Versa Controller V312— Summary Manual for Operators

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Thermo SCIENTIFIC

Revision History

Revision Number	Date Released	Details of the Release
Revision A	May 2010	First release of the newly created *Summary Manual for Operators*.

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About This Manual

This manual tells you how to operate and troubleshoot the Versa Controller V312 and provides the information you need to operate the Versa on a day-to-day basis.

Please read the entire manual before working with the Versa Controller. For safety reasons—and to ensure optimum performance of the Versa—make sure you thoroughly understand the manual before using the Versa.

About This Guide

This manual is a learning resource and reference guide for anyone who needs to install, operate, or maintain the Versa Controller in a variety of production environments.

Organization of Guide

This manual contains five chapters.

Chapter 1: Introduction to Checkweighing—provides an overview of and functional instructions to operate the Versa Controller.

Chapter 2: Operation in General—provides information on basic use of the Versa Controller.

Chapter 3: Getting Started Running the Line—provides information about using the Versa Controller in your production line on a daily basis.

Chapter 4: Cleaning and Basic Precautions—provides basic information on good ownership.

Chapter 5: Contacting Thermo Fisher Scientific—provides contact details.

For a more comprehensive explanation of the installation, set-up, options, repair, and maintenance of the Versa, please refer to the *Versa Controller V312—Main Manual* or the weigh frame manual for your particular Versa.

Conventions

The following conventions are used in this manual to help easily identify certain types of information.

Bold is used the first time a new term is introduced.

Italic is used to for emphasis and terms that have already been introduced.

Blue is used for references to other sections of the guide and serve as links in documents.

SMALL CAPS are used in the names of setup, menu displays, and variables.

BOLD CAPITALS are used for the names of keys.

NOTE. Provides information of special importance to the reader. ▲

HINT. This symbol indicates a hint that may be of value but not necessary for operation. ▲

Safety Messages

Instructions in this manual may require special precautions to ensure the safety of the personnel performing the operations. There are two levels of safety messages: warnings and cautions. The distinction between the two is as follows.

WARNING. Failure to observe could result in death or serious injury. ▲

CAUTION. Failure to observe may cause minor injury or damage to the equipment. ▲

General Precautions

Do not install, operate, or perform any maintenance procedures until you have read the safety precautions presented.

WARNING. User must follow all applicable safety procedures related to this product. High voltages and high temperatures are present within the system enclosure during normal operation. ▲

WARNING. Do not attempt to defeat safety interlocks provided with this product. There are no user-serviceable parts inside the system enclosure. This product must be serviced *only* by authorized Thermo Fisher Scientific service personnel. ▲

WARNING. Failure to follow safe installation and servicing procedures could result in death or serious injury. ▲

- Make sure only qualified personnel perform installation and maintenance procedures in accordance with the instructions in this manual.
- Allow only qualified electricians to open and work in the electronics cabinet, power supply cabinet, control cabinet, or switch boxes.

- Covers over the electronics and rotating parts must *always* remain in place during normal operation. Remove only for maintenance, with the machine's power OFF. Replace all covers before resuming operation.
- During maintenance, a safety tag (not supplied by the factory) must be displayed in the ON/OFF switch areas instructing others not to operate the unit (ANSI:B157.1).

WARNING. High voltage that may be present on leads could cause electrical shock. ▲

- All switches must be OFF when checking input AC electrical connections, removing or inserting printed circuit boards, or attaching voltmeters to the system.
- Use extreme caution when testing in, on, or around the electronics cabinet, PC boards, or modules. There are voltages in excess of 115–230 V in these areas—even with the main door open.

WARNING. Use only the procedures and new parts specifically referenced in this manual to ensure specification performance and certification compliance. Unauthorized procedures or parts can render the instrument dangerous to life, limb, or property. ▲

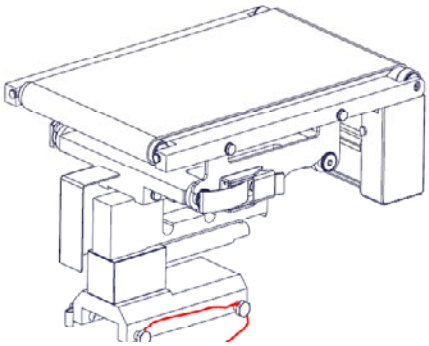
WARNING. The Versa should not be operated at more than the production rate stated on your equipment specification sheet, or used in applications other than those stated in the original order. ▲

Chapter 1
Introduction to Checkweighing

This chapter introduces you to the basic principles, features, and specifications of the Versa Checkweigher. Some of the information may not exactly match your particular Versa Controller, because there are a multitude of possible Versa configurations.

Overview

The Versa is an electronics unit that can be attached to various weigh frames to measure the weight of packages as they pass across the weigh table. In a normal production environment, packages are either accepted (in which case they continue along the conveyor), or are rejected (in which case they are removed from the conveyor using some type of reject device). The Versa does this without interrupting product flow and without the need for operator intervention.



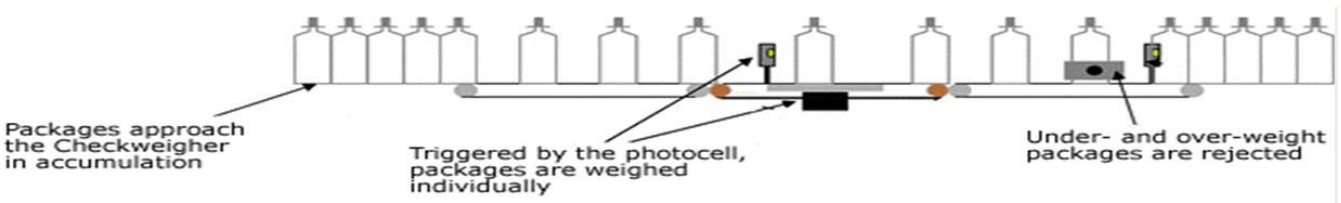


Figure 1-1. Weighing Principles

The weight of the package is calculated from the electric signal produced by a load cell in the weigh-table conveyor.

WARNING: The load cell is a delicate precision instrument. Do *not* overload!

As shown on the front cover of this manual, the Versa Controller cabinet comes in a variety of shapes, sizes, and configurations, but most cabinets look something like this.

The Versa Controller front panel is equipped with a full-color graphic LCD touch screen that allows you to configure the system, control the flow of packages, view production statistics, and so on.

The Versa Controller can also be combined with a Thermo Scientific APEX metal detector, as shown in the graphic below. When the APEX detects metallic contaminants in a package, it signals the Versa *not* to weigh the package and to reject the package without counting the package in the normal weight-related reject statistics.

Weighing Principle

This topic discusses the underlying theoretical and mathematical principles that determine how a checkweighing system operates.

The package travels along the in-feed conveyor until it reaches the photocell interlock at the entrance of the weigh table, designated as position *A* in figure 1-2. The Versa Controller measures the photocell signal, measures the speed to determine the position of the package, and calculates the weight of the package using the signal from the load cell.

As the product travels from position *A* to position *B* on the weigh table, the electronics filter out any mechanical noise before the weight sampling begins between positions *B* and *C*. The time it takes the package to travel between position *B* and position *C* is known as the "average time." When the package reaches position *C*, the averaging is complete, the net weight of the package is computed, and the weight displayed on the touch screen.

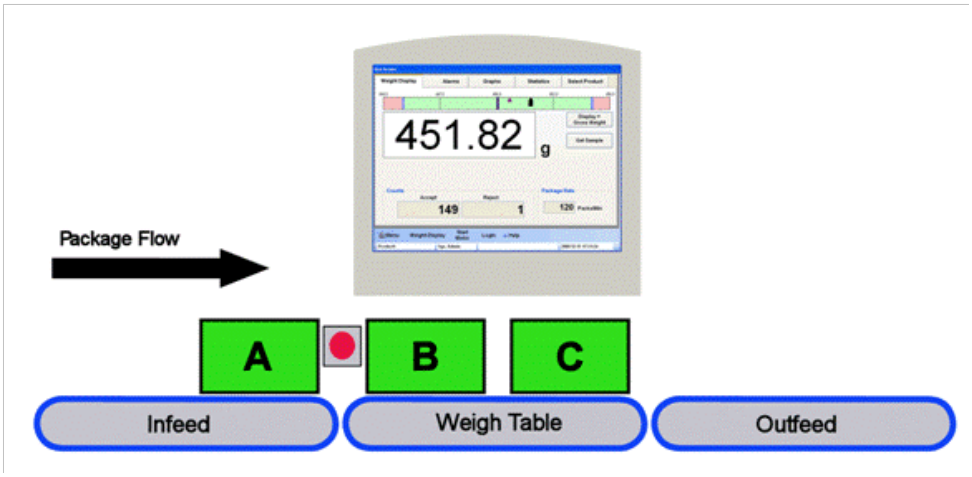


Figure 1-2. Understanding Time Delay

The actual weighing takes place at the end of the weigh table conveyor where the weighing signal is to be stabilized by use of electronic filters in the controller. A number of samples are taken to acquire the single package weight.

Stable product handling and a vibration-free environment will maximize the accuracy of the weighing process.

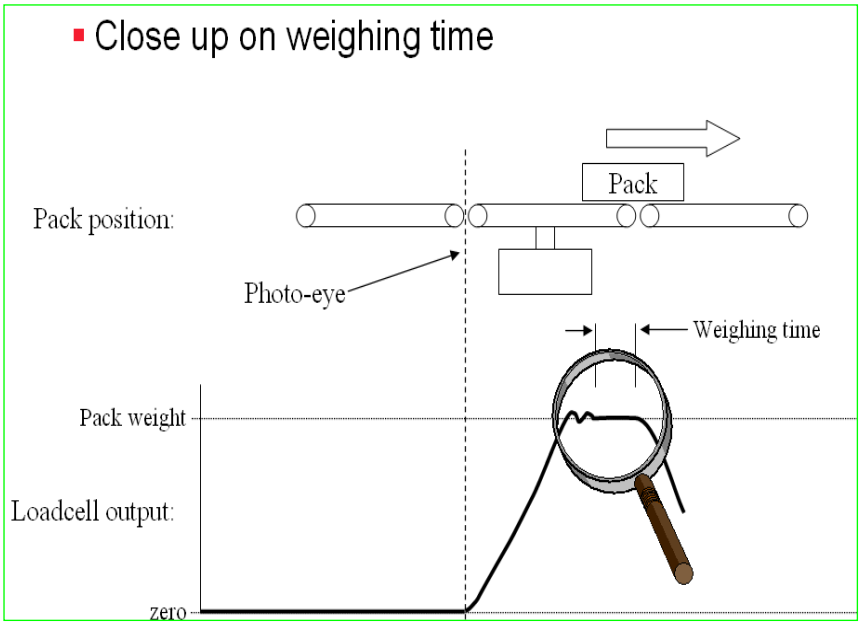


Figure 1-3. Understanding Weighing-Time Averaging

Next, error deviation is compared to weight-zone settings, which are stored in the control electronics. As the package moves onto the out-feed conveyor, a signal from the electronics tells the checkweigher whether the package is to be accepted or diverted by a reject device.

An automatic zero can be acquired when there is enough time (approximately 1–2 seconds) between sequential packages to run the weigh-table conveyor empty. This counteracts any changes that may have occurred in the no-package (tare) weight of the weight table due to changes in drift or temperature. If too large a deviation from the original zero has occurred, an alarm can be generated.

Product Pitch

To ensure that the checkweigher performs at its optimum capability, it is essential that the space between the packages remains consistent as they move through the Versa system. This uniform distance, known as "product pitch," is achieved by careful presentation of the packages. The product pitch must be greater than the length of the weigh-table conveyor.

The in-feed conveyor to the checkweigher is, typically, the out-feed conveyor of a preceding piece of equipment. The speed of the checkweigher conveyors is sometimes set higher than the supply conveyor, so that an incoming package is accelerated away from the following packages. This increases the pitch between products and helps ensure that only one package at a time is on the weigh table.

In figure 1–4 the arrow (←→) shows the distance known as product pitch. The product pitch must be larger than the weigh-table length and must be consistent with that.

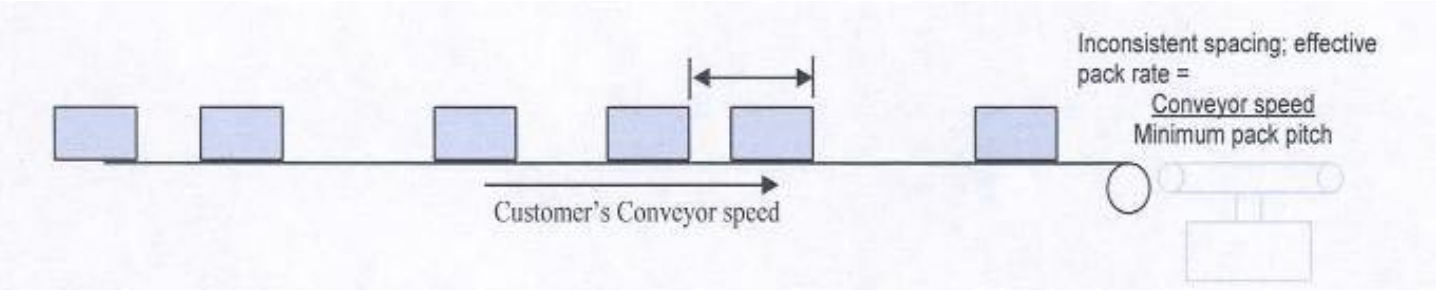


Figure 1-4. Pitch Control

Photocell Interlock and No-Gap Function

Each package breaks an electronic beam, which causes a signal to be sent to the checkweigher electronics indicating that the weigh cycle for that package is about to begin. The signals from the photocell, along with electronic speed sensors, are used for monitoring package position. Likewise the system measures the gap between consecutive packages. If it is not adequate (to ensure that only one package is on the weigh table at a time) a "no gap" alarm is raised and the packages are rejected regardless of weight.

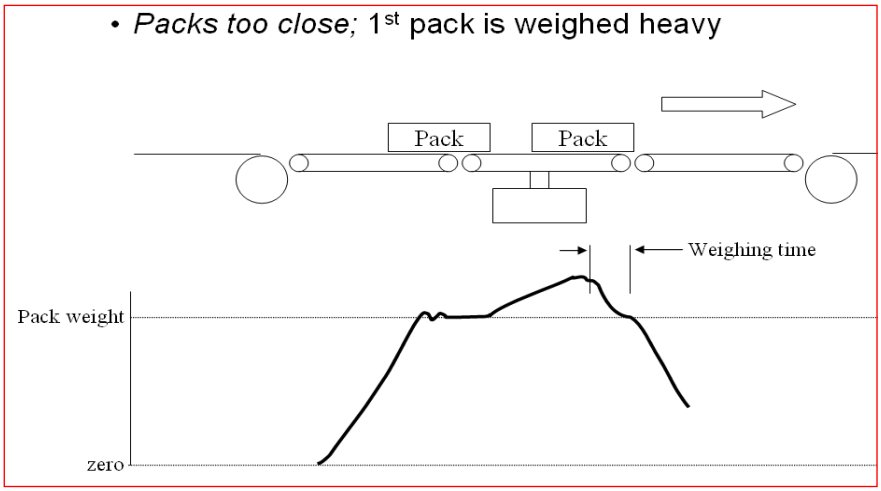


Figure 1-5. No-Gap and Weighing Signal

When a no-gap situation occurs, the correct weight cannot be obtained. The photocell also measures the package length, which must be less than or equal to the value entered in the Product Set-Up menu (which is part of the Pack Length menu). If the package length does not match the entered parameter, the checkweigher also generates a "no-gap" alarm and rejects the package.

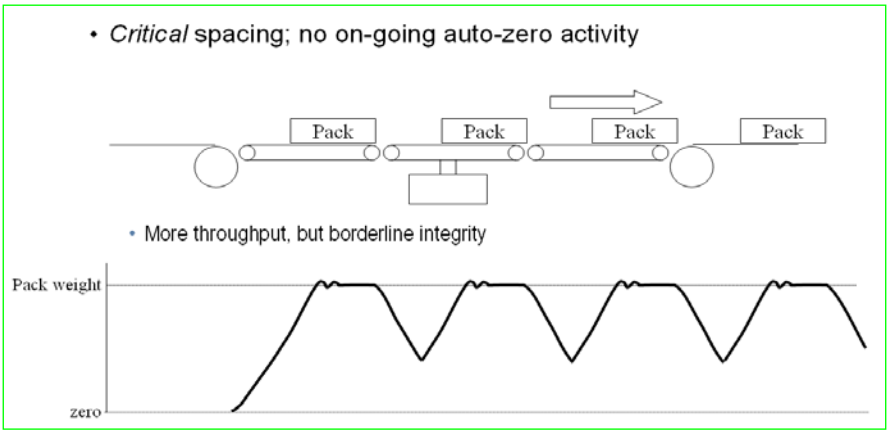


Figure 1-6. Normal Production

When the product pitch is correct, a high throughput can be obtained. The weigh table does not need to go back to zero and it is not necessary to zero between each package. Alternatively, the checkweigher can be

set up for a request to do an auto-zero after a specific elapsed time of continuous production.

System Description

The Versa Checkweigher Controller consists of the following items.

- A "weighing engine" module including the following.
  - Network support on CANBus, Ethernet, and SPI-bus networks.
- A *Microsoft, XP*-based human interface, as follows.
  - Embedded *Windows, XP* operating system.
  - Optional *Ethernet*, RS-232, and USB interfaces.
  - 10.4 (diagonal) XGA (1024 x 768 resolution) color backlit LCD display.
- Motor start, stop, and speed controls.
- One or more BIO modules, as follows.
  - Spare fuse
  - 4 configurable inputs (NPN or PNP)
  - 4 fused 24 VDC configurable outputs
- Stainless-steel cabinet enclosing all the electrical and electronic devices as well as the following.
  - Three motor controls.
  - 24 VDC power supply (universal voltage input 100–240 V, 50/60 Hz) to supply the above components.

All checkweighing functions are handled by the weighing engine, while all users interface with the system using a Windows-based PC. An Ethernet communication link allows for changes at the user interface to be communicated to the weighing engine.

NOTE. The weighing engine continues to work and the checkweigher continues to weigh and reject packages, even if the user interface is turned off or disconnected. ▲

The Versa Checkweigher Controller may also be set up with other types of motor control—depending on your particular application.

Features

The Versa Checkweigher Controller includes the following features.

Table 1-1. Versa Standard and Optional Features

Standard	Optional
Automatic zero correction	Reject devices control (optional external)
Automatic daylight savings time	Reject verification
Windows® XP HMI technology	Consecutive rejects output alarm
BlackFin DSP technology	Ethernet communications (including ModBus)
Quick release modules	Serial data link communications
Auto-speed control with override	Advanced statistics and graphs
USB-stick data export	Remote mount HMI
“No-gap” detection/rejection	Audible/visible alarms
Configurable fault reporting	In-feed/out-feed transfer belts control

Specifications

The specifications for the Versa Checkweigher Controller V312 are shown below.

Material and Finish for the Electrical Enclosure
304-grade stainless steel, 4b finish.

Zeroing
The dynamic automatic-zero correction system is standard. The Versa automatically detects the absence of packages and weighs the empty weigh table, applying offsets as necessary to compensate for limited changes in the zero value.

Weight Zones
Three zones are standard and five zones are optional. Counters are maintained for each weight zone and package rejects. An optional advanced statistical package is available, allowing more-detailed analysis of weight-zone data and package-reject statistics.

Environmental

Electromagnetic environment class	E2
Electrostatic discharge	EN61000-4-2
Operating temperature	0–40°C (32–104°F)
Storage temperature	–20 to 60°C (–4 to 140°F)
Relative humidity	10–90% non-condensing
Pollution degree	Pollution degree II
Ingress protection	IP-65 standard (IP-66 optional)

Vibration
A proprietary vibration analysis-and-correction algorithm (DBSVAC™), developed by Thermo Fisher Scientific, minimizes the effects of vibration in the checkweigher and its surroundings. Users, however, are cautioned that it is best to minimize any vibrations at source to ensure optimum results when using the Versa.

Services
Electrical—90–250 V (auto-select) 50/60 Hz, ≈ 750 VA, depending on configuration.
Air—Dry, 550–690 kPa, 5.5–6.9 bar (80–100 psi) ≈ 1,000 liters/min (35 CFM), depending on type of reject device and frequency of reject activity.

Available Approvals

CE Low-Voltage Directive	2006/95/CE
CE Machinery Safety Directive	98/37/CE and 2006/42/CE
CE Electro-Magnetic Compatibility Directive	2004/108/CE and CSAUS
Complies with EC directive	2002/95/EC
MID	UK 0126–0058
OIML	R51/2006–GB1-09.04

Chapter 2
Operation in General

Run/Weight Indicator

When the Versa Controller is powered up, the first screen to appear is the Run / Weight Indicator. This screen gives you access to all of the Controller's important weigh-related functions and displays.

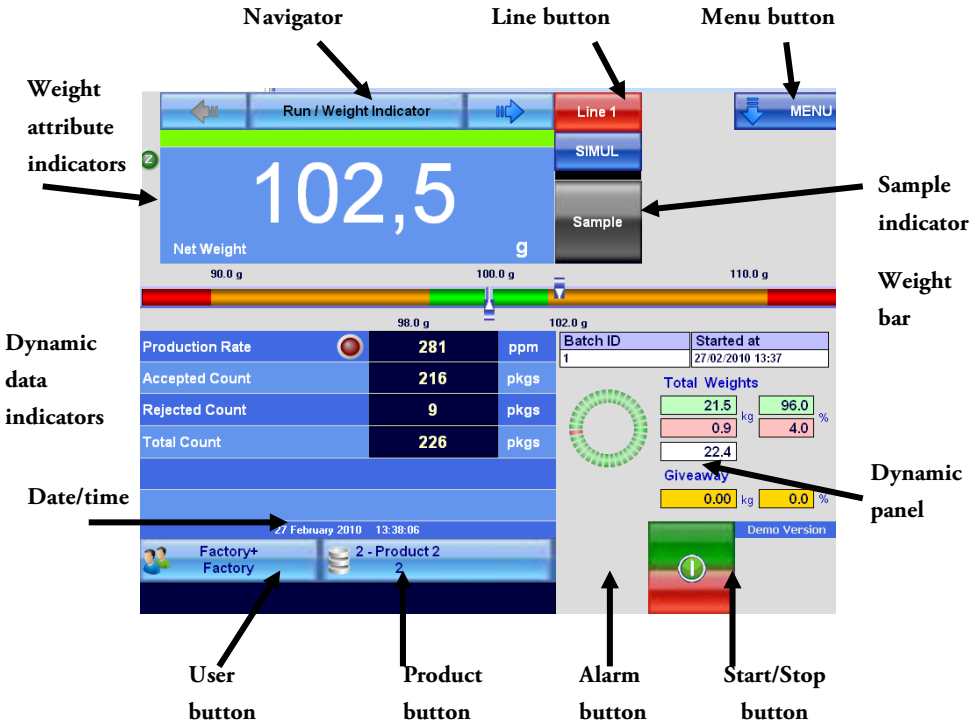


Figure 2-1. Run / Weight Indicator Panel

The Weight Indicator is the box for displaying the weight of the weighed package.

The Attribute Indicator gives additional information on the weighed package.

The Weight Bar represents the weight range, from left to right, reduced in scale so as to include all three- or five-classification zones. Above and below the bar there is the Net Reference Weight and the classification thresholds.

The color of the background of each zone indicates whether the classified packages in that zone will be rejected or accepted (green means accepted, and red means rejected—depending on the other statistical algorithms). Also the color changes between light and dark at sequential packages of the same zone.

The Dynamic Indicators are configurable spaces for displaying production variables, such as the line rate or the accepted package counter. The value to be displayed can be selected at the time of setting.

The Dynamic screen is also a configurable space. It can, for example, be configured to display data related to particular installed options.

The User button gives the name of the accredited user and the system access level, and allows you to access the login panel.

The Product button gives the name and code of the active product, and allows you to access the product-management panels.

For other elements, please refer to the *Versa Controller V312—Main Manual*.

This chapter gives an overview of the basic concepts of the interface and operational elements common to the different panels. For a detailed description of the single panels, please see the next chapter.

Multi-Line Mode

The Run / Weight Indicator screen in the multi-line mode also displays the line buttons.

The Line button at the top of the screen is used to select the displayed line.

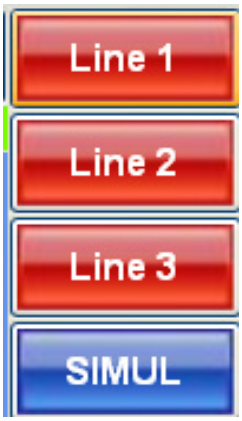


Figure 2-2. Run / Weight Indicator Line Buttons.

The multi-line option is covered in detail in the appendix of the *Versa Controller V312—Main Manual*.

The background color of the Line button provides information on the status of the connection with the weighing unit, as follows.

- A red background shows that the weighing unit is not connected or is not operative. The Versa cannot function.
- A dark blue background shows that the connection with the weighing unit is working correctly.
- An orange background shows that one of the weighing units in the list, but not the one actually selected, is not connected or is not operative. The Versa cannot function.

Structure of the Interface

The Controller is equipped with a touch-screen color display. The operator interface is composed of several pages, panels, or screens grouped into the following operational contexts.

WEIGHING MENU (RUN): A group of pages containing information the operator needs during production. The starting page is the Run / Weight Indicator.

PRODUCT: A group of pages allowing the user to define package sizes and other parameters. Also allows you to check the product calibration.

USER: A group of pages that controls access to the Versa system.

DIAGNOSTICS: A group of pages containing information and functions that allow system administrators to troubleshoot the system and clear alarms.

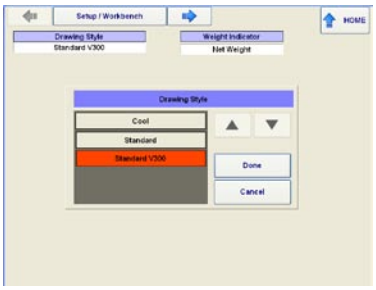
SETUP: A group of pages that allows system administrators to set up and configure the Versa system.

NOTE. In “Menu / Set Up / Work Bench” the user can select the Versa’s unique feature of choosing the lay-out style of the display. The main menu pages will be in that style.

Figure 2–3 shows the four options (A–D) for screen appearance, which are as follows.

A—The “cool” style

B



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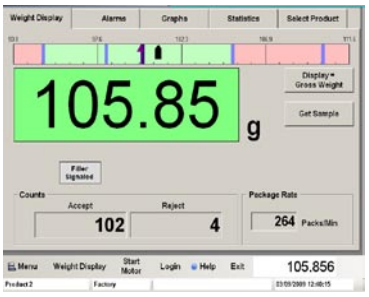


D

Figure 2-3. Setting the Appearance of the Screens

CONFIGURATOR: A group of pages that allow factory personnel and system administrators to set the Versa’s “machine data.” Machine data control the fundamental way the Versa system operates.

TOOLS: A group of pages used by factory personnel and system operators to update the Versa system and save and restore its configuration parameters.

Common Elements of the Interface

The two bars shown in figure 2–4 allow you to navigate to all the Versa's screens and functions. Here are the most important bar and buttons.

- The Navigation Bar (also known as the "Navigator")
- The Menu/Back button
- The Restore button and the Save/Exit button
- The Line button

Figure 2-4. Navigation Bars

The Navigator

Pressing the Up and Down buttons takes you from the current screen to the previous or next screen. Pressing the middle button (the one in figure 2–4 that is currently displaying the "Run/Weight Indicator" function) produces a list of available screens (as shown in figure 2–5). Choose which one you want to access by pressing on it.

Figure 2-5. Roll Out Panels

The list remains visible for approximately five seconds and then disappears.

The Menu/Home Button

The Back or Home button takes you back to the previous page, or to the "Run/Weight Indicator" screen.

This is composed of two lists of buttons, the first one (on the right) lists the contexts. Pressing one of the light-blue buttons displays the second list that contains the available panels for the selected context.

The dark-blue buttons provide direct access to the panel.

In this case, too, as for the navigator, the menu disappears automatically if no selection is made within five seconds. The Menu button is available in the Run screens, whereas it is replaced with the Back button when in a different context.

Figure 2-6. Home and Menu Button Drop-Downs

The Restore and Save/Edit Buttons

The Restore and Save/Exit buttons replace the Back button in data-setting screen. The Restore button is used to cancel any changes made. The Save/Exit button is used to close the screen, saving any changes made. If no changes have been made or the restore button has been pressed, the Save/Exit button closes the screen.

Figure 2-7. Restore and Save/Exit Buttons

Alarm Button

The Alarm button is on the bottom of the display next to the "Motor Start/Stop" button. Normally the Alarm button is not displayed and appears when an alarm is generated. The background color highlights its status, as follows.

- Yellow = Warning on
- Orange = Alarm on
- Red = Block on

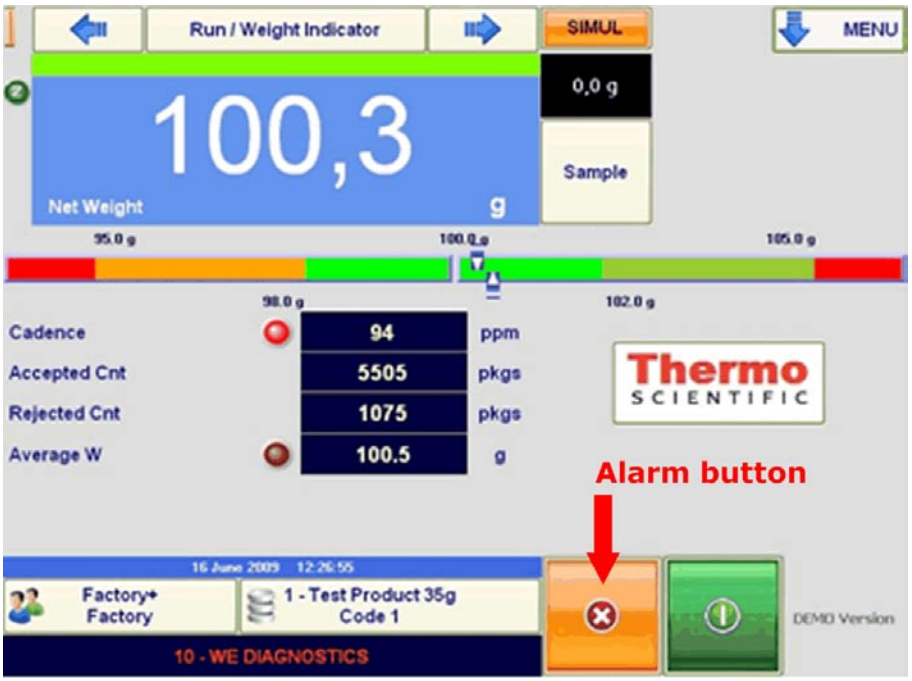


Figure 2-8. Alarm Button

The Alarm button is present in most of the data-display screens, but not in the setting panels. In the Run/Indicator screen, besides this button the first alarm that has been recorded by the Versa also appears.

Pressing the Alarm button accesses the alarm screen where there is a list of active alarms along with detailed information, such as the following.

- On which line the alarm is active (multi-line applications only)
- Date and time the alarm was activated
- Description of the alarm
- The Reset button is used to recognize the alarms
- The Close button closes the screen

Figure 2-9. Alarm Panel—Multi-Line

This screen gives detailed information about the active alarms and possible causes.

Alarm Details—Multi-Line

In the example in figure 2–9, the "Active on Line" field tells you on which line the alarm is active. In this figure the Low Average Weight alarm is active on Line 2 and Line 3 (light-green LED), while it is not active on Line 1 and Line 6 (dark-green LED).

An alarm will not disappear automatically. You must first press the Reset button, then the Close button.

Motor-Control Button

The Motor Control button is only available if the system has been configured to be able to control the conveyor belts directly from the touch screen. Press the button to start or stop the conveyors. The color of the button provides information about its status, as follows.

- Grey—Manual motor control. It is not possible to control the motor from the screen.
- Dark green—Motors are stationary. You can start them by pressing the Motor Control button.
- Light green—Motors are running. You can stop them by pressing the Motor Control button. Please note that the Motor Control button appears in most of the data-display panels, but not in the setting panels.

Thermo Scientific Versa Controller V312

Users/Login

During the initial start-up, the Versa runs a verification routine to make sure all systems are working the system is ready to go.

NOTE. For MID-approved checkweighers, during the start up phase, there is a warm-up period and the Versa will not start to operate until the zero readings have stabilized. This can take a few minutes—up to a maximum of 20.

If a problem occurs, a warning message appears and the start-up procedure is terminated. If this happens, notify a systems administrator or request assistance from Thermo Fisher Scientific. At first use after start-up, you will need to log in if you want to select a product or change a setting. Otherwise the Versa will run the last product you selected.

The Users/Login screen allows you to log in and, if you are a system administrator, set appropriate access levels for other users.

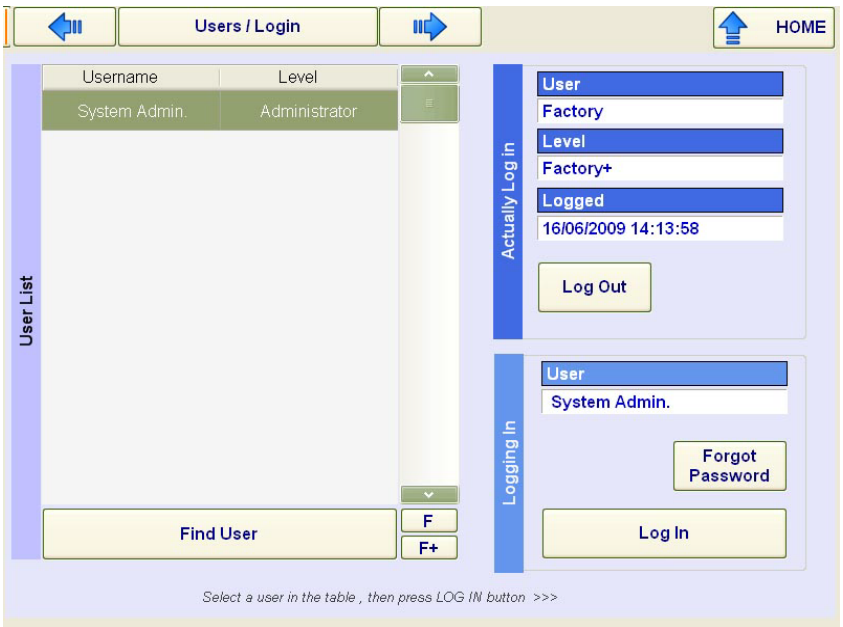


Figure 2-10. Users—Log In

The User List shows the users defined in the system and the access level associated with them. It is possible to select a user in the list and then activate login.

The Find button makes user searching easier. Press Find then set the name of the user you want to find. The user will be highlighted in the list.

The Active User box gives the data of the user currently active in the system, as follows

- User—User name.
- Level—Level of protection associated with the user and therefore the current system access level.
- Active—Date and time of user activation (login).

The Log Out button is used to log out the user. The system will go back into protected mode. The Change Password button allows the user to change his or her password.

The Selected User box shows the user selected in the list. The Define Password button is used to define the password for this user.

The Login button, visible only if the password has already been defined, permits activating the user.

The Forgot Password button allows system administrators to access the system in case a lower-level password has been forgotten. The system requests a special access code that must be provided by Thermo Fisher Scientific.

Users/Definition

This screen allows system administrators to add or remove users, set access levels, and so on.

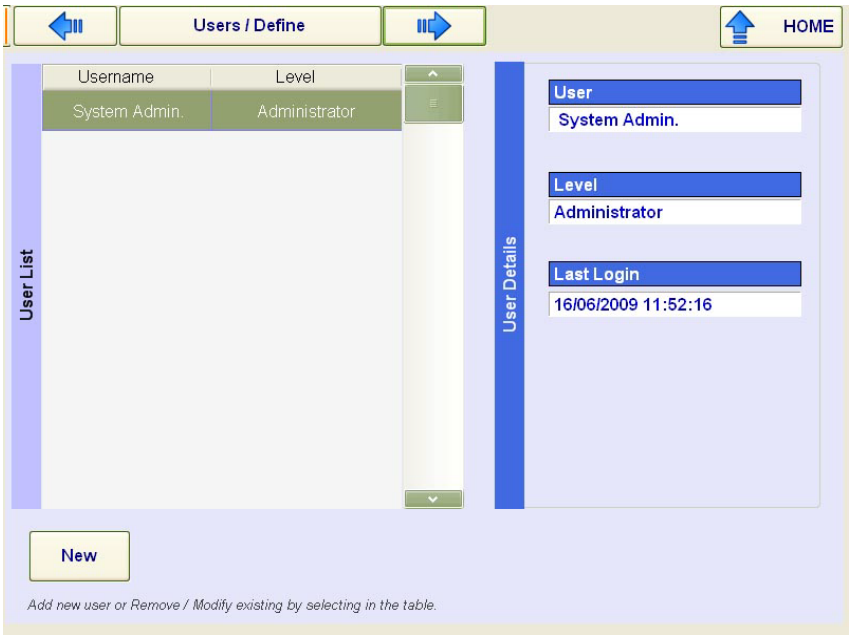


Figure 2-11. Users—Definition

The User List lists the users defined in the system and the access level associated with them. It is possible to select a user in the list.

The buttons are as follows.

New—Permits creating a new user. In this phase you are requested to define the user name and the associated access level.

Delete—Permits deleting the user selected in the list. The system requests confirmation before carrying out the operation. Confirm by pressing “Yes.”

Enable—Displayed if the user selected in the list is a disabled user. It permits reactivating the user.

Disable—Displayed if the user selected in the list is an enabled user. It permits disabling the user. Confirm by pressing “Yes.”

The User Details box gives the detailed data of the user selected in the list.

- User—User name.
- Level—Level of protection associated with the user and therefore the current system access level.
- Last access—Date and time of the last access to the system made by the user.
- Password expiry—Date and time of expiry of the password currently defined.

The Change buttons permit changing the user name or the assigned access level.

Users/Policy

System administrators can define what screens can be accesses by lower-level users and set passwords using the “Users/Policy” screen. Please note that the maximum setting in the “Max Retries” entry box is six (6). There is no maximum in the “Auto-Protection” and “Expire Time” entry boxes, but it is best to enter a value of zero (0) for both.

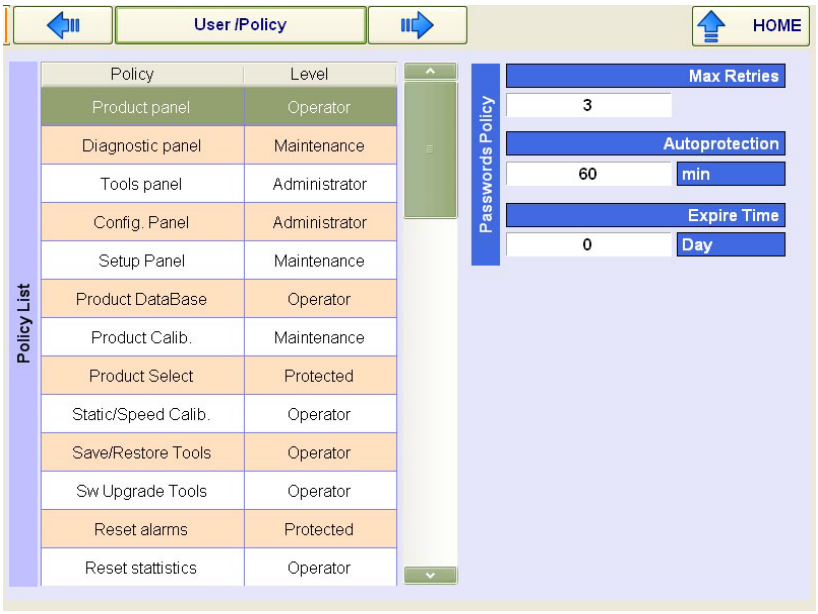


Figure 2-12. Users—Policy

Product Panels

The product screens are used to carry out all the operations related to the product, as follows.

- Define (create) a new product
- Modify the data of an existing product
- Select the active product
- Calibrate, check, and optimize the quality of the calibration of a product

Access is from the Run panels with the Product button or the Menu button.

Product Selection

The Product List show products that have already defined and lists them by number, name, and code. Sorting is possible using number, name, or code by pressing on the column header.

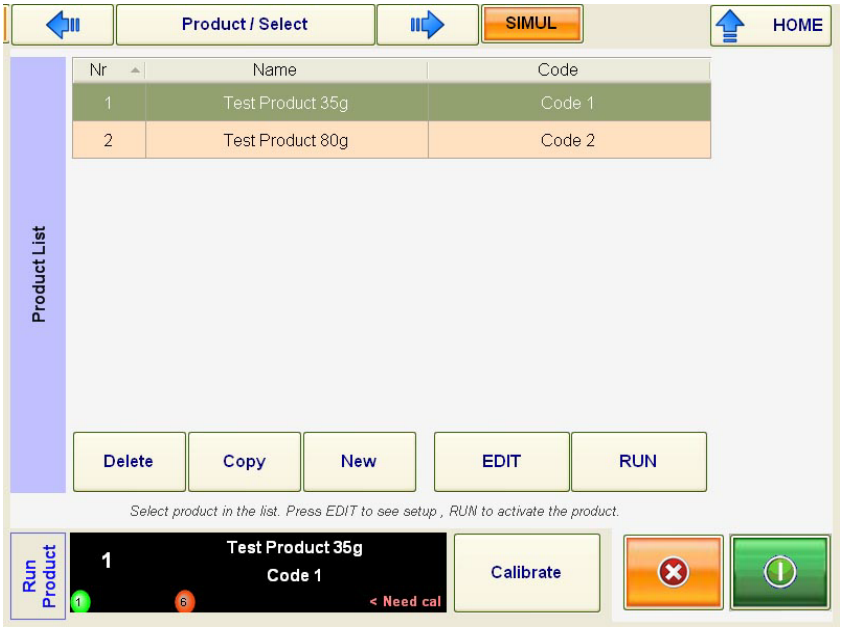


Figure 2-13. Product-Select Screen

The management buttons allow you to name new products, copy and delete products, modify parameters for existing products, and activate products, as described below.

- New button—Create a new product.
- Copy button—Create a new product that will be a copy of the product selected in the list.
- Delete button—Delete the product selected in the list.
- Edit button—Edit the data of the product selected in the list (see the Product Edit screen).
- Active button—Make the product selected in the product list active.

The Active Product Indicator gives the data of the product currently selected for production. If the selected product has not yet been calibrated, a “Request for Calibration” will appear at the bottom of the indicator. For multi-line systems the LEDs at bottom-left indicate for which line it is necessary to calibrate the product.

The Calibrate button is used to start the Active Product calibration procedure.

Options

The Versa can be equipped with many optional menus and features. For further information about the available options, refer to the descriptions and appendixes in the *Versa Controller V312—Main Manual.*

Figure 2-14. Options—Screen 1

Options are shown in the “Menu/Configurator/Options” menu. Tapping the box (with the name of the option) gives access to the specific menu settings for most of the options.

Figure 2-14. Options—Screen 2

NOTE: The full option list is visible only to system-administrators. System administrators can install or remove options but must use a special key code supplied by Thermo Fisher Scientific to do so.

Here is a list of the options available for the Versa.

- Diverter Check—Verification that a package was rejected or accepted.
- External Reject—Allows another device to cause a package to be rejected by the Versa.
- Bin Full—Notifies you that the reject bin is almost full of packages and need emptying.
- Advanced Statistics—Allows the touch screen to display real-time graphs of package weight trends, weight statistics, and so on.
- Auxiliary input/outputs (I/O)—Adds three user-defined Alarm inputs and a system-ready output.
- EEC Batch Rules—Enables minimum average weight rules.
- Freerun—Sends a message to the serial port about current package weight.
- Consecutive Rejects—Sets an alarm when too many packages are rejected in a row.
- Feedback—Sends a signal to another device to control how much product is placed in a package, based on the average package weight.
- Product Tracking—The reference weight and the inner cut-points will adjust according to the average weight of the product being weighed.

- Five Zones—Increases the number of weight zones from three to five.

- Multi-range—The weighing ranges used when more than one scale increment is used.

- Remote Connection—Enables various communication protocols, for example, SCADA systems to interact with the Versa Controller.

- Expand Product Memory—Increases the maximum number of products stored on the Versa Controller from 100 to 400.

- 21 CFR Part 11—For pharmaceutical applications. Records user entries according to specific regulations.

- Teorema—Specific application for high-speed can lines that allows 660pc/min rejects to be synchronized.

- Static Weighing—For special applications where intermittent transport is used during the weighing session.

Quick-Reference User Guide

Chapters 3 and 4 describe the most commonly used functions for daily use of the Thermo Scientific Versa Controller equipped with V312 1.5 software. Chapters 3 and 4 can be printed and used as a quick reference guide.

Chapter 3
Getting Started Running the Line

Switch On

Switch the *Checkweigher* on: Turn Mains Power Switch (on side of cabinet) to ON position.

Wait till the *Checkweigher* has successfully passed its start up routine. Note: For EU MID machines there is a Warm-Up period. (5~20 min).

When the *Checkweigher* is ready it will show the Run / Weight Indicator.

Now check for alarms. If present go to Log In.

Do you want to run the last remaining product? Yes; Start the conveyors. (Push the Green Start Motors button on the Run / Weight Indicator).

The *Checkweigher* is now in operation.

Log In

For all set up changes or commands the *Checkweigher* must be in higher level than "Protected." (See the bottom-left corner of the screen.)

Figure 3-1. Run / Weight Indicator—Protected

To log in, do the following.

1. Press the Login button or press Protected (in the bottom-left corner of the screen shown in figure 3–1).

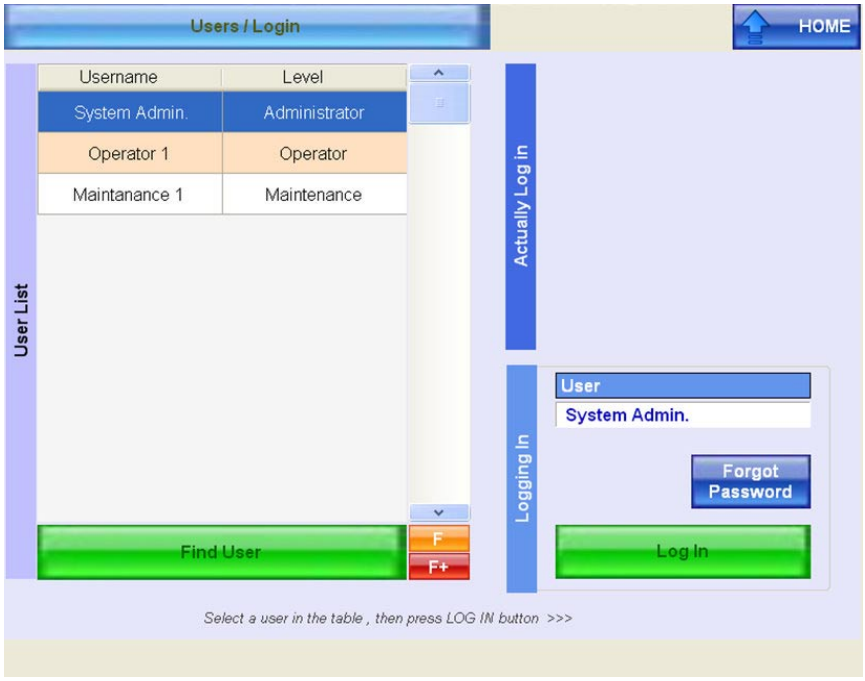
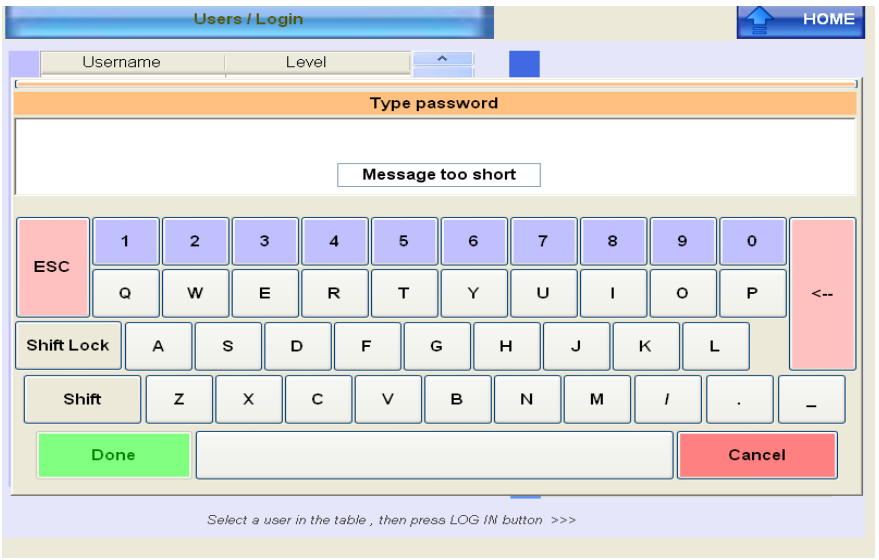


Figure 3-2. Log-In Screen

2. Press your user name, then press the Login button.

NOTE. New users must first be created by the system administrator. When you log in as a new user, you must enter a new password—and must enter your password twice to verify you have entered it correctly.

3. Enter your password using the Versa keyboard (shown below). Please note that passwords must contain a minimum of six characters and are case sensitive.



4. Press the Done key.

Clear Alarms

If there are no alarms, go to topic "All User Operations" below. To clear any alarms, press the Alarm button and clear and reset the alarm. If the does not work, refer to the *Versa Controller V312—Main Manual* or request technical assistance from Thermo Fisher Scientific.

All User Operations

You are now operating the *Checkweigher*.

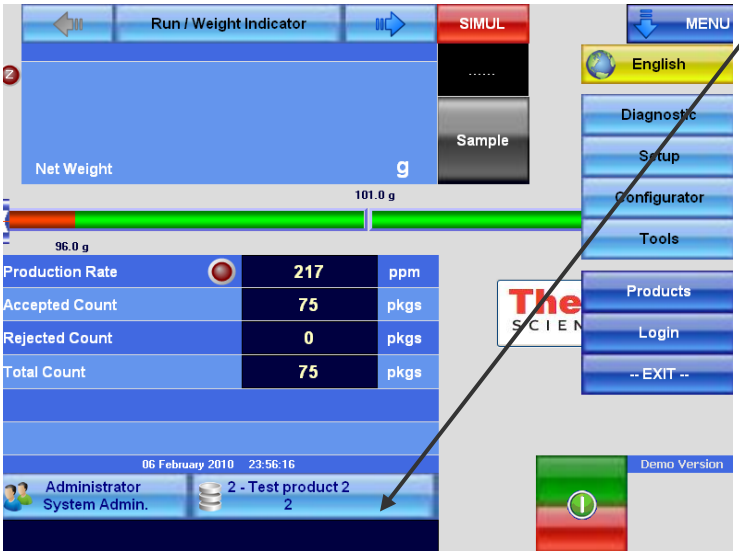
Depending on admittance level and allowed menu's, you can change, check, set-up, and calibrate the *checkweigher*.

Here are some of the most commonly used functions.

- Select the (pre set) active product
- Modify the data (Edit) of an existing product
- Define (create new), Copy or Delete a product
- Calibrate, check and optimize the quality of the weighing performance of a product
- Clear, print / export statistics

Select Pre-Set Product

The *Active Product Indicator* gives the data of the product currently selected for production. If the selected product is not the preferred choice for coming production, you can select the required product.



Press "*Product box*" (under in display) or *MENU* followed by *Product button.*

Figure 3-3. Product Box

NOTE. You must have permission or be able to select change of product (see User Policy in Admin. Level).

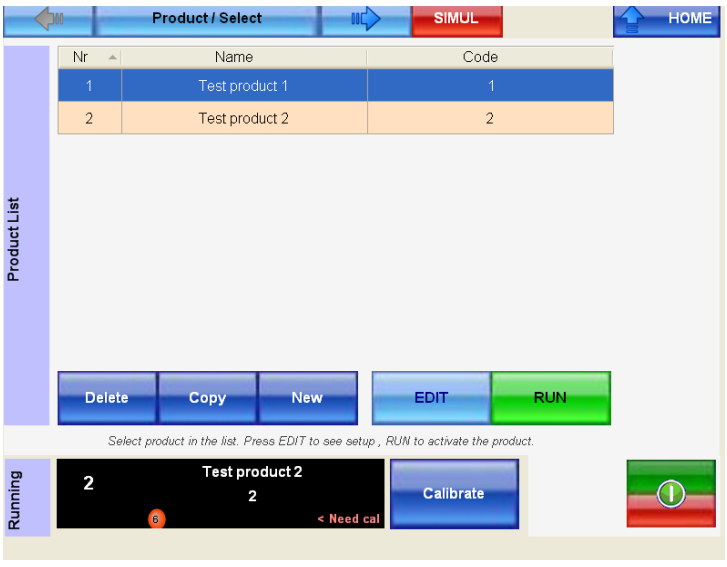


Figure 3-4. Product Selection Screen

To select the required pre-set product, do the following.

1. Press the Run button

2. Confirm your choice.

3. Press the Home button to return to Run/Weight Indicator screen.

Edit Product

In Product / Select Menu (see above) the product data can be modified (edited). Here are the relevant screens.

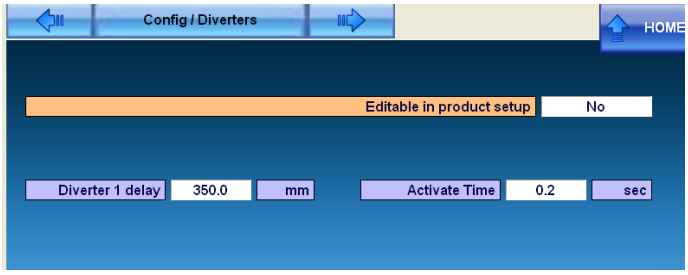


Figure 3-5. The “Editable” Screen

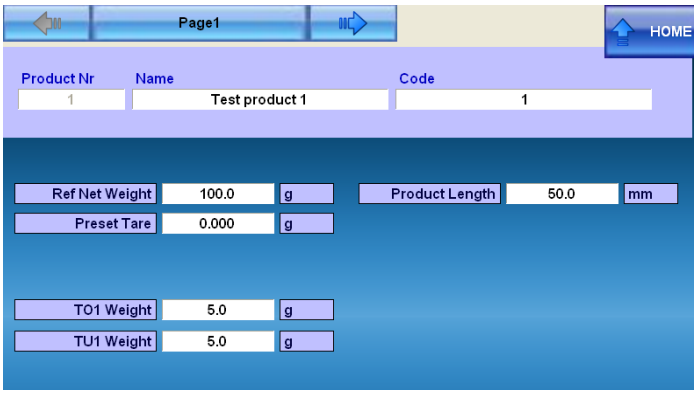


Figure 3-6. The Test-Product Screen

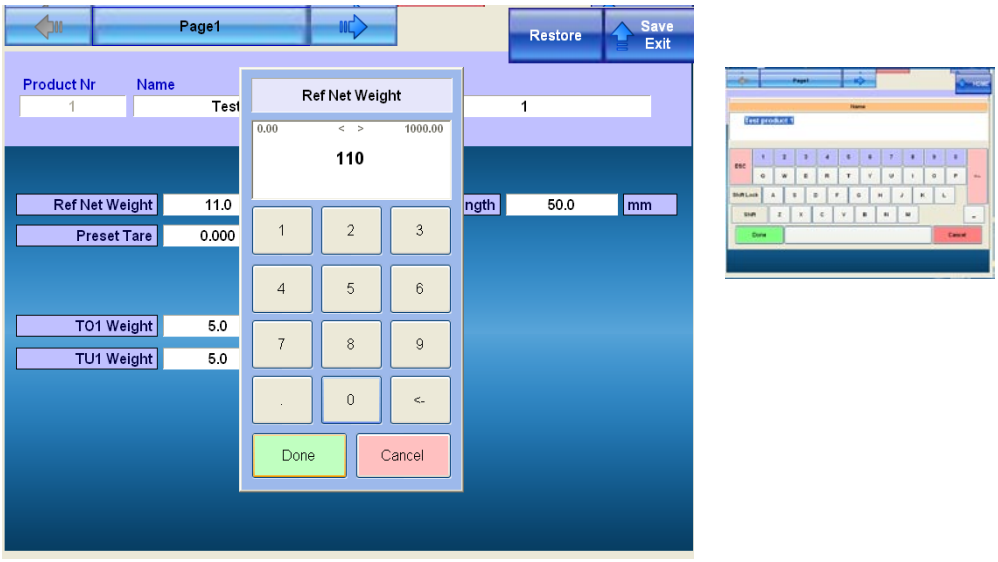


Figure 3-7. The Key-Pad or Keyboard Appears

To edit the product, do the following.

1. Press EDIT.

2. Select any box that needs editing by tapping once on it.

3. Use the Arrow button to navigate to other pages.

4. Use the Data Entry Box (alpha- or numeric-type depending on type of data), as shown in figure 3-7.

5. Press DONE after Editing is done. Press SAVE & EXIT to return to the RUN/WEIGHT Indicator screen.

Main-product data includes the following.

- Product name and or code
- Product weight
- Tare weight
- Cut zones
- Reject weights
- Product length
- Reject diverter delay and duration

Example

Change the product net reference weight by tapping once on the name box. Change–Done–Save Exit.

For some changes (weighing parameters like weight etc.) the checkweigher can request for a dynamical re-calibration). It is advised not to change these parameters dramatically if previously the product have ran well.

In case some settings are not visible in the Product Pages, then these are visible in Menu / Configurator. For many product settings, there is the possibility to select for access direct via product set up.

Other Product Operations

In Product / Select Menu a complete selection of products can be created and maintained. For example, Copy Product, New Product, and Delete Product. Use the ID box in case you want to assign a specific product position number.

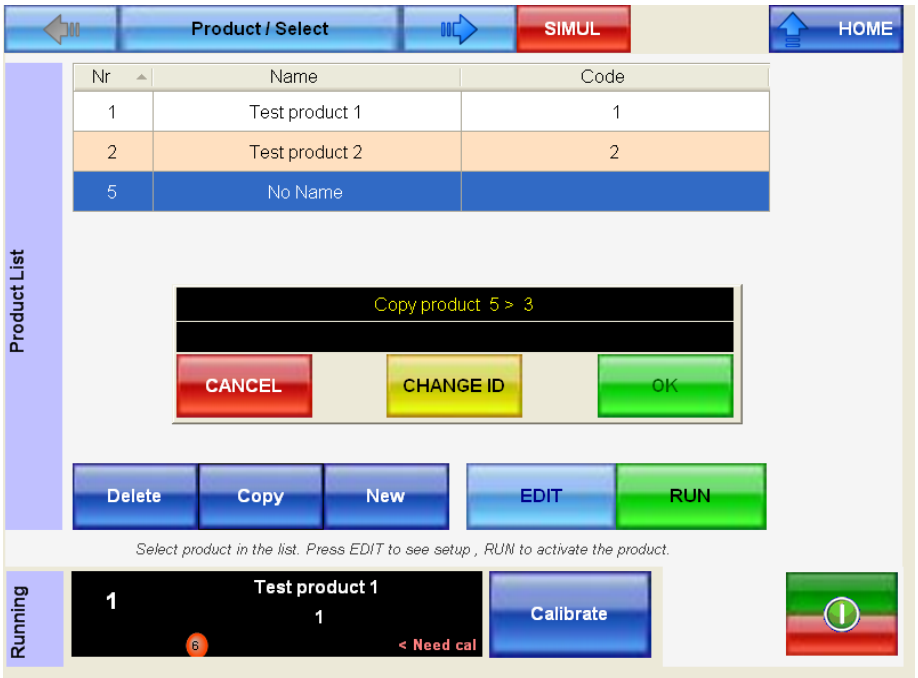


Figure 3-8. Product Copy Screen

HINT: Make a “Master copy” of your product (for example near memory position 100), to prevent loss of original settings in case you make a mistake.

Run/Batch Statistics

Also with the Navigator a selection can be made to view the production results. The reports can be sent by USB automatically for printer or data collecting program. Alternatively be manually loaded onto a USB stick (USB port is at side of the cabinet).

Short-term reports are generally set up for one hour or 10,000 packages (EEC reports are automatically generated). If the product recipe is changed, then the statistics are reset and a report is generated automatically. To manually reset the counters, pressing the Clear button will reset the counters and a report is generated.

In EEC / MID mode, the reports are the legal proof for production to be within legislation. The reports can be obtained with the Print button. If the printer is off line the reports are internally saved in a buffer and Print button becomes orange until connection is restored.

When the “Export” or “Print and Export” mode is used, the reports need to be collected by USB key by pressing the “Export” button. (First install the USB stick.) In MID mode, when storage is near at maximum level (approximately 100 reports), the checkweigher will generate an alarm to inform the operator to export the reports to a USB stick. At maximum level, the checkweigher will stop operation till the reports have been transferred. This is to prevent losing the reports (legal production proof).

HINT: Remember to export report files on a regular basis. In non EEC / MID mode, the reports will be over written in such an event.

The batch statistics panel displays the statistical data collected during the production batch in progress. In an optional multi-line system, the information can be retrieved for each line with the Line button. Also a collected total view is available in the Resuming Statistics screen.

Figure 3-9. Run Statistics

The data are given in three groups.

1. Zone Statistics, where for each classification zone the display shows.

- Number of packages
- Total weight

The background of the boxes is either red or green depending on whether the zone is defined as accepted or rejected.

It should be noted that the pieces of the middle zone are divided between pieces weighing more or less than the reference weight.

2. Total Statistics is composed of the following data.

- Near pieces accepted, rejected, and total processed
- Total weight accepted, rejected, and processed
- Standard deviation of Accepted Products
- Mean weight of Accepted Products

3. No Weight: Counter for the pieces the system has not been able to process correctly or are diverted by external reject (for example by a metal detector).

The buttons above the zone indicators, besides giving the classification limit and the reference weight of the product for a better interpretation of the values displayed, are used to modify these limits.

The SET BATCH ID. BUTTON is used to set the batch number or restart the batch count in case of automatic batch numbering. (See: Menu / Set Up / Batch)

The RESET button is used to reset the statistical data.

The batch number and the date and time of the start of the batch, which corresponds to the date and time of the last reset, are shown over the buttons.

Resuming Statistics

The Resuming Statistics panel shows the main statistics info. And also for each lane in case of Multi-Lane option machines.

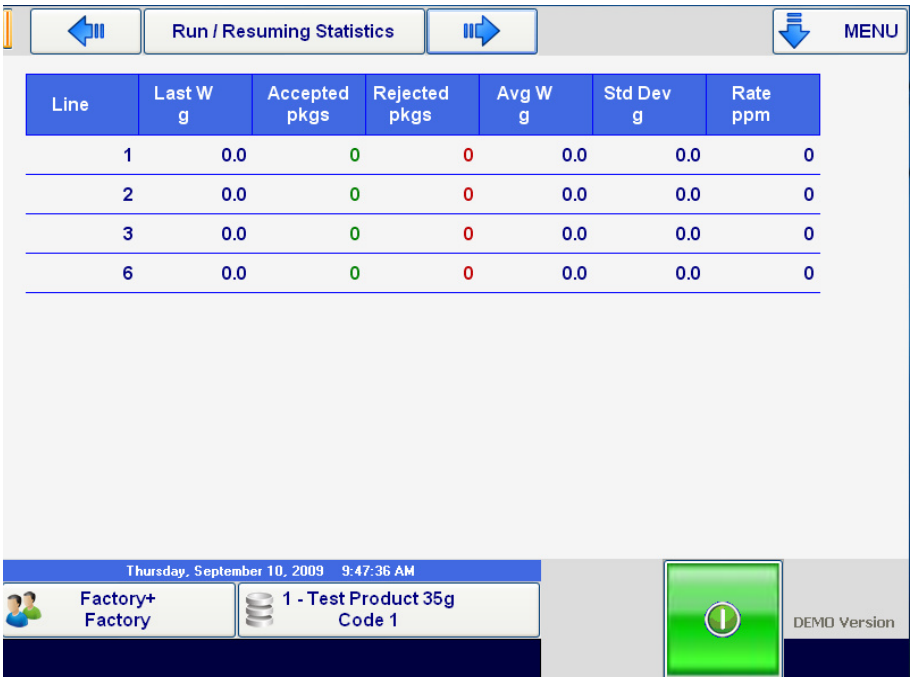


Figure 3-10. Resuming Statistics Screen

This screen summarizes the main statistics info for each line.

- Last W—Last acquired weight
- Accepted—Number of accepted packages
- Rejected—Number of rejected packages
- Avg W—Average weight of accepted production
- Std. Dev—Standard deviation of accepted production
- Rate—Actual production rate (or cadence) in packages per minute

The screen can be useful because it gives a complete view of all lines together.

Sample Button

During normal production a sample of the production can be rejected from the line. Press Sample. The first product that passes across the weigh table will be rejected (statistic counters are not affected). This product can be weighed at a comparing static scale (prefer higher resolution)

Figure 3-11. Sample Key

The Gross weight is indicated at the Weight Run display. Normal production continues.

Performance or Adjusting Test

Under many circumstances a performance test can tell a lot of information.

1. Go to the Product Menu.

2. Go to Product Adjusting Test.

3. Make sure you start with an Empty Weigh Table Test.

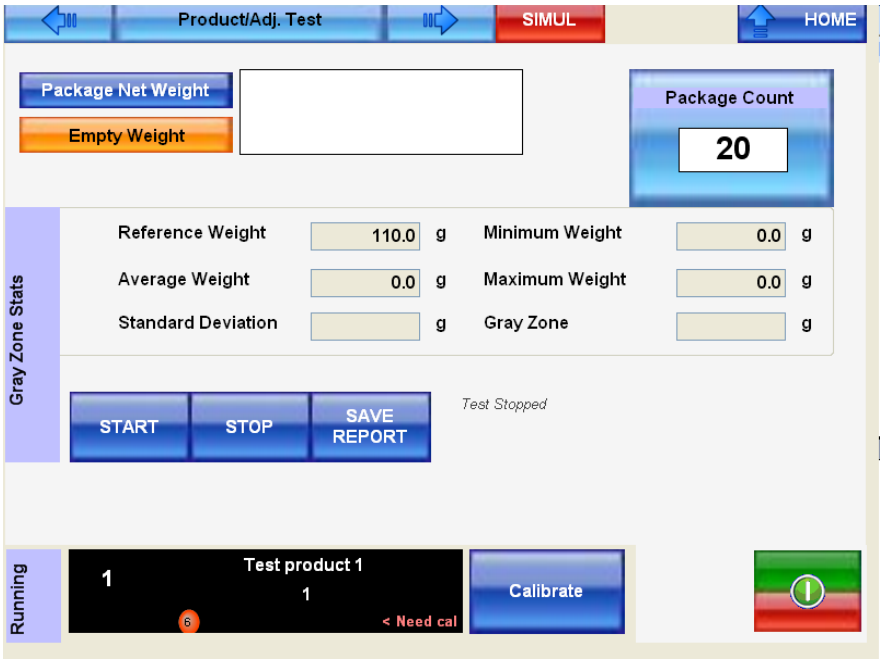


Figure 3-12. Performance Test

4. Run the conveyors.

5. Press START and run it empty for a few seconds.

6. Press STOP and review the results. Any bad result is usually caused by mechanical problems, vibrations, motor cables pulling on the weigh table etc. It is not expected that the *checkweigher* will perform well when empty weigh table performance is bad.

7. Switch to Package Net Weight Test.

8. Do a dynamic test with one and the same test package passing manually the number of times shown.

9. If the result of the average and standard deviation are within limits the machine is ready to RUN.

HINT: As a guiding help, see table for R51 acceptance.

10. If you still encounter problems, then do the “Three-Step Check for Accuracy.”

11. If performance is good at empty weigh table, but bad with product, then check for correct weight acquisition settings in Product Diagnostic.

Three-Step Check for Accuracy

If you encounter accuracy problems, then first try these three steps to find out the root cause.

1) Run CW with a special low profile very stable package.

Is system now accurate?

> **YES**: Problem was probably related to pack stability or movement of product within the pack.
>
> **NO**:

2) Perform test with conveyors running but now with a stationary pack (placed at the non conveying top of the weigh table with the belt running)

Is system now accurate?

> **YES**: Problem was probably related to the dynamics of the pack, instability from transfers, incorrect data (belt speed, package length etc.) entered at *checkweigher*, or position of photo-eye.
>
> **Go to Scope Function page**
>
> **NO**:

3) Perform test with conveyors stopped and pack stationary.

Is system now accurate?

> **YES**: Problem was probably related to mechanical noise within the *checkweigher* conveyor.
>
> **NO**:
>
> Problem is probably load cell, electronics, connections, electrical noise, surrounding vibration, air drafts etc.

Need to call for assist from maintenance or Thermo Fisher Scientific Product Inspection Service.

Product Diagnostics

The Versa Controller is equipped with a powerful tool that shows you when the weighing takes place and what the weighing signal looks like while passing the product over the weigh table.

The Parameters must be done at the flat top weighing signal occurs. Data acquisition must be done at that flat top enough long (60 to 150ms as an example and depending on type of application) and before the signal drops off at point of package leaving the weigh table.

You can use *X*- and *Y*-axis zoom tools to look closer. Setting filters and timing requires some technical training and experience. It is advised to make a back-up copy of the product before you change it.

Figure 3-13. Diagnostics Tools Scope Function

In the Product/Diagnostics there also is a button Lengths that shows the position of the product during the Weighing process. Take care that the settings are as such that the product averaging time is finished before the product leaves the weighing table.

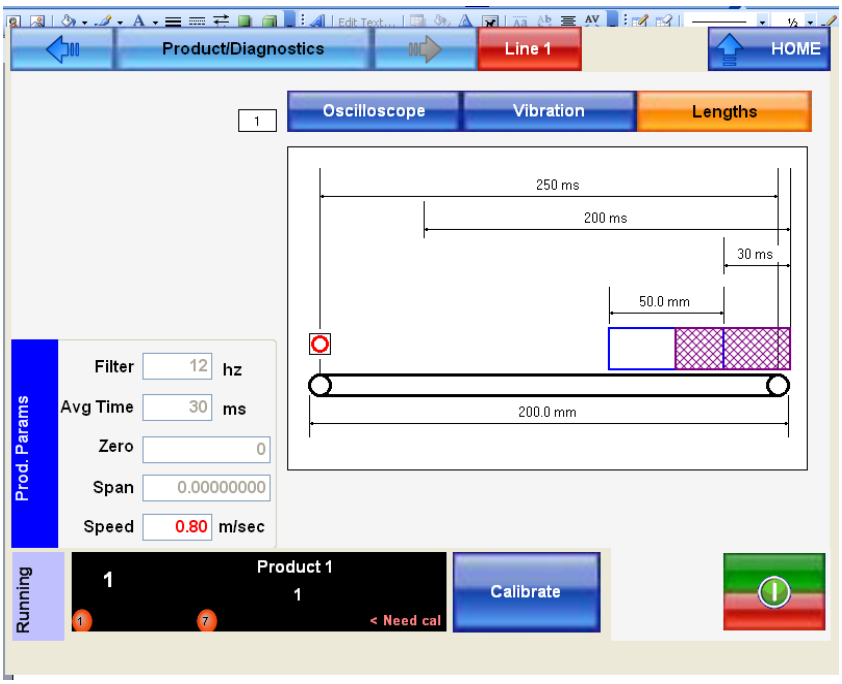


Figure 3-14. Diagnostics Tools Position Function

Static Calibration

The system is Factory Calibrated for STATIC signal interpretation.

This is normally done only once and needs not (for approved versions; Can Not) be changed. A renewed static calibration can influence the performance.

The performance of static weighing can be checked during the dynamic calibration in step 2 using a set of known weights to test the full weigh range. You can stop the dynamic calibration procedure if needed.

Dynamic Calibration

We suggest you do a dynamic calibration only when the following conditions apply.

- You are sure there are no mechanical issues.
- You are sure there are no electrical issues.
- You are sure there are no set up issues.
- When testing the Versa, no *systematic errors* are apparent—meaning there are no consistently reproducible errors in the way the Versa is weighing known, standard, or reference weights or packages. Thus, a systematic error would be apparent if, for example, the Versa consistently weighed a 1.000 kilogram reference weight as 1.027 kilograms.

Exact routine varies with each *checkweigher* model.

- Use a typical production package or known good dummy.
- Use same shape, size, stability, and general weight
- Ensure the exact weight of the package is known using an independent scale.
- Pass pack a minimum of eight times.
- If calibration will not complete, suspect excessive variability error.

Never perform a calibrations during a production run.

- Always pass pack with great care.
- Ensure “standard” pack weight has not changed.

What should the frequency of a dynamic re-calibration be? Once per shift or once per day? There is no mandatory rule, so is best to test first, and calibrate only when testing shows a systematic error.

A dynamic calibration compensates for dynamic ‘in motion’ influences of the weight on the Force Transmitter. What is compensated is called ‘SPAN’. Weighing parameters as filters and data acquisition time have influence as well. It is all set automatically, but can also be fine tuned manually. The *Calibrate Button* is used to start the calibration procedure for the ACTIVE PRODUCT. If the selected product has not yet been calibrated, a *Request for Calibration* will appear at the bottom of the indicator. For multi-line systems the LEDs at bottom left indicate for which line it is necessary to calibrate the product.

NOTE. Be careful! It is advised not to do a dynamic calibration too rigorously, especially if previously the product has run well. Therefore it is strongly advised to do a Performance Adjusting Test and the Three-Step Accuracy Check first!

NOTE. At the optional multi lane systems, the operator has to view carefully the LINE indication and select the line that has to be calibrated.

Static and Speed calibration MUST be executed on all the lines.

When a new product is defined, the dynamic adjustment function must be executed on all the lines before start production with that product.

The Active Product Indicator in the Product panels shows to the operator if currently selected product is calibrated or not in all the lines

Figure 3-15 Multi-Line Calibration—Line Indication

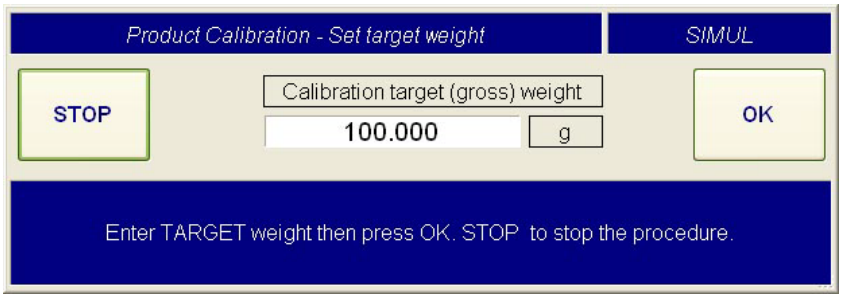
In the above example, the product TestProduct35g is calibrated on lines 1 and 4 but not on lines 2, 3 and 5.

The operator has to calibrate on those lines before run production.

Procedure

Please follow the instructions on the display.

1. Set the sample weight.

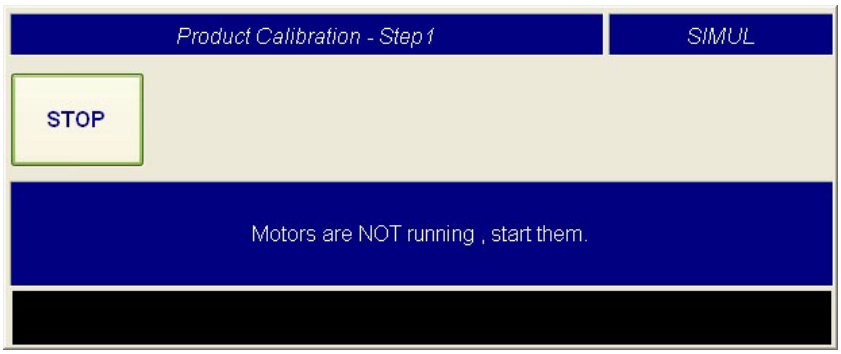


2. Enter the GROSS weight of your test product and Press OK. Pay attention at the position of the comma (if needed) and decimals

Five-Step Process

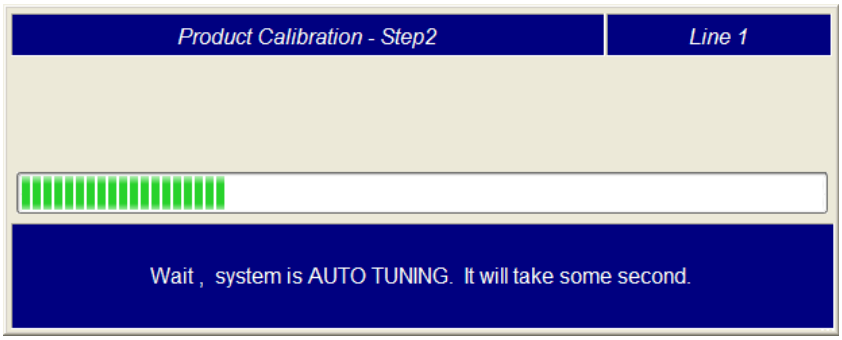
The dynamic-calibration procedure will guide you through five steps, as follows.

1. Check the speed.



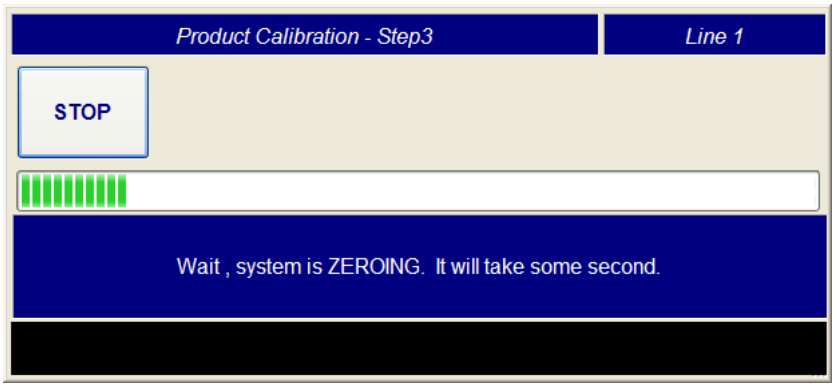
Run the conveyors empty and let the controller determine the ZERO.

2. Determine the weight-acquisition parameters.



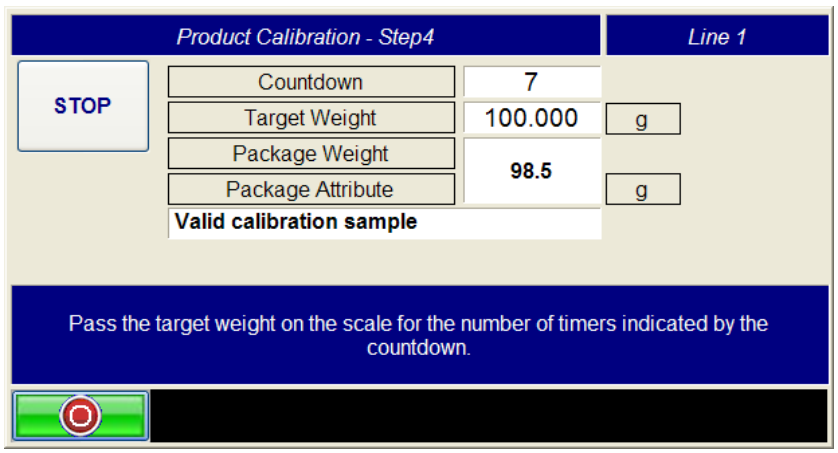
The *checkweigher* does an automatic set up by itself.

3. Determining the ZERO parameters.



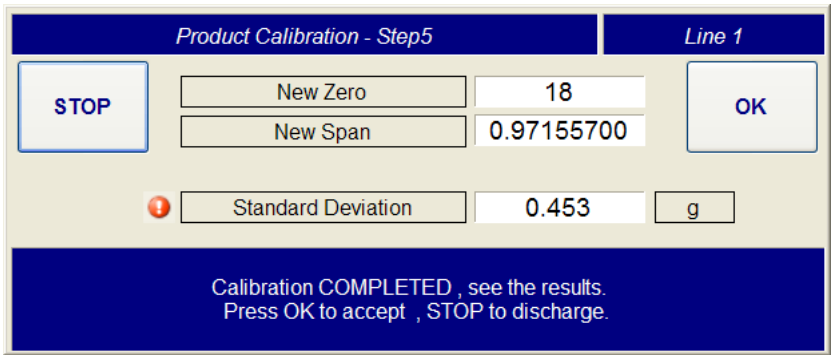
The *checkweigher* measures the ZERO at empty (running) weigh table.

4. Determining the Span for the live weight.



Run your (one and the same) test product the required number of times over the weigher (make sure to pass as if it is a normal product run).

5. Final check.



If you agree with the results, press OK to return to the RUN/Weight page. (A value of about 1 is normal for span.) However, it advised to check the performance by doing a Adjustment Performance test (see above). You can now resume your normal production runs.

Alarm Definitions

The *Checkweigher* can give all kinds of information on the present condition or status of alarms.

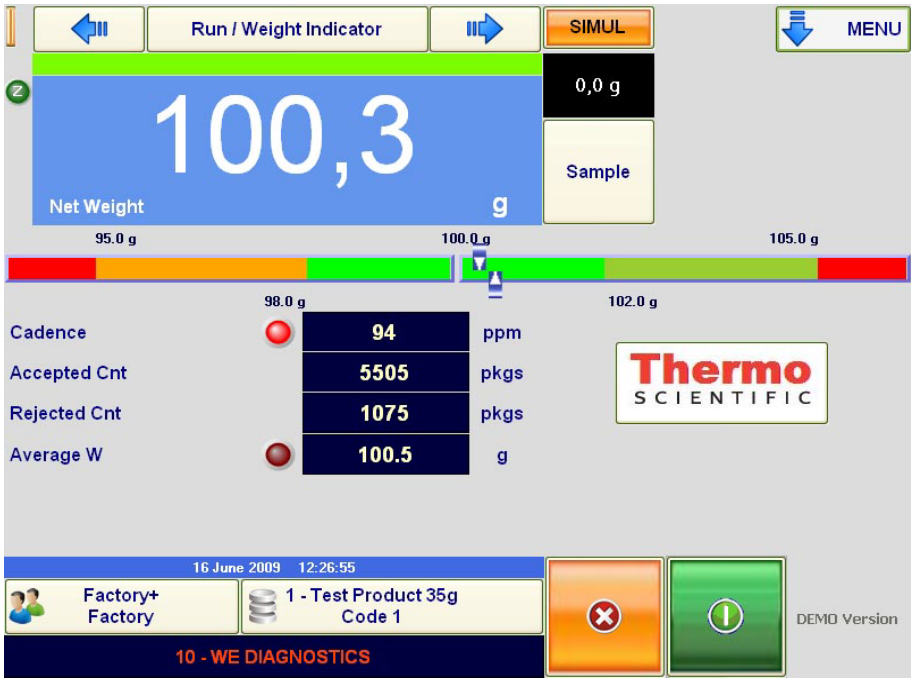


Figure 3-17. Run Statistics

At the RUN/Weight display, check the Alarm box for messages.

Table 3-1. Meaning of Alarms

Alarm	Detailed Description of the Alarm and Possible Solutions
Zero-offset beyond limit	Tells you that the zero reset deviation exceeds its specified limit, and that this cannot be corrected using the auto zero-tracking (AZT) function.
Need re-zero	Tells you that too much time has passed since the last reset, or that there is not sufficient distance between the packages for the auto-zero function to work.
Need to calibrate	The Versa must be recalibrated for the product you are running. This warning appears when the product has never been calibrated, or when its length and/or speed have been modified.
Warm start	The weigh engine will reset and start without any loss of data.
Cold start	The Versa stops and the weigh engine then resets and restarts—with a resultant loss of data. When this occurs, your must perform a static calibration.
Emergency	The digital input assigned for an emergency notification has been activated.
Sample weight loss	The Versa has stopped weighing packages, because a package has been left on the weigh table. When this occurs, check the weight-acquisition parameters.
Weigh engine diagnostics	If you see this alarm, please contact Thermo Fisher Scientific.
Temperature alarm	The weigh engine has exceeded it temperature rating. If this occurs, please contact Thermo Fisher Scientific.
Speed error	The actual running speed of the conveyor has exceeded its specified speed by a margin greater than ±5%.
Motor-controller fault	One or more of the motor controllers is showing a fault or cannot communicate with the Controller. Go to the “Diagnostics/Motors” menu to try to resolve this problem.
Motor-controller anomaly	One of the devices monitoring the performance of the motor-controllers is about to generate a fault message, giving you advanced warning of a potential failure.
Misclassified pack	An unexpected package has been detected by the “out-feed” photocell.
Package missed	A package classified by the Versa as “valid” has not been detected by the out-feed photocell.

Simplified Menu Tree

Shown below is a an overview of the menu structure of the Versa.

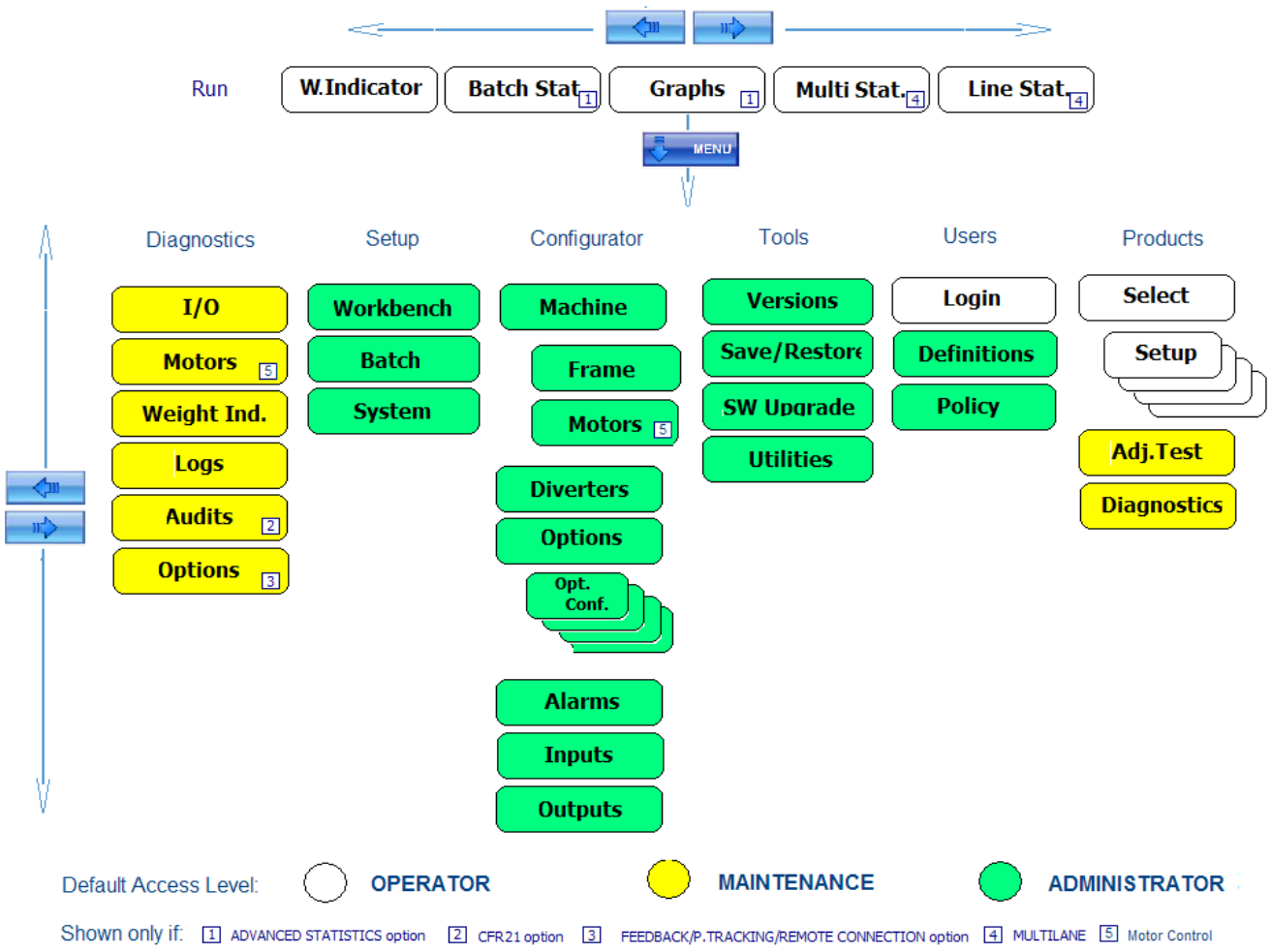


Figure 3-18. Simplified Menu Tree

Chapter 4
Cleaning and Basic Precautions

Your *Versa Controller* is capable of efficient and reliable operation, when properly set up and maintained. This chapter provides information to assist you in maintaining, cleaning and servicing your system.

NOTE. Follow all warnings, cautions, precautions, and advice in this section to keep your system in tip top operating condition. ▲

General Precautions

The set up and maintenance information in this manual is designed to meet your service needs. However, if you run into problems and require technical assistance, please call your service representative. Thermo Fisher Scientific Field Service Representatives are fully trained and licensed (MID OIML) and are globally available from regional offices.

WARNING. Failure to follow safe installation, operating, and servicing procedures could result in death or serious injury. ▲

- Make sure only qualified personnel perform maintenance procedures in accordance with the instructions in this manual.
- Allow only qualified electricians to open and work in the electronics, power supply, control cabinets, or switch boxes.
- Covers over the machine should always remain in place during operation. Remove only for maintenance procedures with the machine's power removed. Replace all covers before resuming operations.
- During maintenance, a safety tag (not supplied by the factory) is to be displayed in the ON/OFF switch areas instructing others not to operate the unit (ANSI:B157.1).

WARNING. High voltage that may be present on leads could cause electrical shock. ▲

- All switches must be OFF when checking input AC electrical connections removing or inserting printed circuit boards, or attaching voltmeters to the system.
- Use extreme caution when testing in, on, or around the electronics, PC boards, or modules. There are voltages in excess of 115V or 230V in these areas.

Daily Cleaning

Be sure to follow the cleaning and routine maintenance instructions for your *checkweigher* frame in addition to those presented in this section. Please wash down (IP 65 only) or clean the machine on a daily basis.

Cleaning Precautions

In addition to following the safety warnings and cautions presented at the beginning of this chapter, you should follow these precautions when cleaning your system.

- Do not use high-pressure air lines or high-pressure water jets to remove debris from any part of the Versa Controller electronics.
- Cabinet seals may be penetrated, producing the possibility of serious damage to the electrical circuits.
- Do not use high-pressure steam cleaners.
- Aggressiveness of cleaning should be limited to that implied by the IP rating (IP65 or IP66).
- NOTE. Units not having the IP 65 option must be cleaned with dry or light moisturized cloth only

CAUTION. If you are cleaning adjacent machines with high-pressure water hoses or steam, ensure the Checkweigher system is protected. ▲

- Do not use sharp metal scrapers on the touch screen. There is a danger of damaging the membrane.
- Do not use solvents to clean the system because of the possibility of damage to electrical leads and plastic components used in certain areas.

Cleaning Procedures

Follow these methods when cleaning your Controller or Checkweigher system.

WARNING. While every effort has been made to protect the equipment from the effects of sensible cleaning methods, the factory cannot accept responsibility for any damage caused by not complying with the cleaning instructions. ▲

- Hand wash the system, if possible, with warm water and detergent. If hosing is needed, use low pressure (2.5 atm/35 psi max), preferably with warm water (not exceeding 149 °F [65 °C]).
- NOTE. Units not having the IP 65 option must be cleaned with dry or light moisturized cloth only.

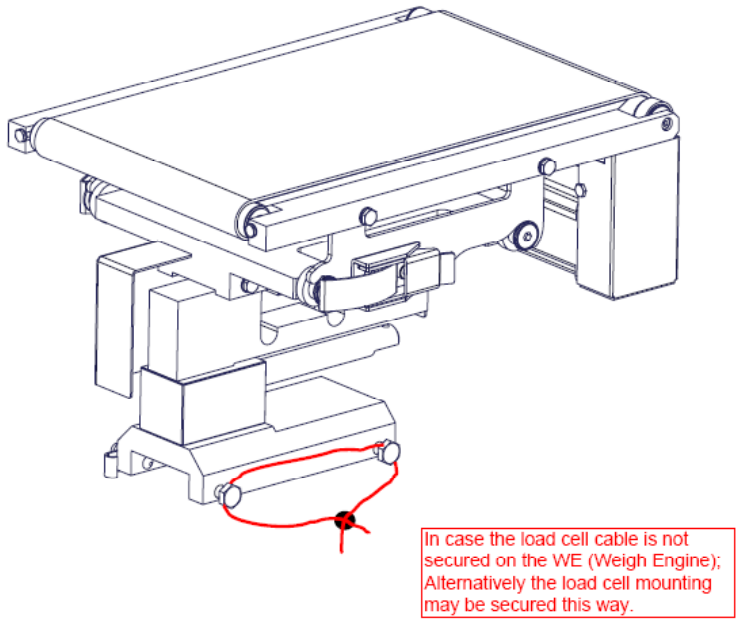


Figure 4-1. Sealed Parts

WARNING. Approved systems can have seals installed that assure legal operations.

Be careful not to damage the seals in the cleaning process. If seals are damaged or have disappeared, notify your Plant Quality Manager or contact Thermo Fisher Scientific for assistance.

For all other instructions, please refer to the *Versa Controller V312—Main Manual*.

For all other instructions, options and features, on the mechanics and conveyors, please refer to the specific weigh-frame manual.

Chapter 5
Contacting Thermo Fisher Scientific

If you are located in the United States or Canada, please use the information below to contact Thermo Fisher Scientific. If you are located elsewhere in the world, please see the list of Thermo Fisher Scientific offices worldwide on page 5–2 to 5–3.

Getting Technical Support

Here is the contact information for getting technical support for your Versa Controller.

Telephone—1-800-227-8891 (Select option 3 in the voice menu)

Please follow the prompts for "Technical Support" and have your Versa Controller serial number ready.

Fax—1-763-780-1537

Email

Please email us at Service.pimn@thermofisher.com. Please include your Versa Controller serial number in your message.

TFS Offices Worldwide

Here are the relevant details for contacting Thermo Fisher Scientific if you are located in Europe or other parts of the world.

Europe

If you are located in Europe and need technical support for your Versa Controller, please use the email address below.

Service.pi.eu@thermofisher.com. Please include your Versa Controller serial number in your message.

Rest of the World

Please choose the nearest Thermo Fisher Scientific office from the list below.

Africa
+27 (0) 11-609-3101
+27 (0) 11-609-3110 fax

Asia/Australia
+86 (0) 21 6865 4588
+86 (0) 21 6445 1101 fax

France
+33 (0) 160 92 48 00
+39 0521 2729-14 fax

Germany
+49 (0) 208-824930
+39 0521 2729-14 fax

India
+91 (20) 6626 7000
+91 (20) 6626 7001 fax

Italy
+39 0521 7886-1
+39 0521 2729-14 fax

Latin America
+52 (01) 55 5638 0237
+52 (01) 55 5639 2227 fax

Malaysia
+60 (0) 3 5122 8888
+60 (0) 3 5121 8899 fax

Netherlands
+31 (0) 31 76 579 5555
+39 0521 2729-14 fax

Poland
+48 (0) 22 651 75 30
+48 (0) 22 651 75 35 fax

Spain
+34 (0) 91-484-5965
+39 0521 2729-14 fax

United Kingdom
+44 (0) 1788-820300
+44 (0) 1788-820301 fax