Weight, Forté Number and Lab % moisture entered. The Forté program then derives constants in a correlation equation.

3.1 CALIBRATION OVERVIEW

The Forte system maintains a database of all the calibrations. The differences in form and composition require a unique calibration for different materials and geometric shapes.

Although the database can hold hundreds of calibrations, the system will warn the user of excessive calibrations if the resident number of calibrations exceeds 99.

The calibration module of the Forte system provides a graphics interface through which the user can derive and modify the system calibrations.

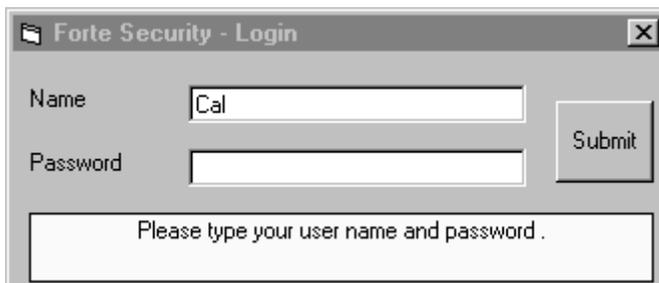
The system provides two methods for creating a calibration:

The preferred and more accurate method is to collect weights and Forté numbers for a given number of samples and correlate them with laboratory moisture measurements. The user must collect and sample representative bales very carefully, then enter the data into the system. The system automatically performs a regression analysis that determines the optimal A and B constants for the imbedded equation.

With the other method, the A and B constants of the equation are manually determined and entered by the user.

To start the Calibration module, double click the Calibration icon. Enter your name and a password assigned by the System Administrator. (Note that entry of the Name is case sensitive). After entry, press "Submit".

Please note "Cal" is the default password to be used during start-up. The System Administrator can assign different passwords.



The Calibration Login Window

3.2 THE CALIBRATION SCREEN

Calibration System 80-4001-4.1

Calibration Print System Log Cal Maintenance SysDef User

Calibration Name Method

Moisture Type Constant A

Weight Units Constant B

Calibration Type

Name	Type	M	Wt	Created
HARDWOOD	Logarithmic	AD	M	6/28/2004 8:07:42 AM

Calibration main screen

The purpose of the Calibrate screen is to permit the user to:

- Add a new calibration or delete an existing calibration
- Define, modify, or view the parameters of a calibration
- Print the parameters of one calibration or all calibrations
- Access the lab data for a calibration

3.3 LIST OF CALIBRATIONS

The List Box (within the Calibration screen) provides the user with the means to select a specific Calibration for parameter display or editing.

Name	Type	M	Wt	Created
HARDWOOD	Logarithmic	AD	M	6/28/2004 8:07:42 AM
SOFTWOOD	Logarithmic	AD	M	7/1/2004 8:38:00 AM

Calibration List Box

How to use:

The user can select a Calibration for display by clicking the desired row in the list box. (Tab and arrow keys can also be used) The selected Calibration will be highlighted, and the text boxes will be updated with the respective calibration parameters.

Note: If the number of Calibration definitions for the system exceed the display capacity of the list box, use the up/down scroll bars until the desired Calibration is located.

3.4 PARAMETER DISPLAY

The top left section of the “Calibration Screen” displays the **Name** of the selected calibration and the associated Air Dry (AD), Bone Dry (BD) or Moisture Content (MC) equation. The two numerical parameters in this equation are the **A** and **B** constants.

Calibration Name	<input type="text" value="SOFTWOOD"/>	Method	<input type="button" value="Init"/>
Moisture Type	<input type="text" value="AD"/>	Constant A	<input type="text" value="1."/> <input type="button" value="Cancel / Done"/>
Weight Units	<input type="text" value="kg"/>	Constant B	<input type="text" value="1."/> <input type="button" value="Modify"/>
Calibration Type	<input type="text" value="Logarithmic"/>		<input type="button" value="Apply"/>

Calibration Parameter Display

3.5 CALIBRATION NAMES

The text box “Calibration Name” displays the Name or Number of the currently selected Calibration. This text box is used in conjunction with the “Define New Cal” item to specify the name of a new calibration.

3.6 NEW CALIBRATION

To create a new calibration, select “Define New Cal” from the “Calibration” menu. Enter the desired name or number of the New Calibration into the text box and press the <enter>.

If the “Calibration Name” text box displays XXXX it indicates that the Calibration name has not been accepted and no parameters have been written into the Calibration File.

3.7 EDIT OR MODIFY CALIBRATIONS

To change the name of an existing calibration or modify the calibration constants of an existing calibration, highlight the desired name and select the “Modify” button. After completing the modifications, click the “Apply” button to save the changes.

A message box will appear if the name is not unique. Enter a different name.

3.8 CALIBRATION METHOD

The “Method” text box indicates the method by which the selected calibration is or was created. This text box is automatically set by the system when the user creates or edits a calibration, and presses <Enter>. The three possible displays are: Init, Manual, and Regress.

A. **Init** -This indicates that the calibration name has been accepted by the system. However, Calibration constants have not yet been defined.

B. **Manual** – This indicates that the user has manually determined, and entered the calibration constants “A” and “B”.

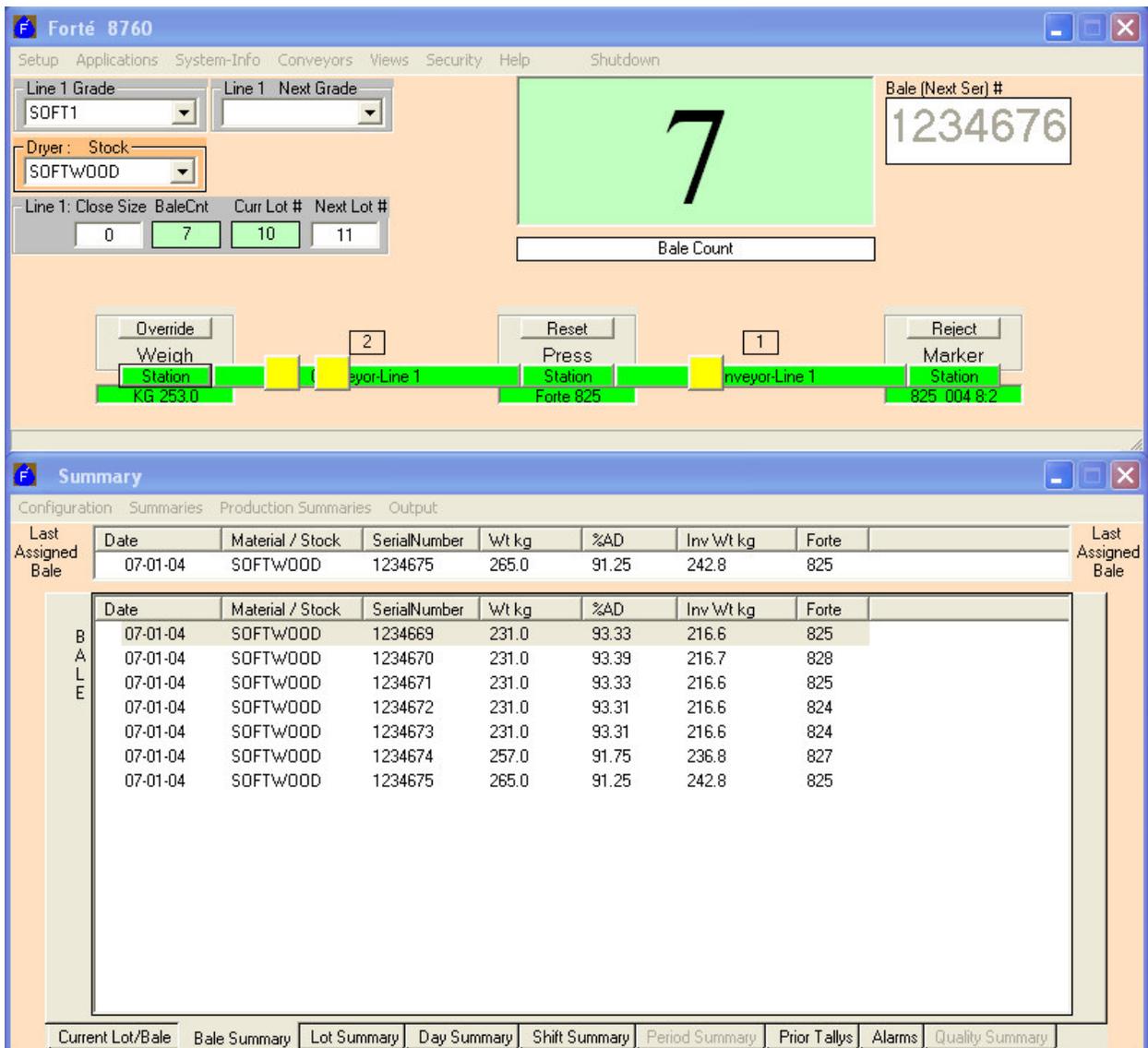
C. **Regress** - This indicates that the calibration constants “A” and “B” have been, or are being determined by regression analysis.

4.0 FORTE 760 ON-LINE SUBSYSTEM

To start the on-line subsystem, double click the Forte x760 icon.

The system opens with the Forte 760 and Summary windows as shown below. These are the normal windows used to measure material moving through the system. Note: Production lines with multiple sources supplying product to more than one finishing line will have a graphic differing from that shown below.

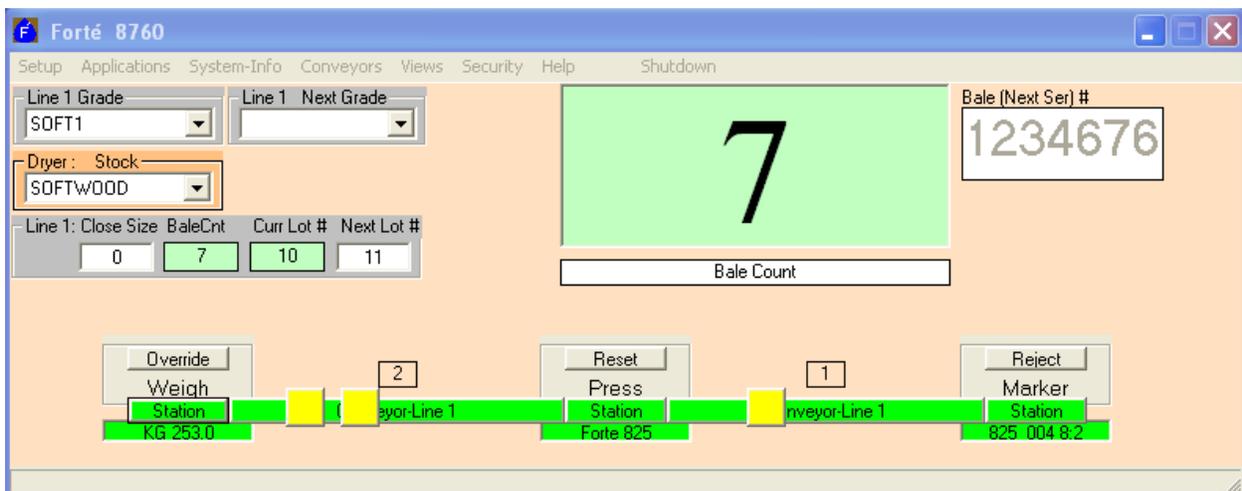
After completing the “Log On” procedure under the Security menu, active pull down menus become available. The user will be provided with a set of initial passwords. The System Administrator can create passwords after start-up. Passwords are case-sensitive.



4.1 FORTE 760 WINDOW

The Forte 760 window contains all necessary information to monitor the performance of the system. Data for the last item processed at a station are displayed. The Operator can view information about the measurement of the bale. If the weight is obtained from a host computer, only the bale press station will be shown.

The System Administrator can view and modify configuration settings, and six other sub-menus, using the special password to access the menu bar at the top of the window. These menus are only accessible after logging-on through the “Security” sub-menu.



The operator can select the grade/stock or enter other data by left-clicking the mouse to select a button or entry box.

The buttons/boxes that are active in this submenu are:

Bale (Serial #) entry box – This box allows the operator to enter the next bale number.

Closing Lot Size entry box– This box allows the operator to set the closing size of the current lot. (Optional)

Next Lot Number (#) entry box – This box allows the operator to set the next lot number. (Optional)

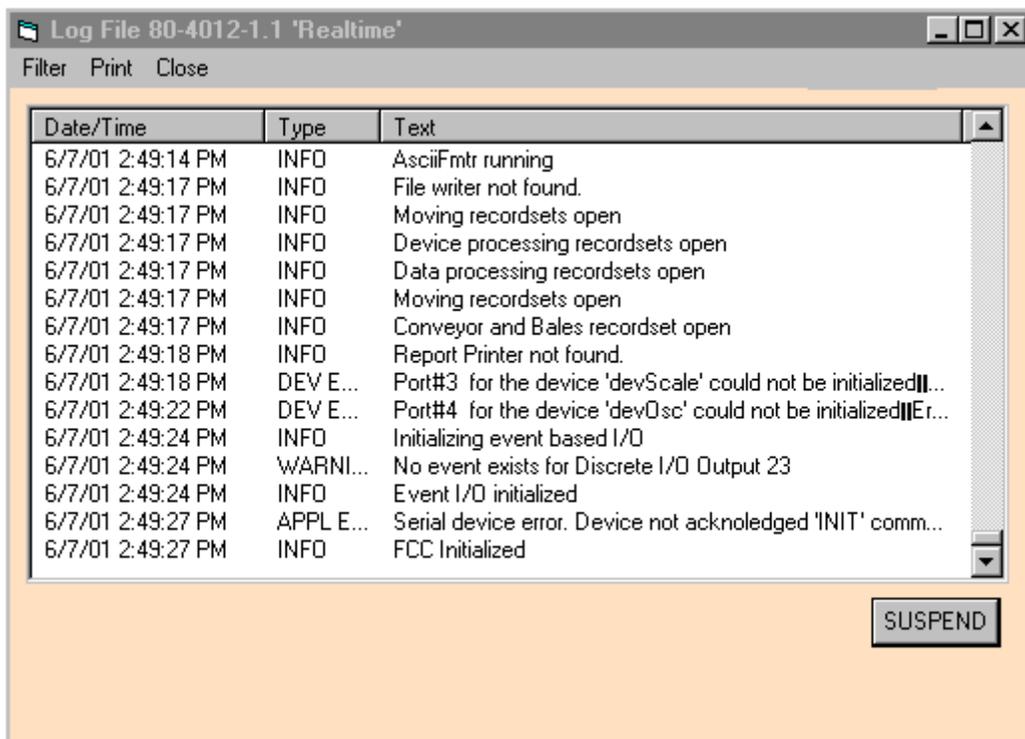
Material Combo Box – This arrow button allows the operator to view the stock/grade pull down menu, which is a list of material that has been previously entered.

Override Button – This button allows the operator to assign a default weight to a bale when the weighing scale reading shown is out of the assigned range.

Reset Button – This button allows the operator to clear the data from the Bale press Station and initializes a new measurement.

The operator can add or delete a bale from the conveyor on the 760 window by left clicking on the conveyor and then selecting either increment or decrement.

4.2 SYSTEM LOG MENU



The Log File contains a list of the event messages regarding system operation. The message includes date and time, event type, and a brief description of the event or error that occurred. Active buttons that are active in this submenu are the “**SUSPEND/RESUME**” button. Selecting this button prevents new data from scrolling the log while being viewed.

4.3 SELECTING LOG FILE RECORDS

From the Log File submenu “Filter” at the upper left corner, the operator can select the records to be displayed, printed or deleted. The user can define the selection criteria. by selecting “Show” under the “Filter” menu. By checking the appropriate box, records can be displayed by type or by time.

4.4 SUMMARY WINDOW

Date	Material / Stock	SerialNumber	Wt kg	%AD	Inv Wt kg	Forte
07-01-04	SOFTWOOD	1234675	265.0	91.25	242.8	825
07-01-04	SOFTWOOD	1234669	231.0	93.33	216.6	825
07-01-04	SOFTWOOD	1234670	231.0	93.39	216.7	828
07-01-04	SOFTWOOD	1234671	231.0	93.33	216.6	825
07-01-04	SOFTWOOD	1234672	231.0	93.31	216.6	824
07-01-04	SOFTWOOD	1234673	231.0	93.31	216.6	824
07-01-04	SOFTWOOD	1234674	257.0	91.75	236.8	827
07-01-04	SOFTWOOD	1234675	265.0	91.25	242.8	825

The Summary display contains data for the most recent bales that have passed through the Forte system. Individual data items, to be included in the summary, are pre-selected by “Formats” from the Configuration menu.

Summaries can be removed from the screen by selecting the bale summary item “Clear” from the “Summaries” menu.

Selecting the “Report Times” from the “Configuration” menu allows summary report intervals can be selected or edited.

5.0 SERVICE & TECHNICAL SUPPORT

Your Forté 8760 Moisture Measuring System includes 10 hours of free technical support by telephone or e-mail. This can be used during your first year of ownership. After that technical support is available at an hourly fee.

If a problem occurs and service is required, please contact Forte Technology Inc. with full details and symptoms of the malfunction.

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