HI-SPEED
Checkweighing

METTLER TOLEDO

XS Control

Multi-Lane Checkweigher
Operator Manual

66006620A
(1/2010)

©Mettler-Toledo Hi-Speed 2010
5 Barr Road
Ithaca, New York, U.S.A. 14850
607-257-6000
www.mt.com/hi-speed

No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose without the express written permission of Mettler-Toledo Hi-Speed.

U.S. Government Restricted Rights: This documentation is furnished with restricted rights.

X Series Access Code

The default settings (set by the manufacturer) of the access codes required for the operator access level and supervisor access level are as follows:

Operator access level: 2

Supervisor access level: 3

Remove this page and keep it in a safe location.

Should you lose this information contact:

Mettler-Toledo Hi-Speed's Service and Customer Support Teams

Email: hispeed.support@mt.com
or
Call: 1-800-836-0836
International: US 607-257-6000

Our highly trained staff is committed to ensuring your success with your Mettler-Toledo Hi-Speed product.

This page left intentionally blank.

Table Of Contents

Chapter **Page**

Chapter **Page**

Chapter **Page**

Chapter **Page**

1 Introduction

This control manual describes all possible functions for the XS Weighing Terminal. The featured functions depend on the version purchased. Read and understand this manual completely before operating the XS Weighing Terminal.

1.1 Chapter Organization

This manual is organized in 14 chapters. Under each chapter title there is a description of the chapter information with the access level required for the following functions and the path to reach the function(s). You will also find what to select on the touch screen to access the function or menu item that are shown in bold text format. The screen names are in *italics*.

Chapter 1 is the introduction which contains the safety icons used throughout this manual, contact information, disclaimers, safety information and precautions, how to use the alphanumerical and right/left arrows, enter, and the menu tree.

Chapter 2 contains the menu tree, the basic screen and how to navigate the screens, menus, and sub-menus.

Chapter 3 contains user setup information about how to how to log-in and log-off, user setup, password, language, profile properties, and how to create and delete profiles

Chapter 4 contains package setup and package maintenance such as; how to delete, create, edit, print, copy package information.

Chapter 5 contains information on the general setup of the checkweigher such as: time and date, rejecter setup, zone actions, and the motor setup & speed.

Chapter 6 contains the active package information such as: setting up the package, additional package setup, limit setup, zone recalculation, interval & batch changeover, rejecter adjustment, calibration, and dynamic calibration.

Chapter 7 contains the production data information such as: zone classification, statistics, records, charts, histogram and the large weight display.

Chapter 8 contains information about the state of checkweighers system, alerts & messages, allocated actions, and the XRTC the real time control of the X-Series checkweigher.

Chapter 9 contains information on how to backup and restore data.

Chapter 10 contains the possible Function Allocations. contains possible error messages.

Chapter 11 contains the Interface.

Chapter 12 explains the checkweigher function and list the common checkweigher terms.

chapter 13 contains error messages and actions to take, troubleshooting and emergency run.

Chapter 14 explains the checkweigher function and common terms used.

1.2 Audience

This manual is designed for operators who have a baseline knowledge of operator safety, typical mechanical operations, basic understanding of electrical connections, pneumatic operations and who have basic reading and math skills.

1.3 Contact Information

If technical support is needed, please contact the Mettler-Toledo Hi-Speed Service Department at 607-257-6000 or 1-800-836-0836.

1.4 Safety Icons

Throughout this manual you will find three safety icons (CAUTION, WARNING, & DANGER) and an information icon (**NOTE**). Pay particular attention to the CAUTION, WARNING, & DANGER icons as they contain information that is important to your safety and to the correct operation of the equipment. The information icon contains notes that give hints that could be useful to the operator.

The three safety icons:

CAUTION: Yellow exclamation mark in a black triangle.

WARNING: Black exclamation mark in a yellow triangle.

DANGER: Red exclamation mark in a white triangle.

NOTE: Lower case with a bold NOTE:

Symbol icons alert the operator to potential hazards. The following three safety icons represent three distinct degrees of safety precautions to be observed by the operator.

CAUTION

CAUTION MEANS THAT THE FOLLOWING PROCEDURE MIGHT RESULT IN SOME MATERIAL DAMAGE TO YOUR EQUIPMENT OR LOSS OF INFORMATION IF YOU DON'T FOLLOW THE SPECIFIC INSTRUCTIONS DESCRIBED IN THE PROCEDURE.

WARNING

WARNING MEANS THAT THE FOLLOWING PROCEDURE MIGHT INJURE THE OPERATOR OR PERSONNEL WORKING AROUND THE MACHINE IF THE PROCEDURE ISN'T EXECUTED WITH ALL THE CARE DESCRIBED IN THE TEXT.

DANGER

DANGER MEANS THAT THE FOLLOWING PROCEDURE MIGHT SEVERELY OR FATALLY INJURE THE OPERATOR OR PERSONNEL WORKING AROUND THE MACHINE IF THE PROCEDURE ISN'T EXECUTED WITH ALL THE CARE DESCRIBED IN THE TEXT.

Below are some examples of the hazard warning stickers found on this system:

1.5 Disclaimers

Satisfactory operation of this machine depends on proper application, correct installation, and adequate maintenance. In addition, modification to the equipment may result in less than satisfactory performance.

- It is the customer's responsibility to clean and do regular maintenance to this machine.
- DO NOT modify your machine without prior authorization from METTLER TOLEDO HI–SPEED.
- If you need additional **stickers, please contact your local METTLER TOLEDO HI-SPEED Service Department. We will provide stickers free of charge.**

DANGER

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH THE POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

1.6 Safety Information

- E-Stops (Emergency Stop) are an essential safety component. The E-Stop can be located on the front or side of the machine or possibly on the side of the enclosure.
- Pressing the E-Stop button will stop the conveyor and shut off power to the motor.
- After an E-Stop condition, wait 15 seconds for the motor to clear a fault before starting the machine again.
- To start the machine after an E-Stop pull out the E-Stop button.

1.7 Precautions

- Do not wear clothing that can be caught on this system.
- Never operate this equipment without the guards in place.
- Always observe safety warnings and notices on the machine and in the manual.
- After turning the machine off, wait at least 15 seconds before starting again.

CAUTION

A WAIT OF AT LEAST 15 SECONDS AFTER TURNING THE MACHINE OFF IS REQUIRED BEFORE TURNING THE MACHINE BACK ON, OTHERWISE THE ELECTRONICS MAY BE DAMAGED.

1.8 Electrical Connections

WARNING

CUSTOMER POWER INTRODUCTION MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN OR TECHNICIAN WHO IS KNOWLEDGEABLE ABOUT THE LOCAL PLANT, STATUTORY AND LEGAL SAFETY RULES.

1. Your equipment was disconnected for shipping, interconnect all components as shown in the drawings provided.
2. Before connecting electrical power to the checkweigher system check the following:

☐ The Power **YOU** are providing _____ V, _____ Ø

☐ The power indicated on the **LABEL** adjacent to the disconnect _____ V, _____ Ø

☐ The power identified on the **POWER INTRODUCTION DRAWING** included in the customer manual _____ V, _____ Ø

If the values listed above Do Not Match, **STOP**, and call Mettler-Toledo Hi-Speed Service at 1-800-836-0836 with the machine job number.

- Power is introduced to the Checkweigher control as a single drop for end-user ease of integration.
- Power your system from a light-duty, transient-free line.
- DO NOT supply power to the checkweigher from the same power line as other machinery.
- DO NOT power the checkweigher from a service outlet built into another machine.

1.8.1 Provide A Proper Ground

- Connect the control to your building ground grid, using a continuous 14 gauge or larger stranded wire for the ground connection. DO NOT use wire nuts. Refer to the power introduction drawing in the customer manual.
- The ground wiring must have a total resistance of one ohm or less.
- Use the ground lug located inside the enclosure on the upper right side.
- DO NOT use the checkweigher frame, other machinery, or building structural members as ground connections.
- DO NOT daisy–chain ground connections.

Figure 1.1: Ground Wire

1.8.2 Wire Split Procedure (For Shielded Cable)

Step 1: Pull the cable through the control cabinet conduit located on the bottom of the enclosure. Pull enough cable through to ensure that it reaches the required termination terminals.

Step 2: Once the cable is pulled through the correct length, mark the cable where it just clears the conduit or cord-grip into the control enclosure. Then pull another foot of cable through to temporarily allow for easy access.

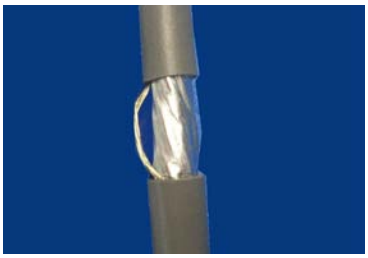


Figure.1.2: Outer Jacket Cutaway

Step 3: At the cable mark, carefully cut the outer jacket enough to access the bare shield wire or wrap. Separate the shield wire (or wrap) from the other cable conductors to allow the shield extension wire can be j-hooked and soldered to it.

NOTE: **1.** A shield wrap will have to be pulled away and twisted together.

2. Multiple wrapped shield wire will have to be soldered individually.

Figure 1.3: Soldered J-Hook

Step 4: Obtain a 6-inch length of grounding wire (minimum 18 AWG, green/yellow). Crimp a ring-tongue terminal on one end sized to fit over the (typically M5) grounding studs adjacent to the conduit/cable entry, and strip 1/4-inch of insulation from the other end, which will be used as the shield extension wire.

Step 5: J-hook the stripped end of the shield extension wire to the bare shield wire and solder.

Step 6: Slide the shrink-wrap sleeve over the cut cable with the soldered ground wire, and apply heat to shrink. Be sure that the ground wire is routed towards the inside of the enclosure.

Figure 1.4: Shrink-Wrapped Wire

Step 7: Slide the cable out of the cabinet about 1-foot through the conduit or cord-grip, and tighten the cord grip if available.

Step 8: Slide the ground wire terminal over an adjacent grounding stud, add a flat washer, lockwasher, and nut then tighten.

Figure 1.5: Attached Ground Wire

1.9 End-User Power Introduction

WARNING

END-USER POWER INTRODUCTION MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN OR TECHNICIAN.

Follow all governing safety standards (e.g., NEC, NFPA), plant, and local safety practices when installing this equipment and introducing power.

Disconnect practice follows NFPA 79.

Make sure the Primary Disconnects is OFF and lock-out/tag-out according to your plant safety specifications.

End-user power is introduced on the side of the enclosure through a short conduit to the Primary Disconnect.

Verify that the power identified on the drawings and posted on the inside of the control enclosure agree.

If the power identification Does Not Match, **STOP**, and call Mettler-Toledo Hi-Speed Service at 1-800-836-0836 with the machine job number.

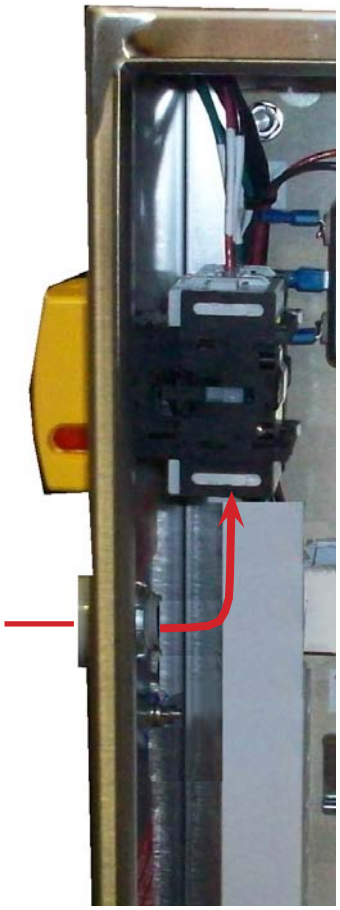


Figure 1.6: X-Series End-User Power Input

This page left intentionally blank.

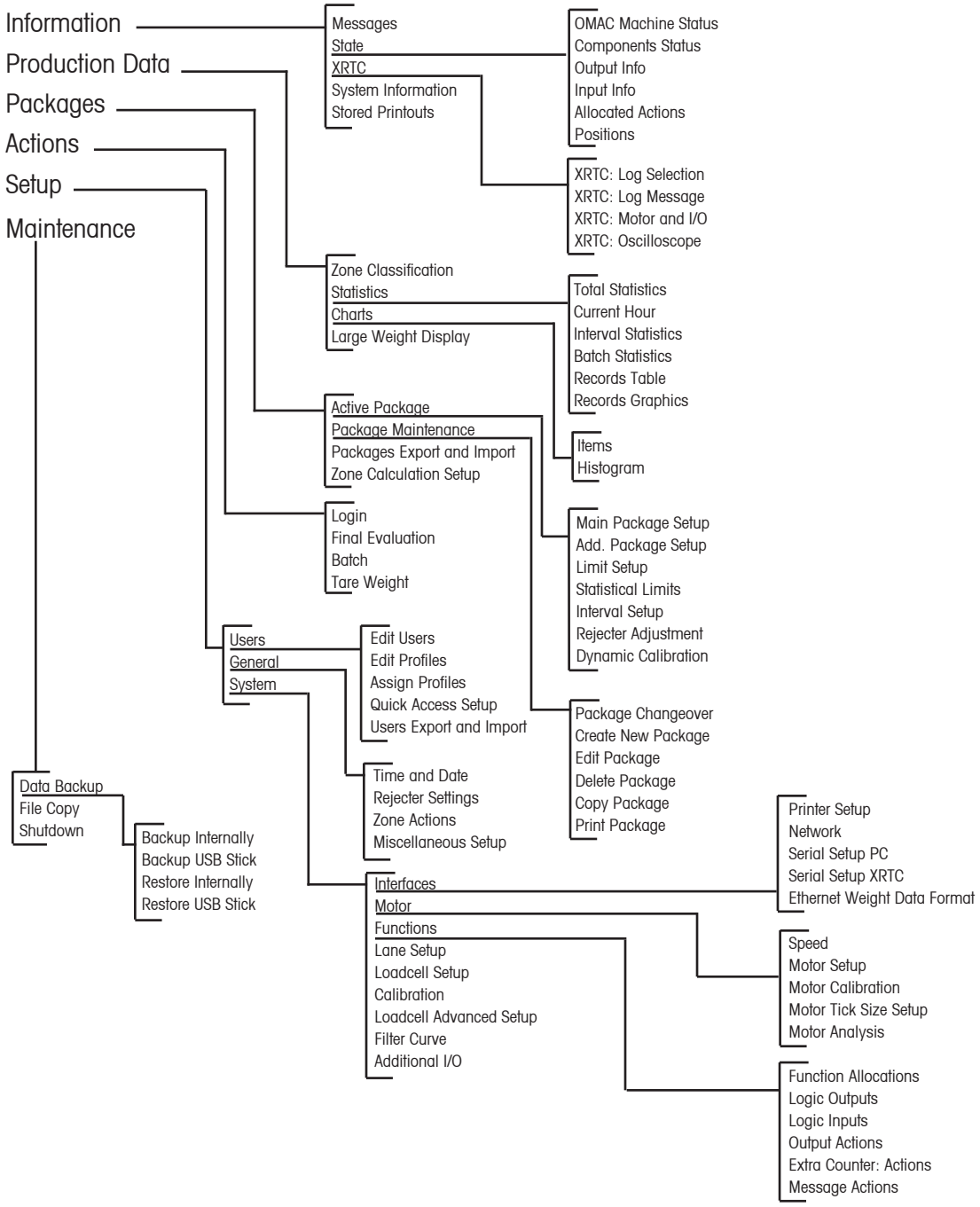
2 Control Screen, Navigation, And Menus

This chapter contains the basic screen layout, how to navigate and the possible menus. The featured functions depend on the options purchased. Read and understand this manual completely before operating the XS Weighing Terminal.

If there is something you don't understand in this manual please contact HI-SPEED at 1-800-836-0836 before attempting to operate the checkweigher.

2.1 Menu Tree

2.1.1 Main Menu And Sub-Menus – Supervisor Access Level



2.2 Touchscreen

Access rights are determined by the supervisor and therefore Monitor or Operator may not have access or be able to view some menus or sub-menus.

The available access rights are:

- Monitor
- Operator
- Supervisor

The menu shape indicates its functionality:

Menu Shape	Function
Information	Square with an arrow: Opens a sub-menu
Messages	Rounded on one end: Opens a screen

Make selections only with your finger.

NOTE: Using pointed objects, e.g. a screw driver or ball point pen can damage the screen and cause it to malfunction.

As an alternative, packages and other data can also be entered using a PC keyboard using the USB interface located on the weighing system.

2.3 XS Multi-Lane Basic Screen

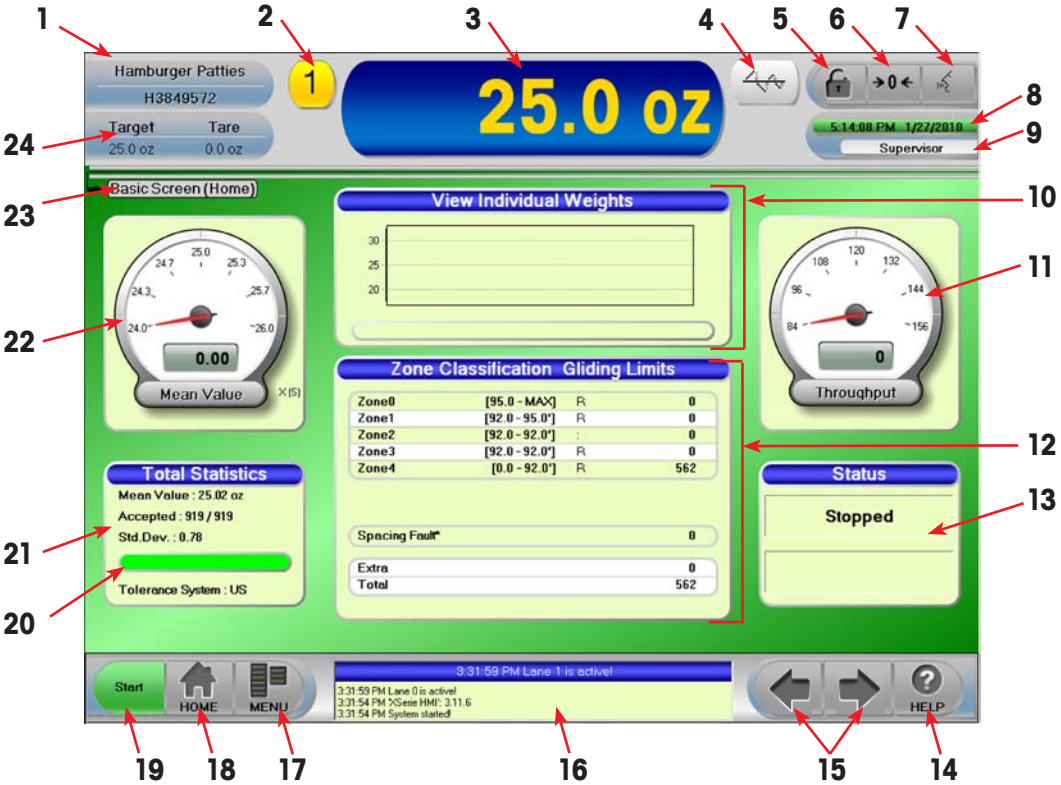


Figure 2.1: Main Screen

No.	Description
1	The current package name and code number. When selected toggles to the *Package Changeover* screen.
2	Icon listing the current lane weight display
3	Weight display – shows weight of current item on weigh section. When selected toggles to the full-screen weight display with 2 vertical graphs (one for each lane).
4	Feedback icon (only displays if Feedback is purchased)
5	Selecting the padlock icon displays the *Login* screen.
6	The Rezero icon allows for manual rezeroing of the system when the weigh platform is empty.
7	Select the language icon to temporarily switch languages.
8	The current date and time and the countdown until the user is logged off the system. After the user is logged off, automatically or otherwise, the status bar turns red.
9	Current logged in profile name.
10	Indivual item weight chart, when selected, toggles to the *Items* screen.
11	The current throughput, when selected, toggles to the *Speed* screen.
12	Package zone classification parameters.
13	Current system status.
14	The Help icon (?) displays information about the current screen..
15	This area contains, when appropriate, left and right arrows to help move between recently viewed screens (functions like browser arrows).
16	Message area shows system information about alarms and errors. When selected, toggles to the *Message* screen.
17	Menu listing icon will display the screens available to the current user.
18	Home icon returns the user to this *Basic* screen.
19	Conveyor status.
20	Interval production setup
21	Statistics summary.
22	Current mean value when selected, toggles to *Select Gauge Value*.
23	Current screen name.
24	Current package target weight and tare, when selected, toggles to *Main Package Setup*.

2.4 Alphanumeric Entries

Characters and numbers can be entered either by a keyboard connected to the system via USB or by selecting the the touchscreen keyboard.

The USB will be located on the side of the control cabinet or the control box.

Figure 2.3: USB Location

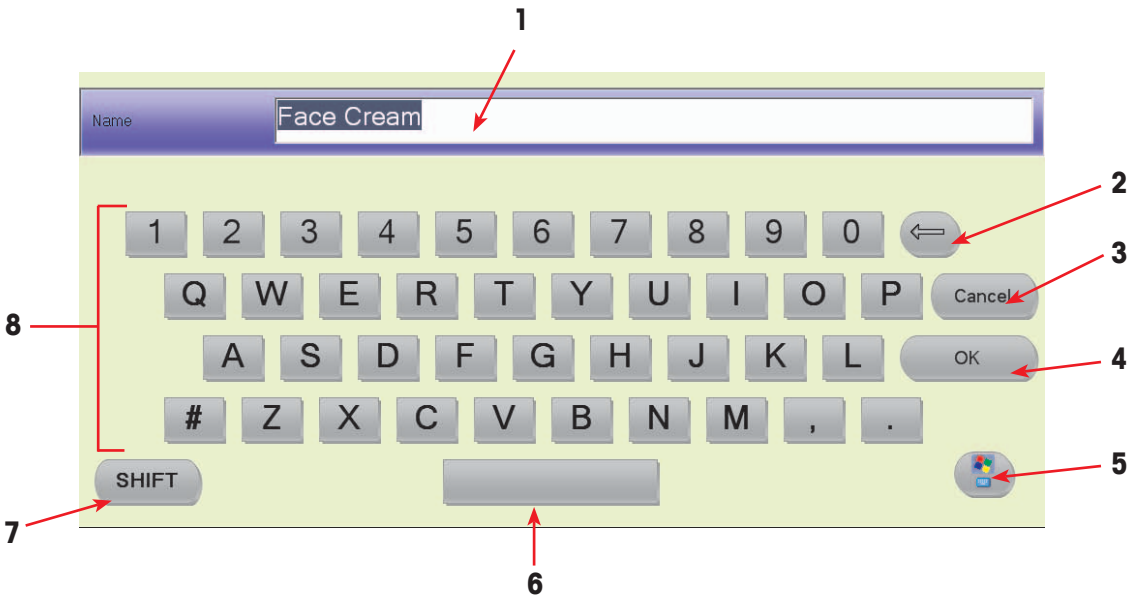


Figure 2.2: Alphanumeric Keyboard

Item	Description
1	Input field display.
2	Backspace. For correcting typing errors; characters to the left of the cursor are deleted when this is selected
3	Cancel. Cancels the input without saving anything and returns to previous screen..
4	OK. Input and selections are saved then the window closes.
5	Changs to a keyboard with a numerical pad.
6	Space bar. Enters a space into the input field display.
7	Shift. Allows for capital letters.
8	Virtual keyboard. Similar to a qwerty keyboard.

2.5 Numeric Keypad

A numeric keypad displays when a numeric entry is required e.g., change the product length.

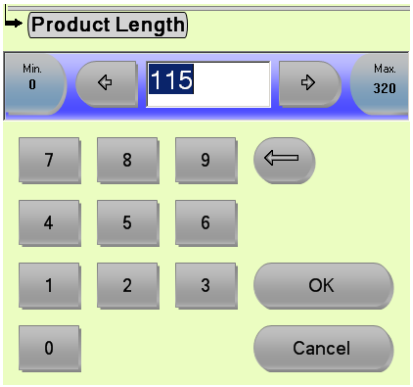
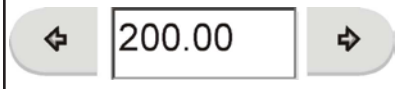
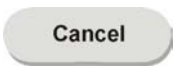


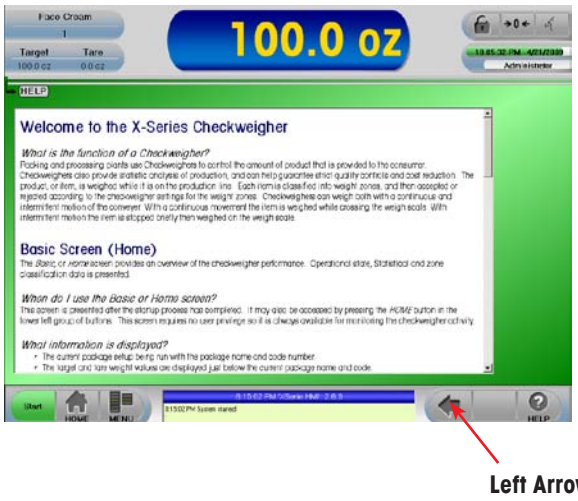
Figure 2.3: Numeric Keypad

Item	Description
 **Minimum**	Indicates the minimum value allowed for an entry. When selected displays the minimum value.
 **Decrease** **Increase**	Displays current values in the numerical input field. Selecting the left arrow decreases the displayed value. Selecting the right arrow increases the displayed value.
 **Maximum**	Indicates the maximum value allowed for an entry. When selected displays the maximum value.
 **Backspace**	For correcting typing errors; characters to the left of the cursor are deleted when the backspace is selected.
 **Current load**	Stores the current load on the weigh cell in the numerical input field. The conveyor must be stopped and a package must be present on the weigh conveyor.
 **OK**	Input and selections are saved then the window closes.
 **Cancel**	Cancels the input without saving anything and returns to previous screen.
 **Decimal point**	Decimal point.
 **Numbers 0 through 9**	Numeric keypad.

2.6 Help

To find information on the X-series controller, select **?** on the lower right corner of the screen. Information about the current screen will display.

You will find an explanation about the current screen, along with links to additional information.



To exit the *Help* screen select the **Left** arrow. The Basic Screen (Home) displays.

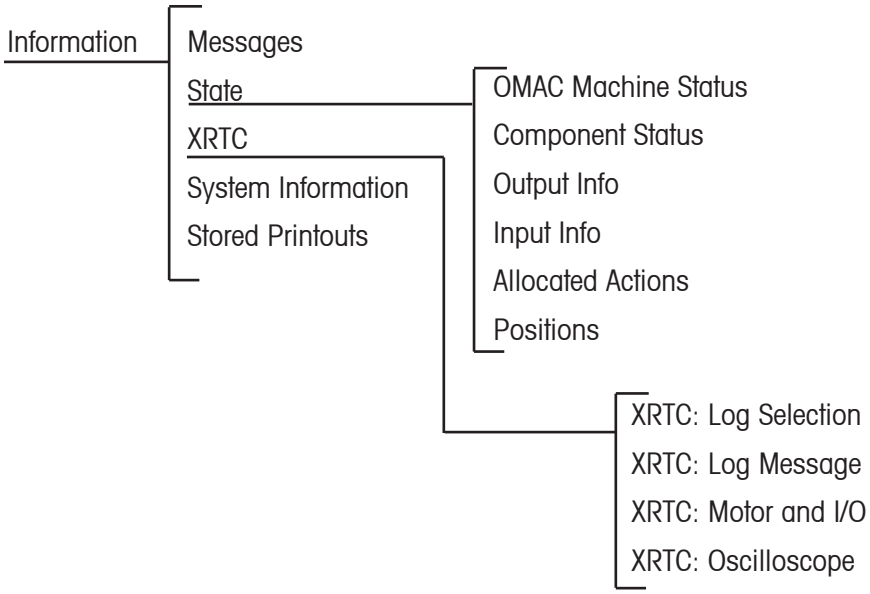
2.7 Information Menu – Supervisor Access Level

2.7.1 Information Menu

The information menu contains the following items:

- System information
- Information about the checkweigher and its components
- Software version installed
- Stored printouts of statistics and evaluations

NOTE: Technician access is required for XRTC.

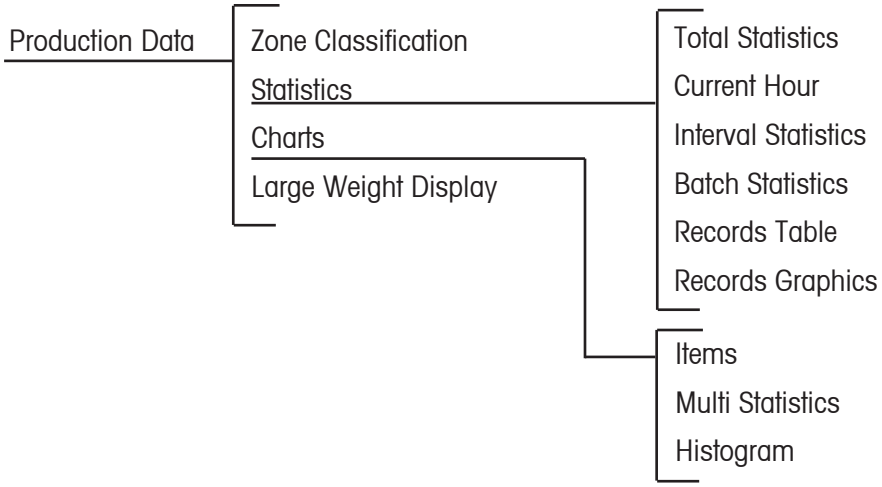


2.7.2 Production Data Menu

The Production data menu contains the following items:

- Displaying weighing zones with all parameters
- Statistics (total statistics, current hour, interval statistics, batch statistics)
- Display single records

NOTE: Supervisor access is required for these functions.



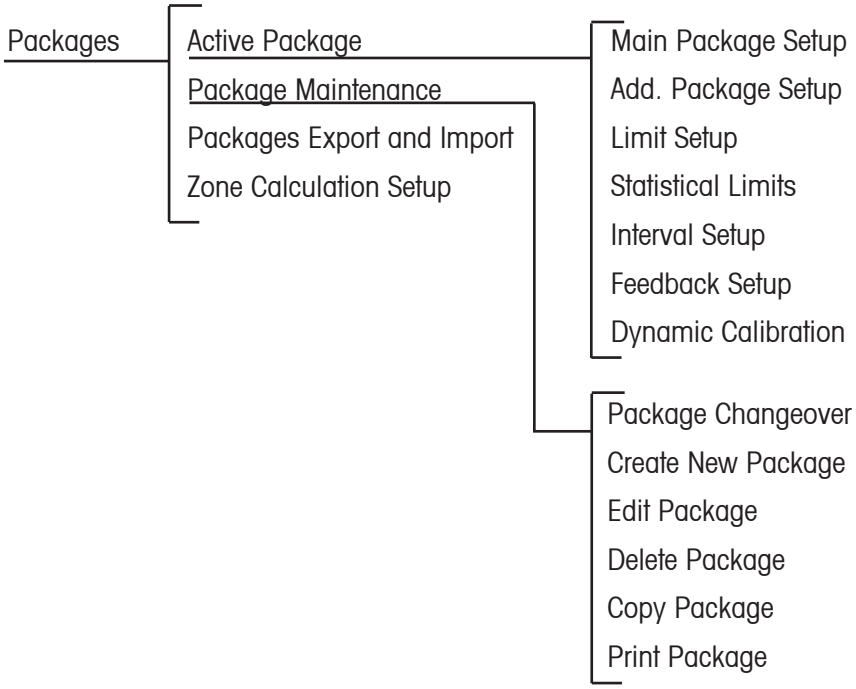
2.7.3 Packages

In the Packages menu specifications and settings for packages can be entered, recalled, and revised:

Packages menu contains the following items:

- Recall and change settings for an active package
- Change, create, edit, delete, copy, or print a package in the package database

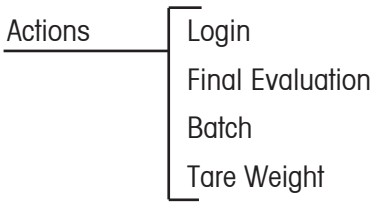
NOTE: Supervisor access is required for these functions.



2.7.4 Actions

The Actions menu allows users to enter their name and password for access, do a final evaluation, create a batch, and enter a tare weight.

NOTE: Supervisor access is required for the final evaluation, batch, and tare weight functions.

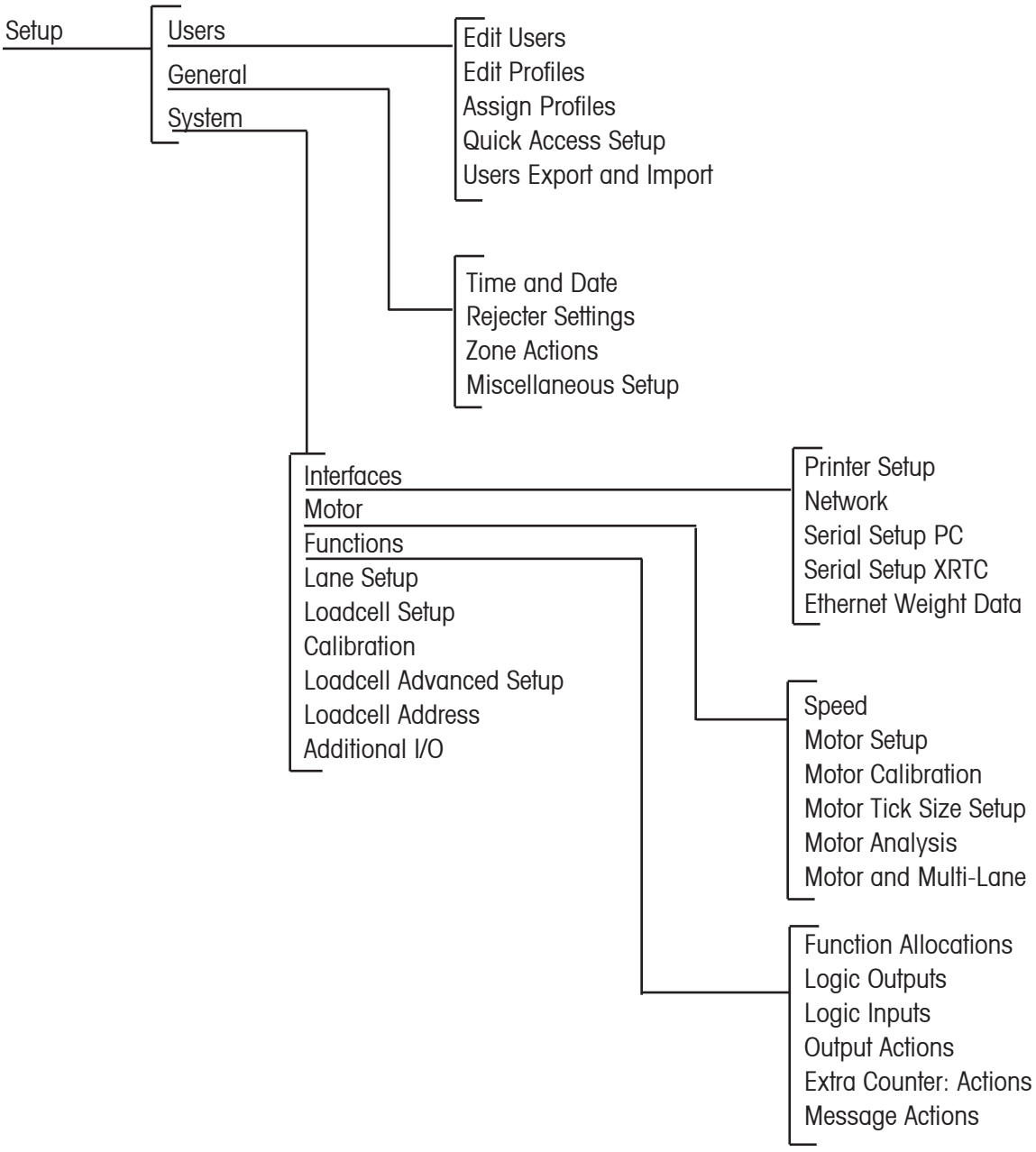


2.7.5 Setup

The Setup menu contains the following items:

- Adding and editing user profiles
- Date and Time
- Operation parameters (motor, rejecters, and zone setup)

NOTE: Supervisor access is required to make edits to these functions.

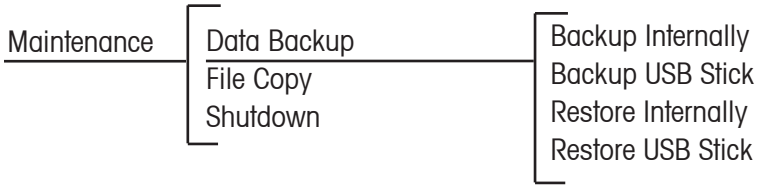


2.7.6 Maintenance

The Maintenance menu contains the following items:

- Backup data
- View manufacturing data
- Restore data
- Copy files

NOTE: Supervisor access is required for these functions.



2.8 Access Levels

The weighing terminal is normally in *Monitoring* mode which is "full protection mode". The XS control is working, but important parameters cannot be changed except by a supervisor. The access levels are specified in the user profile, which is assigned to each user by a supervisor. The following access levels have been defined and can be modified by a supervisor.

Profile	Access
Monitoring	Views statistics and indicators; no password; but can be password protected
Operator	In addition to monitor, operator access is able to change packages and print statistics
Supervisor	In addition to operator, supervisor access is able to create, copy, and delete packages, adjust rejecters, assign zone actions, backup data, and update software.

NOTE: Supervisor access is required to change the profile for Monitor and Operator.

3 Setup – Users And User Groups

This chapter contains information about how to login, logout, and setup user profiles.

3.1 User Login

Access Level: Monitor, Operator, Supervisor

Path: Menu–Actions–Login

Shortcut: Select the **Padlock** located on the upper right of the *Home* screen.

Figure 3.1: Locked Padlock

The *Login* screen displays.

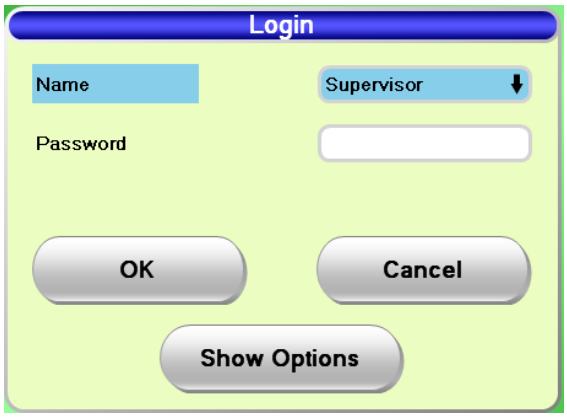


Figure 3.2: Login Screen

Select **Name** and a drop down list displays. Select the user *Name* from the drop down list then select **Password** and a keyboard displays for the password.

Type your password and select **OK**. Select **OK** again to return to the *Home* screen.

Once a user is logged in, the padlock unlocks and the user name, date, and auto logoff countdown time displays. The auto logoff countdown time is the set number of minutes of inactivity before the current user is automatically logged off and the control goes into Monitoring mode.

When the screen is selected or activated by the user the time resets back to the original countdown time.

Figure 3.3: Unlocked Padlock

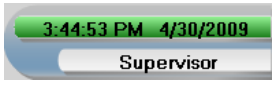


Figure 3.4: Login Name, Date, and Auto Logoff Time

When the user time expires the control returns to Monitoring mode.

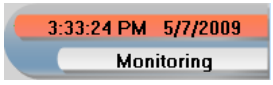


Figure 3.5: User Time Expired

3.2 Edit Profiles

Access Level: Supervisor

Path: Menu–Setup–Users–Edit Profiles

The *Edit Profiles* screen is used to add, remove, edit user profiles, and to edit the properties of a user profile, or group of users.

To enable the profile properties select the **Red Dash** and it turns into a **Green Checkmark**. Select the green checkmark to toggle back to a red dash. The green checkmark allows a change. To accept the changes select **Apply**.

3.2.1 Profile Properties

If additional profiles are required, new profiles may be created. If a new profile is similar to one already listed in *Profile List* chose the user and select **Add** to create a new profile. Edit the profile *Name* to properly identify this group of users.

Figure 3.6: Edit Profiles Screen

Edit Profiles Screen Definitions

Name	Description
Name	User name (Only displays for added user)
Automatic Logoff	Automatically logs off a user after the allotted amount of time has passed
Failed Logins	Number of login attempts that can be made before being locked out
Min. Password	Minimum character length required for a password
Password Expiration	If Green Checkmark, number of days until a password needs to be changed
Change Password	If Green Checkmark, enables user to change their own password If Red Line, user is not able change their password`
Add	Add a user
Remove	To remove a user

3.2.2 Automatic Logoff

Access Level: Supervisor

Path: Menu–Setup–Users–Edit Profiles

Under *Profile List* select the user then select **Auto Logoff** in the next field. Notice the red dash turns into a green checkmark when enabled. To disable select again to change to a red dash.

Auto Logoff is the amount of time, set in minutes, of inactivity before the current user is automatically logged off and the control goes into Monitoring mode.

Figure 3.7: Auto Logoff Screen

3.2.3 Failed Logins

Access Level: Supervisor

Path: Menu–Setup–Users–Edit Profiles

Under *Profile List* select the user then select **Failed Logins** in the next field. Notice the red dash turns into a green checkmark when enabled. To disable select again to change to a red dash.

When enabled (Green Checkmark), *Failed Logins* is how many times a user can "fail to login" before they are locked out and need to have their password reset by the Supervisor or higher access level.

Figure 3.8: Edit Profiles Screen - Failed Login

3.2.4 Password Length

Access Level: Supervisor

Path: Menu–Setup–Users–Edit Profiles

Under *Profile List* select the **user** then select **Min. Password** in the next field. Notice the Red Dash turns into a Green Checkmark when enabled. To disable select again to change to a red dash.

Enter the minimum characters required for a password and select **Apply**. Passwords may be as short as 2 characters.

Figure 3.9: Edit Profiles Screen - Minimum Password

If a password does not comply with the required minimum length an error message displays, select **OK** and enter another password.

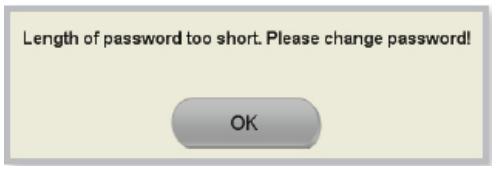


Figure 3.10: Minimum Length Password Error Message

3.2.5 Password Expiration

Access Level: Supervisor

Path: Menu–Setup–Users–Edit Profiles

If *Password Expiration* is enabled (Green Checkmark) the user password will be disabled after the preset number of days from the initial setting of the password.

Upon the first successful login with a new password the system records this date. This date is used as a reference for calculating the remaining time until the password expires.

The user is notified when the remaining time is less than 10 days to change their password. If the user's password is not changed within the 10 days then that user account is blocked and can be setup by a Technician or higher access level.

If *Password Expiration* is disabled (Red Dash) the user password stays enabled.

Figure 3.11: Edit Profiles Screen - Password Expiration

3.2.6 Change Password

Access Level: Supervisor

Path: Menu–Setup–Users–Edit Profiles

If *Change Password?* is enabled (Green Checkmark) the user can change their password.

If *Change Password?* is disabled (Red Dash) the user cannot change their password.

Figure 3.12: Edit Profiles Screen - Change Password

3.3 Changing The Password

Access Level: Supervisor

Path: Menu–Actions–Login

Select **Name** and enter the password then select **Show Options** to enable.

From the *Login* screen select **Show Options**. Select the **Change Password?** field to activate then select **OK**.

Figure 3.13: Changing Password Screen

Change Password Screen Definitions

Name	Description
Old Password	Type old password
New Password	Type new password
Current New Password	Re-type new password
Apply	Enables new password
Cancel	Cancels password change

3.4 Operating Languages

Access Level: Supervisor

Path: Menu–Setup–Users–Edit User

A different language can be chosen for each user. The user language will be used upon a successful login.

Select **Name** and enter the **Password** then select **Show Options** to enable.

Figure 3.14: Changing Language Screen

3.4.1 Temporary Language Change

To temporarily change the screen language for a user, select the language icon located on the upper right on the *Home* screen. The language drop down list displays. Select the temporary language and select **OK** to enable.

Figure 3.15: Language Icon

3.4.2 Timeout Language

Access Level: Supervisor

Path: Menu–Setup–General–Miscellaneous Setup

When the control is first turned on or goes into Monitoring mode it uses the Timeout language chosen in *Miscellaneous Setup*.

NOTE: Supervisor access level is required to change the timeout language.

Figure 3.16: Timeout Language

3.5 Creating User Profiles

Access Level: Supervisor

Path: Menu–Setup–Users–Edit Profiles

Local policies may indicate that more user profiles or user groups need to be defined. Each profile may require access to different screens.

3.5.1 How To Create A New Profile

Select **Add**. A new profile is created with a temporary name "*P#*". Select **Name** and change the name on the keyboard. If the name is already in use, then there will be an underscore after the name e.g. Operator_.

Figure 3.17: Add New User

Edit Users Screen Definitions

Name	Description
Name	User name
Automatic Logoff	If Green Checkmark, automatically logs off a user after the allotted amount of time has passed
Failed Logins	Number of login attempts that can be made before being locked out
Min. Password	Minimum character length required for a password (min. 2)
Password Expiration	If Green Checkmark, enables the number of days until a password needs to be changed If Red Line the password will not expire
Change Password	If Green Checkmark, enables user to change their own password If Red Line, user is not able change their password
Level	Level of user

3.5.2 How To Delete A Profile

Access Level: Supervisor

Path: Menu–Setup–Users–Edit Profiles

Only a created profile can be deleted. Select the desired profile in the *Profile List* and select **Remove**. A confirmation displays.

Figure 3.18: Delete Profile Confirmation

If a profile cannot be deleted this confirmation displays.

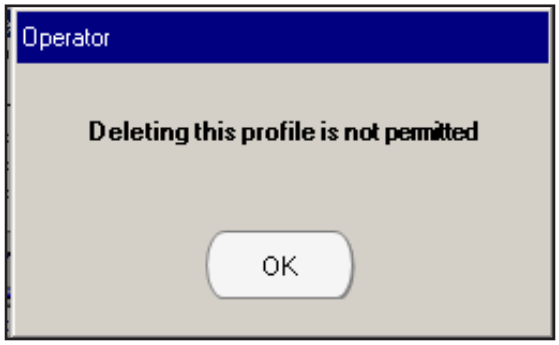


Figure 3.20: Delete Profile Confirmation

3.6 Allocating Screens To User Profiles

Access Level: Supervisor

Path: Menu–Setup–Users–Assign Profiles

This screen is used to add or remove screen access for a given user profile.

The profiles supplied with the checkweigher (e.g. monitor, operator, and supervisor) provide settings, which can be modified by the supervisor.

- The *Profile List* contains all users.
- *Available Screens* contains all functions and settings available on the checkweigher.
- *Allocated Screens* list functions and settings allocated to the respective profile.

3.6.1 Adding A Screen To A Profile

1. Select the **user** under *Profile List*.
2. Under *Available Screens* scroll to the desired screen and select the screen to be added then select the **Right Arrow**. The selected screen will be added to the *Allocated Screens* list.

3.6.2 Removing an Allocated Screen

1. Select the **user** under *Profile List*.
2. Under *Allocated Screens* selected the desired screen to be removed and select the **Left Arrow** to remove the screen from the *Allocated Screens* list.

Figure 3.21: Operator Allocated Screens Sample

3.6.3 Default Allocated Screens For Each Profile

Below is a list of default allocated screens assigned to each profile.

Monitor	Operator	Supervisor	
Basic Screen (Home)	Basic Screen (Home)	Basic Screen (Home)	Zone Calculation Setup
Actions [____]	**Actions [____]**	**Actions [____]**	Statistical Limits
Login	Batch	Batch	**Production Data [____]**
Information [____]	Final Evaluation	Final Evaluation	Batch Statistics
Components Status	Login	Login	Current Hour
Messages	Tare Weight	Tare Weight	Interval Statistics
OMAC Machine Statue	**Information [____]**	**Information [____]**	Items
Positions	Components Status	Allocated Actions	Large Weight Display
System Information	Messages	Components Status	Records
XRTC Motor and IO	OMAC Machine Statue	Input Info	SPCTrend
Maintenance [____]	Positions	Messages	Total Statistics
Packages [____]	Stored Printouts	OMAC Machine Status	Zone Classification
Production Data [____]	System Information	Output Info	**Setup [____]**
Batch Statistics	XRTC: Log Message	Positions	Assign Profiles
Current Hour	XRTC Motor and IO	Stored Printouts	Calibration
Interval Statistics	XRTC: Oscilloscope	System Information	Edit Profiles
Items	**Maintenance [____]**	XRTC: Log Message	Edit Users
Large Weight Display	**Packages [____]**	XRTC Log Selection	Extra Counter: Actions
Total Statistics	Package Changeover	XRTC Motor and IO	Filter Curve
Zone Classification	Print Package	XRTC: Oscilloscope	Function Allocations
Setup [____]	**Production Data [____]**	**Maintenance [____]**	Lane Setup
	Batch Statistics	Backup Internally	Logic Inputs
	Current Hour	Backup USB Stick	Logic Outputs
	Interval Statistics	File Copy	Message Actions
	Items	Restore USB Stick	Miscellaneous Setup
	Large Weight Display	Shutdown	Motor Analysis
	Records	**Packages [____]**	Motor Calibration
	Records Graphics	Add. Package Setup	Motor Setup
	SPCTrend	Copy Package	Motor Tick Size Setup
	Total Statistics	Create New Package	Network
	Zone Classification	Delete Package	Output Actions
	Setup [____]	Dynamic Calibration	Printer Setup
	Quick Access Setup	Edit Package	Quick Access Setup
	Speed	Interval Setup	Rejecter Settings
		Limit Setup	Serial Setup PC
		Main Package Setup	Serial setup XRTC
		Package Changeover	Speed
		Packages Export and Import	Time and Date
		Print Package	User's Export and Import
		Rejecter Adjustment	Zone Actions
		SPC Interval Setup	

3.7 Quick Access Setup

Access Level: Operator, Supervisor

Path: Menu–Setup–Users–Quick Access Setup

The *Quick Access Setup* screen permits each user to create a custom menu of screens. The custom screen list is available for direct navigation from the base menu level under *Quick Access*.

The *Allocated Screens* box provides the list of screens currently available to the user from the *Quick Access* menu.

From the *Available Screens* list select the desired screen then select the **Right Arrow** to move to the screen to the *Allocated Screens* list. Select **Home** then select **Apply** to confirm.

To remove a screen from the *Quick Access* menu, select the screen in the *Allocated Screens* list, then select the **Left Arrow** to move that screen back to the *Available Screens* list then select **Apply** to confirm.

Figure 3.20: Quick Access Available Screens

Once an *Allocated Screen* is setup to the *Quick Access* menu then that screen is available at the base menu level which allows quick navigation to favorite screens.

Path: Menu–Quick Access

Figure 3.21: Quick Access Menu and Sub-Menus

3.8 Users Export and Import

Access Level: Supervisor

Path: Menu–Setup–Users–Users Export and Import

This screen provides a backup and restore for all existing users defined on the checkweigher plus the backed up users can be copied to other checkweighers at the facility. The user password is encrypted in the export file.

The user information is stored on the connected USB stick in a directory structure specific to the host machine. The files will be stored in a folder based on the Serial Number of the host system. This Serial Number can be found on the *System Information* screen.

Example: if a Machine's Serial Number is 001, user data will be stored in -E:\XS\001\Transfer\ExportUsers.XML

3.8.1 Users Export

1. Insert the USB stick into the Checkweigher USB port.
2. Select **Export**.

3.8.2 Users Import

NOTE: We recommend a backup before performing this operation.

1. Insert the USB stick into the target Checkweighers USB port.
2. Select **Import**.
3. Select **Yes** to overwrite the existing data and browse to the target user entry archive folder as described in the Example above. Select the .XML file which stores the users information and select **OK** to complete the import.

Figure 3.22: Users Export and Import Screen

4 Packages

This chapter contains information about package setup and package maintenance.

Access Level: Operator, Supervisor

Path: Menu–Packages–Package Maintenance

4.1 Package Maintenance

The Package Maintenance menu allows you to change, create, edit, copy, print, or delete packages. All screens for performing these actions provide the same navigation tools.

4.2 Create New Package

Access Level: Operator, Supervisor

Path: Menu–Packages–Package Maintenance–Create New Package

Up to 200 packages can be created on the *Create New Package* screen.

Select a **yellow field** then select **Create Now**.

Figure 4.1: Create New Package Screen

Screen Name	Description
Blue Field	Existing package setup
Yellow Field	Empty field
Left Arrow	Back one field
Create Now	Opens a field for package setup
Right Arrow	Forward one field

The *Main Package Setup* screen opens.

From this screen you can select a field and the keypad opens for naming and setting the parameters for the created package then select **OK**.

Figure 4.2: Main Package Setup Screen

Main Package Setup Screen Definitions

Screen Name	Description
Name	Name the package
Target Weight	This value is the nominal or desired net package weight
Tare Weight	Weight of the packaging material(s)
Target Throughput	Packages per minute over the weigh scale
Code	Customer package code
Unit	Choose ounces or piece count
Unit of Measurement	mm, cm, inch, m
Statistics (Optional)	Choose to collect statistics on this package, or not, by enabling the green check mark. If red dash then statistics is not enabled.

Once a package is created and stored in the package database, additional functionality like editing, copying, changing, or deleting packages can be performed.

The new package confirmation displays.

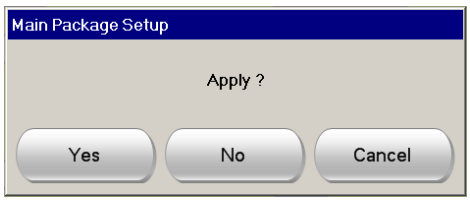


Figure 4.3: New Package Confirmation

4.3 Edit Package

Access Level: Supervisor

Path: Menu–Packages–Package Maintenance–Edit Package

This *Edit Package* screen opened in table view.

Figure 4.4: Edit Package Screen (Table View)

If you prefer list view then select **Change to List View**.

Figure 4.5: Edit Package Screen (List View)

Select the desired package then select **Edit**.

The *Main Package Setup* screen opens for editing. See Main Package Setup Screen Definitions table on previous page for descriptions. Make the edits and select **Apply**.

4.4 Delete Package

Access Level: Supervisor

Path: Menu–Packages–Package Maintenance–Delete Package

Select the field to delete and select **Delete Now**. A confirmation displays.

Figure 4.6: Delete Package Screen

Delete Package Confirmation displays.

Figure 4.7: Delete Package Confirmation

4.5 Copy Package

Access Level: Supervisor

Path: Menu–Packages–Package Maintenance–Copy Package

Select the package to copy then select **Copy**.

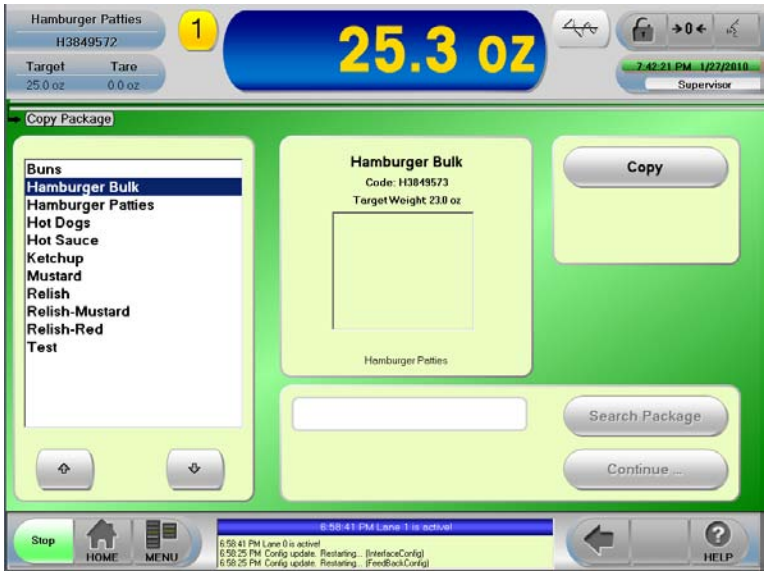


Figure 4.8: Copy Package Screen (List View)

Select a **Yellow Field** then select **Copy**.

Figure 4.9: Copy Package Screen (Table View)

The Main Package Screen displays.

The *Name* and *Code* will display with (Copy) beside them. Select the appropriate fields to make changes then select **Apply**.

Figure 4.10: Main Package Screen

4.6 Print Package

Access Level: Supervisor

Path: Menu–Packages–Package Maintenance–Print Package

Select the field to print then select **Print**. A Preview confirmation displays.

NOTE: From this screen you can toggle between table or list view.

Figure 4.11: Print Package Screen

4.7 Article Search

Access Level: Supervisor

Path: Menu–Packages–Package Maintenance–Package Changeover

NOTE: *Package Changeover* screen must be in List View.

Select the **Search Package** field and the keypad opens, type the package name or a general word such as Hamburger or Hot to search and select **OK**, select **Continue** to view the next**.**

Figure 4.12: Package Changeover Screen

4.8 Adding Article Photo

A photo of a package can be added to the Package Setup. Take a picture then store it on a USB stick. Plug-in the USB stick and open *Add. Package Setup* screen (see path).

Access Level: Supervisor

Path: Menu–Packages–Active Package–Add. Package Setup

The *Add. Package Setup* screen opens. Select the **Red Dash** — or photo field to open the list of available photos that are stored on your USB stick. Select the desired photo then select **OK**.

Figure 4.13: Add. Package Setup Screen

4.9 Package Changeover

Access Level: Supervisor

Path: Menu–Packages–Package Maintenance–Package Changeover

Shortcut: Select the current package

The *Package Changeover* screen opens. Select the desired package then select **Changeover**.

Figure 4.14: Package Changeover Screen

After a package changeover the changed package is displayed on the *Home* screen.

Figure 4.15: Changed Package Screen

5 General Setup

This chapter contains information about the setup of Date and Time, Rejecter, Weight Zones, and Motors.

Access Level: Operator, Supervisor

Path: Menu–Setup–General

5.1 Time and Date Setup

The *Time and Date* setup menu allows you to change the time and date.

Path: Menu–Setup–General–Time and Date

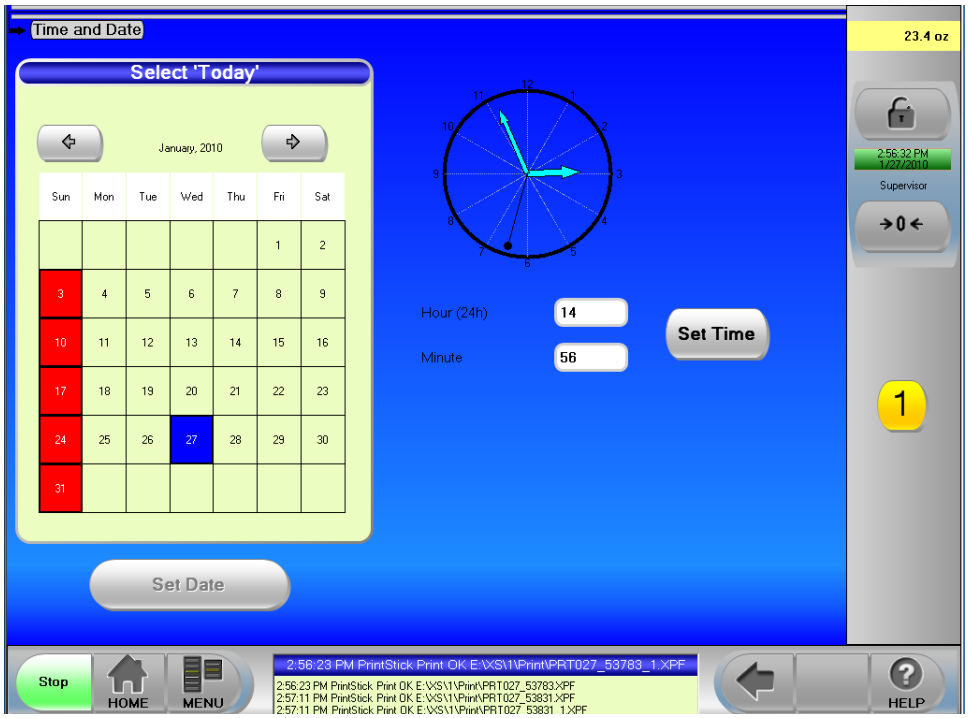


Figure 5.1: Time and Date Screen

Time and Date Screen Definitions

Screen Name	Description
Select 'Today'	Select today's date
Set Date	Select **Set Date** to accept the date change
Hour (24h)	Enter the current hour on the keypad
Minute	Enter minutes on the keypad
Set Time	Select **Set Time** to accept the time change

After you select **Set Time** the changes will force a Final Evaluation to be performed. We recommend that you select **Yes**.

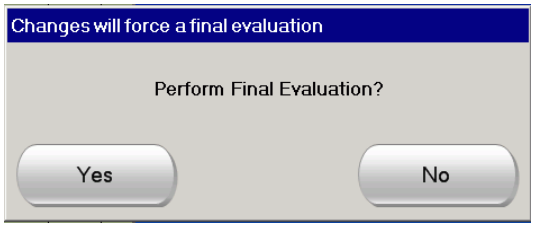


Figure 5.2: Perform Final Evaluation Confirmation

5.2 Rejecter Settings

Access Level: Supervisor

Path: Menu–Setup–General–Rejecter Settings

Select any field located in *Tab 1* to edit. See table below for descriptions.

Tab 2 will be visible if a photogated rejecter is available.

Figure 5.2: Rejecter Setup Screen - Tab 1

Rejecter Settings Definitions

Screen Name	Description
Name	Name the rejecter
Distance	Distance is measured from the infeed WLB (weigh light barrier) to the rejecter. If Metal Detector is enabled, and the rejecter is upstream of the WLB, then the distance would be a negative value. Example: -600
Delay Offset (+100)	Fine tuning the firing of the rejecter. Firing of rejecter depends on application requirements
Duration	Number of milliseconds that the reject device is energized by the control
Output	The designated circuit assigned that the control energizes for each rejecter

5.2.1 Rejecter Test

Testing will be required for fine tuning of the rejecter settings for each package.

Run the package and watch the rejecter:

- If the rejecter fires too soon then adjust the *Delay Offset* to allow more time
- If the rejecter fires too late set the *Delay Offset* for less time

5.3 Rejecter Removal

Access Level: Supervisor

Path: Menu–Setup–General–Rejecter Settings

Select the desired rejecter located under *Rejecter List* then select **Remove**.

Figure 5.3: Rejecter Removal Screen - Tab 1

Remove Rejecter Confirmation.

Figure 5.4: Remove Rejecter Confirmation

5.4 Zone Actions

Zone actions allows the end-user to setup actions when a package falls into a defined zone. For example if a package is under- or over-weight the end-user can choose to have that package rejected, belt stop, quick belt stop, etc.

Access Level: Supervisor

Path: Menu–Setup–General–Zone Actions

The *Zone Actions* screen allows you to allocate actions for each zone.

- To Add A Zone Action

  Select the desired zone located under *Zones :* then select the desired action under *Action List*. Select the right arrow to place the action into the *Allocated Actions* field.

- To Remove A Zone Action

  Select the desired zone located under *Zones :* then select the *Allocated Action* under the *Allocated Actions*. Select the left arrow to place the action into the *Action List* field.

Figure 5.5: Rejecter Setup Screen - Tab 1

Zone Action Definitions

Screen Name	Description
Zones	Classification zones
Action List	All possible allocated actions
Allocated Actions	Actions which are allocated to a specific zone

Zone Action Confirmation.

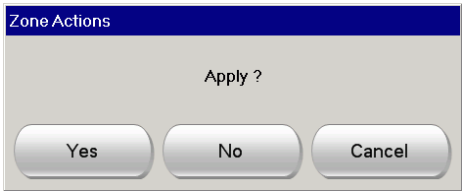


Figure 5.6: Zone Action Confirmation

5.5 Miscellaneous Setup

Access Level: Supervisor

Path: Menu–Setup–General–Miscellaneous Setup

The *Miscellaneous Setup* screen shows the Machine ID, default language, whether to remember or preload the user name from the last successful login, whether to stop the statistics when the motors are stopped, the number of item weights to be included in the short term mean value calculation, and the driver letter used for a USB PrintStick.

These settings are preset at the factory. If any settings are changed select **Apply** and a confirmation displays.

Figure 5.7: Miscellaneous Setup Screen

Miscellaneous Setup Definitions

Screen Name	Description
Machine-ID.	1
Timeout Language	Machine language
Save Last Login Name	Enable or disable the last login name
Hold Statistics Time During Mo	Enable or disable statistics during a motor stop
Mean Value Gliding Count	Number of item weights to be included in the short term mean value calculation
USB Drive	Drive used for a USB PrintStick
Culture	Local cultural setting

Miscellaneous Setup Confirmation.

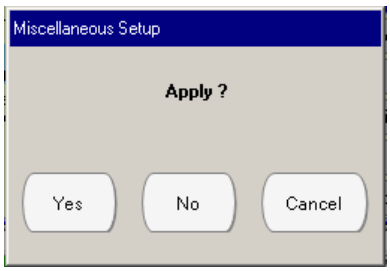


Figure 5.8: Miscellaneous Setup Confirmation

5.6 Motor Setup

Access Level: Supervisor

Path: Menu–Setup–System–Motor

The *Motor Setup* screen allows you to setup the motor configurations and set the motor speed for the conveyors. The Motor Setup has been done at the factory for each customer package. Refer to the "System Specification Sheet" included your customer manual for the factory setups.

Figure 5.9: Motor Setup

Motor Setup Definitions

Screen Name	Description
Min.	Minimum motor speed of the guiding conveyor (m/min.)
Max.	Maximum motor speed of the guiding conveyor (m/min.)
Pulse	Internal distance monitoring
Acceleration	Value of accelerating the motor from 0 up to its preset speed
Deceleration	Value for decelerating the motor from it's preset speed to 0
Ratio	Speed of motor 2, motor 3, etc. relative to motor 1 Examples: 1.00 = same speed as the guiding conveyor. 0.80 = 80% of the speed of the guiding conveyor.
M	Motor 1 (typically drives the outfeed conveyor)
M2	Motor 2
M3	Motor 3
M4	Motor 4 (depending on your conveyor configuration)
A B	Motor Setup for dual lane checkweighers, select to make revisions

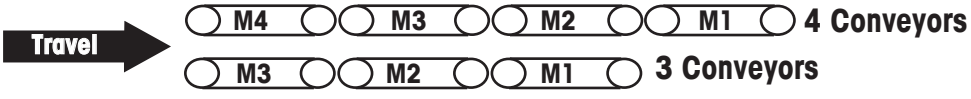


Figure 5.10: Conveyor Configurations

NOTE: Motor 1 is always the outfeed conveyor located furthest from the weigh conveyor.

5.7 Motor Speed

Access Level: Supervisor

Path: Menu–Setup–System–Motor–Speed

Shortcut: Throughput on the home screen

The *Speed* screen allows you to change the motor speed.

- Large Up/Down keys by increments of 5 m/min.
- Small Up/Down keys by increments of 1 m/min.

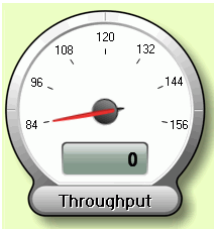


Figure 5.11: Throughput

After setting the speed, touch the **Left Arrow** to return Home

Figure 5.12: Speed Screen

5.8 Motor And Multi-Lane

Access Level: Supervisor

Path: Menu–Setup–System–Motor–Motor and Multi-Lane

This screen allows the end-user to disable one lane while repairs (e.g. belt, load cell, or motor changeout) are being done to the other lane. That way the whole production is not shut down.

Figure 5.13: Motor And Multi-Lane Screen

Motor And Multi-Lane Definitions

Screen Name	Description
Lanes	Green checkmark - Lane is enabled Red dash - Lane is disabled

NOTE: When a lane is disabled then the motors and load cells are disabled also.

6 Active Package

This chapter contains information about the current Package setups and how to change them.

Access Level: Monitor, Operator, Supervisor

Path: Menu–Packages–Active Package

6.1 Main Package Setup

Access Level: Monitor, Operator, Supervisor

Path: Menu–Packages–Active Package–Main Package Setup

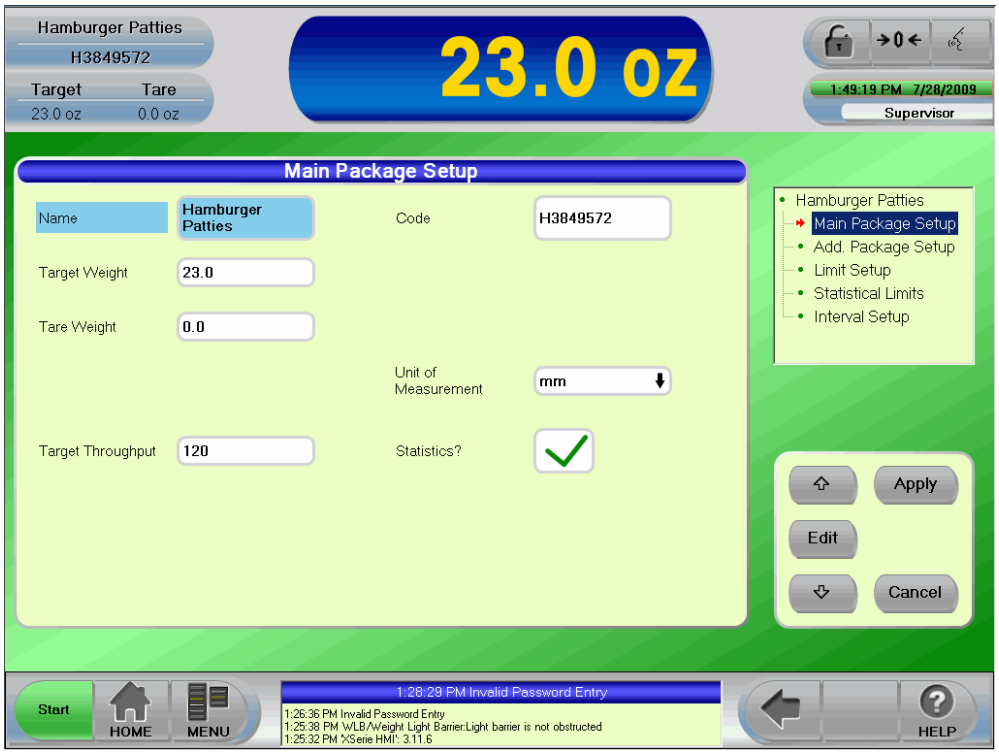


Figure 6.1: Main Package Setup Screen

Main Package Setup Screen Definitions

Screen Name	Description
Name	Name the package
Target Weight	Nominal or desired net package weight
Tare Weight	Weight of the packaging material(s)
Target Throughput	Packages per minute over the weigh scale
Code	Customer package code
Unit of Measurement	mm, cm, inch, m
Statistics (Optional)	If end-user has purchased Statistics they can choose to collect statistics on this package by enabling the green checkmark. If red dash then it is not enabled and statistics will not be collected on this package. .

Once packages have been created and stored in the package database, additional functionality like editing, copying, changing or deleting packages can be performed (See Chapter 4).

6.2 Additional Package Setup

Access Level: Supervisor

Path: Menu–Packages–Active Package–Add. Package Setup

Touch any field to edit. See Additional Package Setup Screen Definitions table for descriptions.

Figure 6.2: Additional Package Setup Screen

Additional Package Setup Screen Definitions

Screen Name	Description
Description	Current package description
Number of Zones	Number of possible classification zones (optional 7 zones)
Tolerance System	• US - The operator can set the weight classification zones based on the target weight of individual packages. • EC (European Community) - For one production hour or 10,000 packages produced, whichever occurs first, any package that exceeds the permissible TU1 percentage and packages with weights below the lower limit value of "TU2" must be rejected. With this system it is mandatory that a rejecter be allocated to the TU1 and TU2 zones.

	NOTE: It is possible to change these values, however the values cannot be changed to exceed the calculated TU1 and TU2 limits. Given the target weight of 100g the X-series control will automatically calculate and set the following limits: Upper Limit.....109g Target Weight....100g TU1 Limit.....95.5g TU2 Limit.....91g Lower Limit.....91g TU1%.....2% (200 Pkgs or 2% of 10,000) • FREE - Similar to EC but if the product is not subject to EC pre-packaged goods legislation then no rejecter needs to be assigned to the TU2 lower limit or packages considered outside the TU1%. • Australian - See EC
Ind. Corr. Factor	When the transport belts run at an extremely high speed, the "dynamic" weight value can sometimes deviate from the weight value measured statically. This is compensated for by the automatic multiplication of the dynamically measured weight value with the correction factor. Typically the correction factor has been set at the factory according to test products provided by the customer.
Product Length	Length of package in mm as it's transitioning on the conveyor in regards to the WLB.

6.3 Limit Setup

Access Level: Supervisor

Path: Menu–Packages–Active Package–Limit Setup

From this screen you set up the zone limits per package. This screen is used to determine underweight, overweight, and accept weight zones. This screen is used during the initial setup of a new package and as needed to change settings for the package.

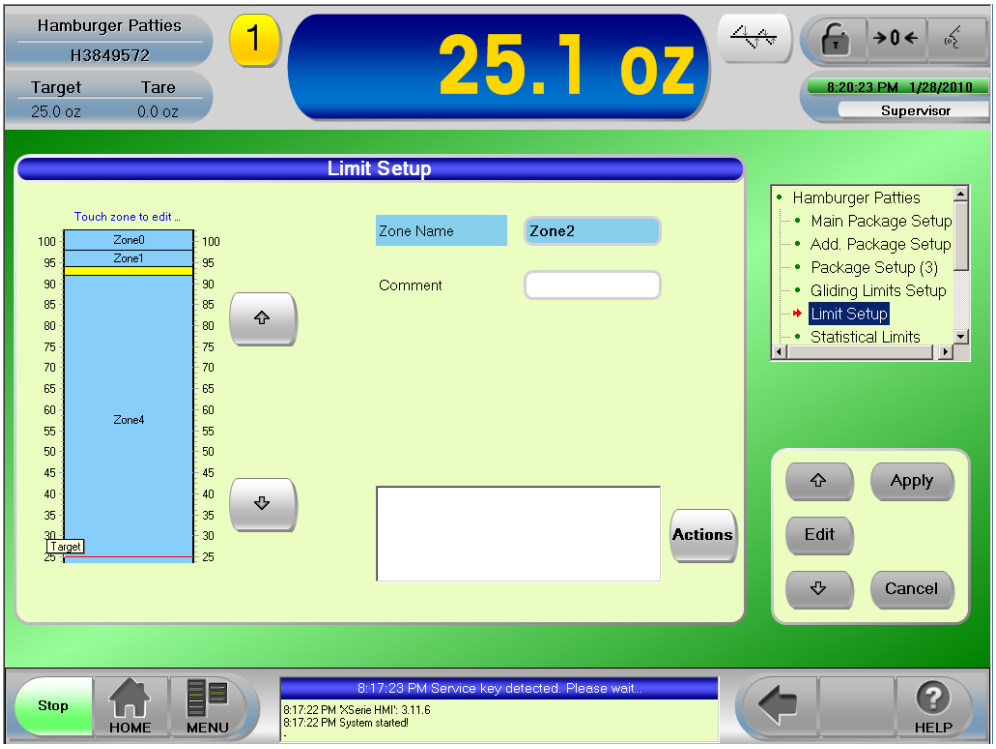


Figure 6.3: Limit Setup Screen

Limit Setup Screen Definitions

Screen Name	Description
Zone Name	You can rename the zones. Maximum 15 characters. The zone names appear on the Home screen and printouts
Comment	Entry of (optional) comment on a particular weight zone .
Upper Limit ...[	Upper limit of the active weight zone
Lower Limit ...[	Lower limit of the active weight zone
Actions	Actions allocated to a particular zone

Touch **Apply** to accept the changes.

6.4 Zone Recalculation Setup

Access Level: Supervisor

Path: Menu–Packages–Zone Calculation Setup

The *Zone Calculation Setup* screen allows for zone limits to automatically recalculate whenever the *Target Weight* is changed in the *Package Setup*. You can justify the limits of the current produced package, but upon a change-over the zone limits are recalculated.

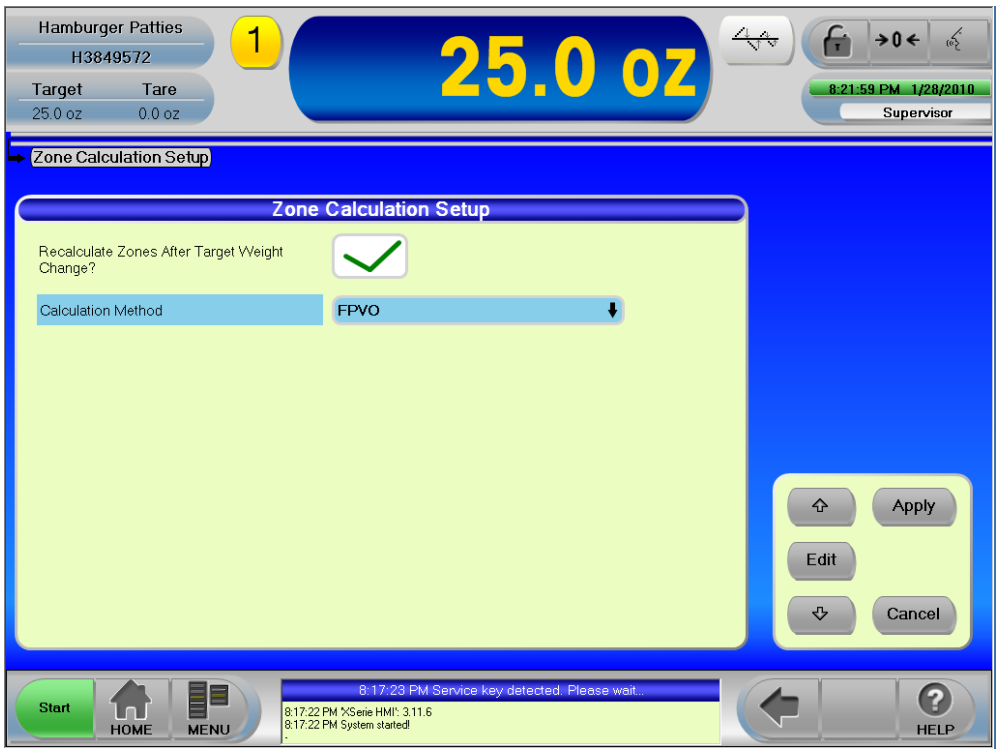


Figure 6.4: Zone Recalculation Screen

Zone Recalculation Setup Screen Definitions

Screen Name	Description
Recalculate Zones After Target Weight Change?	You can enable or disable this function
Calculation Method	FPVO - (Finished Packaging Regulations) recalculates and saves the limit changes permanently. Absolute Offset - Used for FREE and US tolerance systems which are intended for ALL packages. Relative Offset - Used for FREE and US tolerance systems which allows the entry of percentage of target to determine the zone limits.

Touch **Apply** to accept the changes.

Values calculated for each zone are:

- Number of items classified into that zone
- Mean weight
- Percentage in relation to all the zones by count and by weight
- Total weight for that zone
- Minimum weight within the zone
- Maximum weight within the zone

NOTE: If the overall limit offset is changed, e.g. from 5g to 10g, the control will calculate the limits of all selected packages to 10g. To save the limit changes permanently, you must select FPVO.

6.5 Interval Setup

Access Level: Supervisor

Path: Menu–Packages–Active Package–Interval Setup

From this screen you establish the settings for termination of statistical intervals. These changes apply to the active package only.

Figure 6.5: Interval Setup Screen

Interval Setup Screen Definitions

Screen Name	Description
Intervals	
Interval Type	Time or pieces
End at	Time is set in minutes Pieces is an item count
Auto Interval Printout	If activated (green checkmark) an automatic printout will print after termination of the interval. Red dash - Interval Printout is disabled.
Batches	
Batch	Batch statistic terminations are defined by the entry of a new Batch ID, or by Final Evaluation
Auto Batch Printout	If activated an automatic printout will print after termination of the batch

Touch **Apply** to accept the changes.

6.5.1 Batch Changeover During Weighing

When the batch number is modified the statistical recording of the current batch is stopped and the recorded statistical data of the completed batch is stored in the memory. Then the current batch statistics are deleted. The recording of the next batch statistics starts as soon as the new batch number has been entered and applied.

6.6 Dynamic Calibration

Access Level: Supervisor

Path: Menu–Packages–Active Package–Dynamic Calibration

The *Dynamic Calibration* screen makes calibration adjustments to improve differences between static weight and dynamic weight. The dynamic calibration factor calculated will be applied only to the active package if Apply is selected after the test.

1. Stop the motors
2. Obtain a sample item that is the correct weight and place it on the weigh conveyor
3. Touch **Confirm**
4. Start the motors
5. Select **Apply**

Figure 6.7: Dynamic Calibration Screen

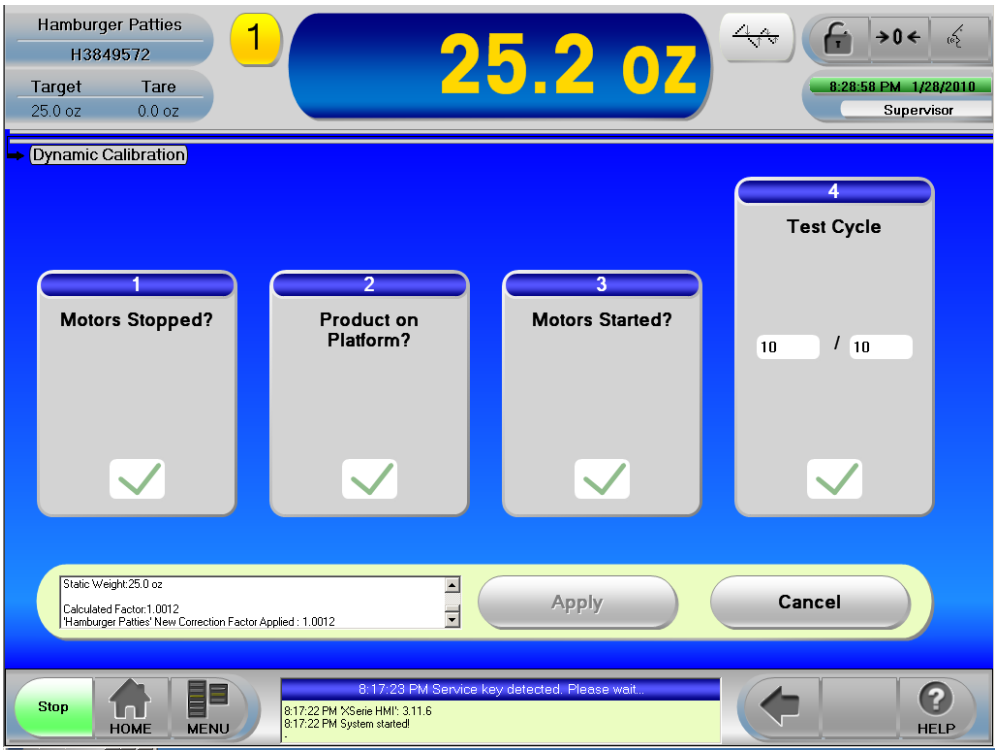


Figure 6.8: Dynamic Calibration Test Screen

Touch **Apply** to accept the new Calculated Factor.

7 Production Data

This chapter contains information about the Production Data setups, what they display and how to change them.

7.1 Zone Classification Screen

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Production Data–Zone Classification

Shortcut: Select **Zone Classification** on the home screen

The *Zone Classification* screen provides the details of the current product and production results for each weight classification zone.

Toggle between lanes by selecting the lane icon.

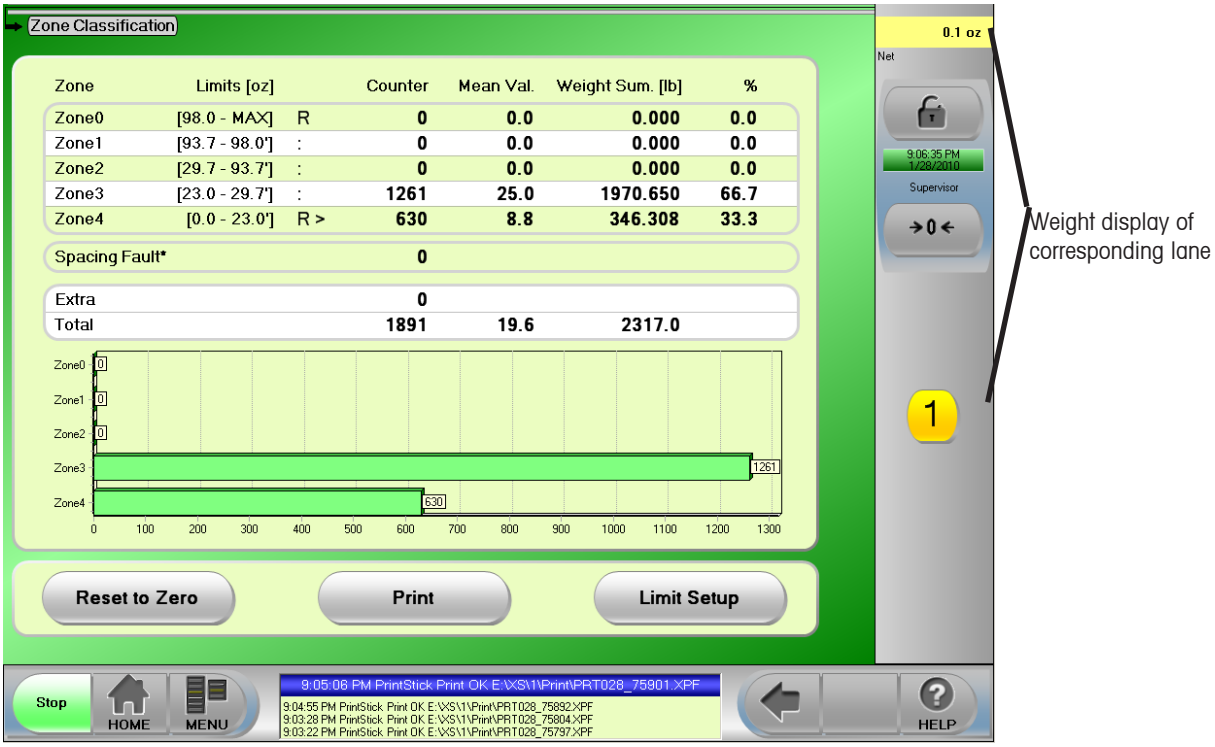


Figure 7.1: Zone Classification Screen

Zone Classification Screen Definitions

Screen Name	Description
Zone	Weight zone, weight class
Limits [g]	Upper and lower limit of the particular weight zone
>	Indicates the current weighed package zone
Counter	Number of items weighed in a particular weight zone
Mean Val.	Mean value of a particular weight zone
Weight Sum. [kg]	Product of quality and mean value
%	Percentage of weighed items for that weight zone
Extra	Total
Total	Total of all items, overall mean value, total weight
Graph	Graph of all zone classification activity with a bar chart for each zone
Reset to Zero	Touching this key will reset all zones to zero
Print	Prints the current zone results
Limit Setup	Opens the *Limit Setup* screen and allows you to make change to the zone limits

7.2 Records Table

Access Level: Supervisor (Operator can view the screen)

Path: Menu–Production Data–Statistics–Records Table

The *Records Table* screen provides the recorded details of the current product *Final Evaluations* or *Prod. Hour (60 Min)* results since the product was setup or until you mark the rows and delete them or touch **Delete All Rows**.

Toggle between lanes by selecting the lane icon.

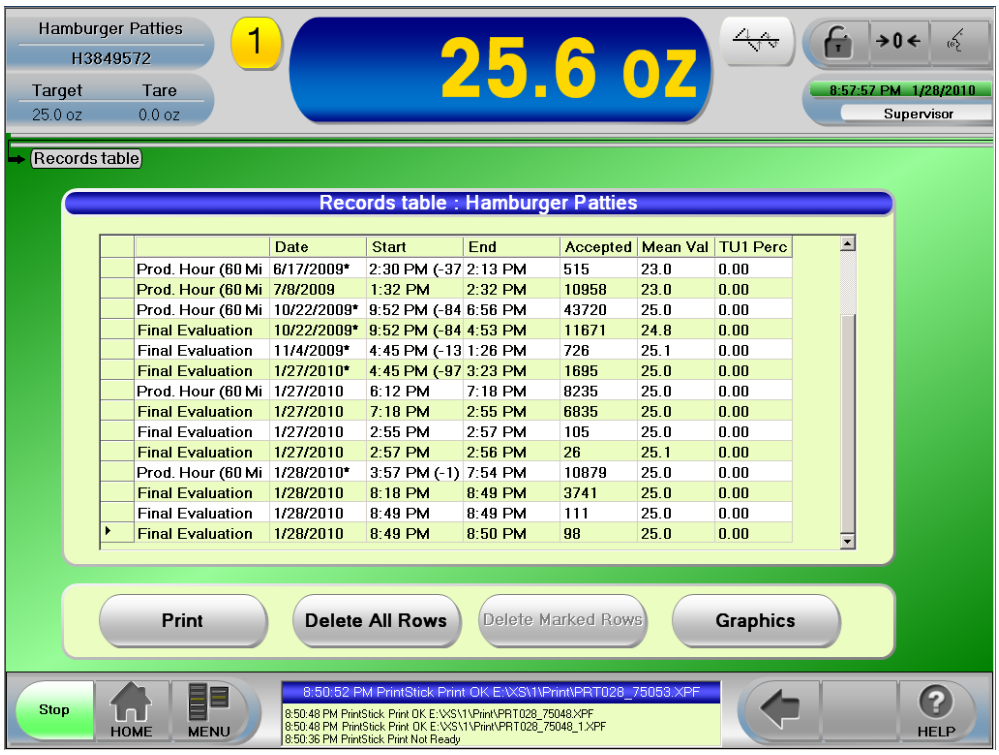


Figure 7.8: Records Table Screen

Records Table Screen Definitions

Screen Name	Description
Print	Prints current data to the USB PrintStick ■ Preview Printout confirmation displays ■ If no USB is found an error message displays
Delete All Rows	Deletes all records in the Records Table for the current product ■ Delete All Rows confirmation displays
Delete Marked Rows	Highlight rows to delete and touch Delete Marked Rows
Graphics	Displays the Accepted bar graph of the *Records Table*
Accepted	Displays a bar graph of the *Records Table*
Mean Value	Displays a bar graph of the *Mean Value*
TU1 Percentage	Displays a bar graph of the *TU1 Percentage*

7.3 Records Graphics

Access Level: Supervisor (Operator can view the screen)

Path: Menu–Production Data–Statistics–Records Graphics

The *Records Graphics* screen is a graph of the recorded details of the current product *Final Evaluations* or *Prod. Hour (60 Min)* results since the product was setup or until you mark the rows and delete them or touch **Delete All Rows** in the *Records Table*.

Toggle between lanes by selecting the lane icon.

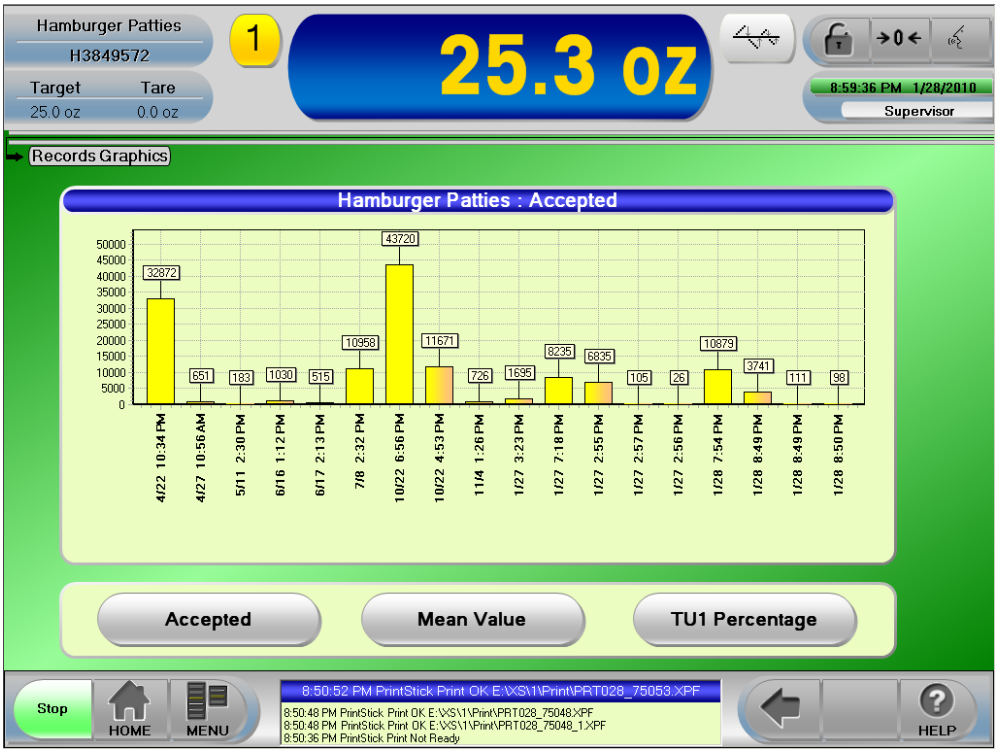


Figure 7.9: Records Graphics Table Screen

Records Graphics Screen Definitions

Screen Name	Description
Accepted	Displays a bar graph of the *Records Table*
Mean Value	Displays a bar graph of the *Mean Value*
TU1 Percentage	Displays a bar graph of the *TU1 Percentage*

7.4 Charts

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Production Data–Charts–Items

The *Items* screen is a graph of the current products weighed. It also provides the ability to capture a printed sample of weights with statistics and to use an "average of item weights" to capture the package *Target* or *Tare* weight settings.

1. Choose which *Action* you would like performed:
2. Choose how many items to run
3. **Start** the conveyor
4. Touch **Start** on the XS control
5. Touch **Printout** to save data onto a USB stick

Figure 7.10: Graphics Table Screen

Items Screen Definitions

Screen Name	Description
Printout	Prints current data to the USB PrintStick ■ Preview Printout confirmation displays ■ If no USB is found an error message displays
Measure Target	To establish a valid *Target* weight by running example items - or - to run an accuracy test ■ Measure Target confirmation displays ■ Perform Final Evaluation confirmation displays
Measure Tare	To establish a valid *Tare* weight by running empty containers
Sample	When you want to reject a sample or a group of samples **NOTE**: A rejecter needs to be assigned to the *Sample* function in *Function Allocations*.
Start	To Start the action

Cancel	To Cancel the action
Countdown	Countdown of items being measured
Printout	Printout key
Zoom	Enlarges the graph
No Zoom	Returns the graph to normal screen size

7.5 Histogram

Access Level: Supervisor (Operator can view the screen)

Path: Menu–Production Data–Charts–Histogram

The *Histogram* screen provides a Histogram graph of the recorded details of the current product for both lanes. The Hisgram screen is not lane specific.

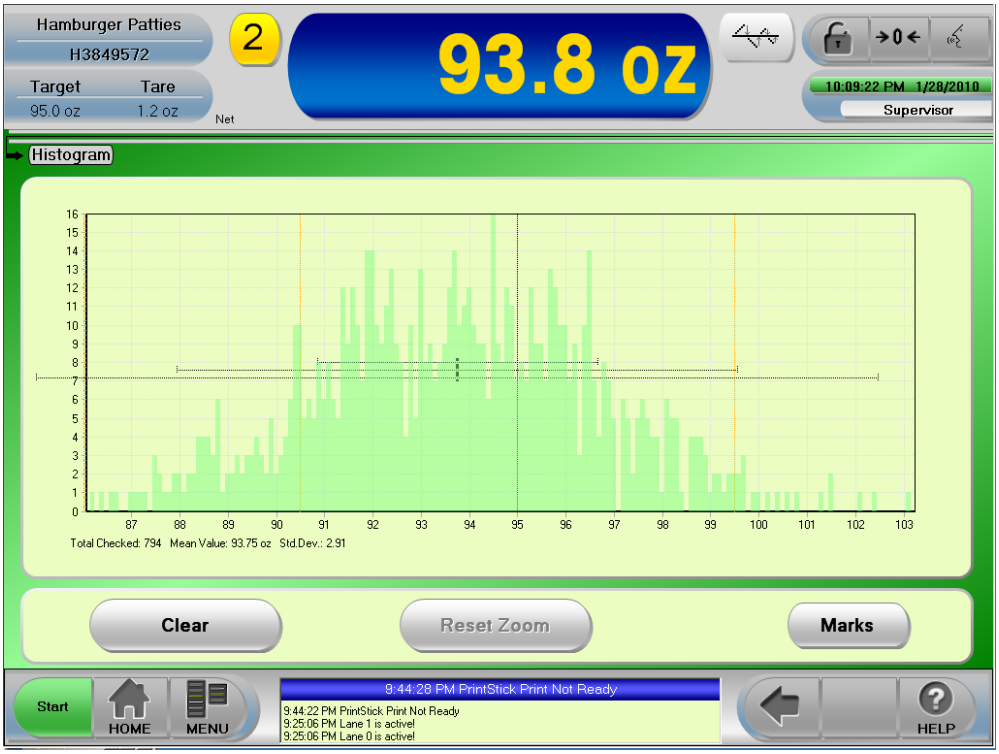


Figure 7.11: Histogram With No Marks Screen

Histogram Screen Definitions

Screen Name	Description
Clear	Clears all data in the Histogram
Reset Zoom	Resets the graph to normal screen size
Marks	3 Different settings. Select once to: Display the weights Select again to: Display the height levels Select again to: Returns to no marks

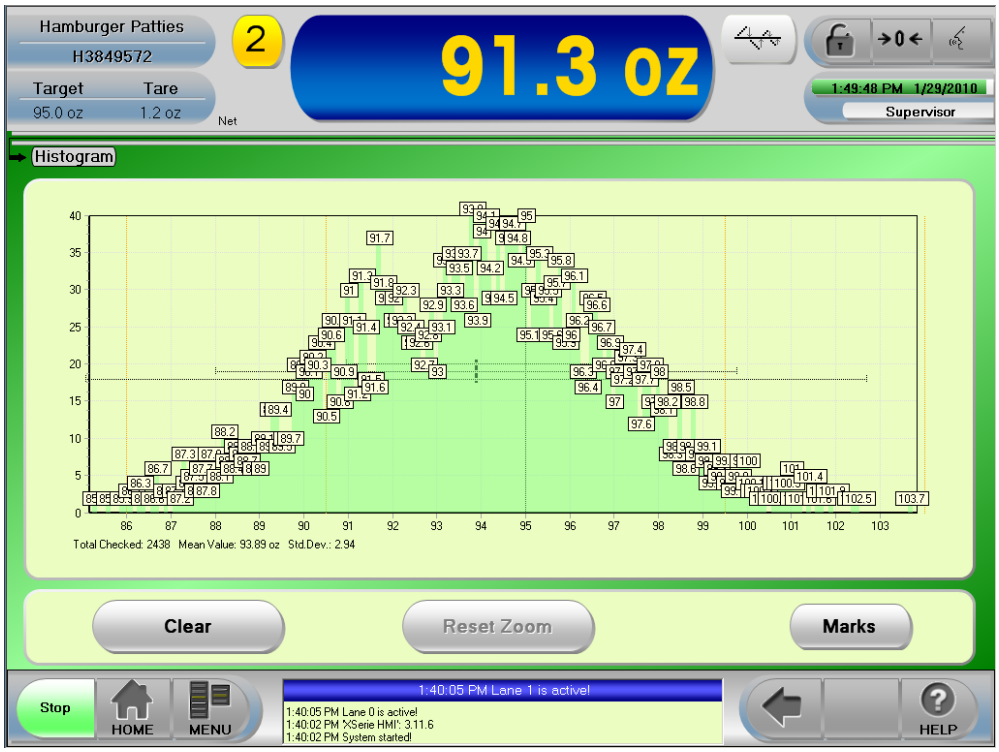


Figure 7.12: Histogram With Weights Screen

Figure 7.13: Histogram With Height Levels Screen

7.6 Large Weight Display

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Production Data–Large Weight Display

Shortcut: Select the **Weight Display** on the Home page

The *Large Weight Display* screen provides the current weight display for both lanes for better legibility from afar.

Figure 7.14: Large Weight Display Screen

This page left intentionally blank.

8 Information

This chapter contains information about the Production Data setups, what they display and how to change them.

8.1 Messages

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–Messages

Shortcut: Select the **Message Area** on the *Home* screen

Important system information, alerts, and error messages are displayed on the Messages screen of the XS Control. The five most recent messages are displayed on the *Home* screen. Touch the Message area on the Home screen to open a full page view of logged messages. The Messages screen displays 25 messages on a full screen, for more than 25 messages use the Up/Down arrows or the scroll bar on the right of the screen to scroll through the messages.

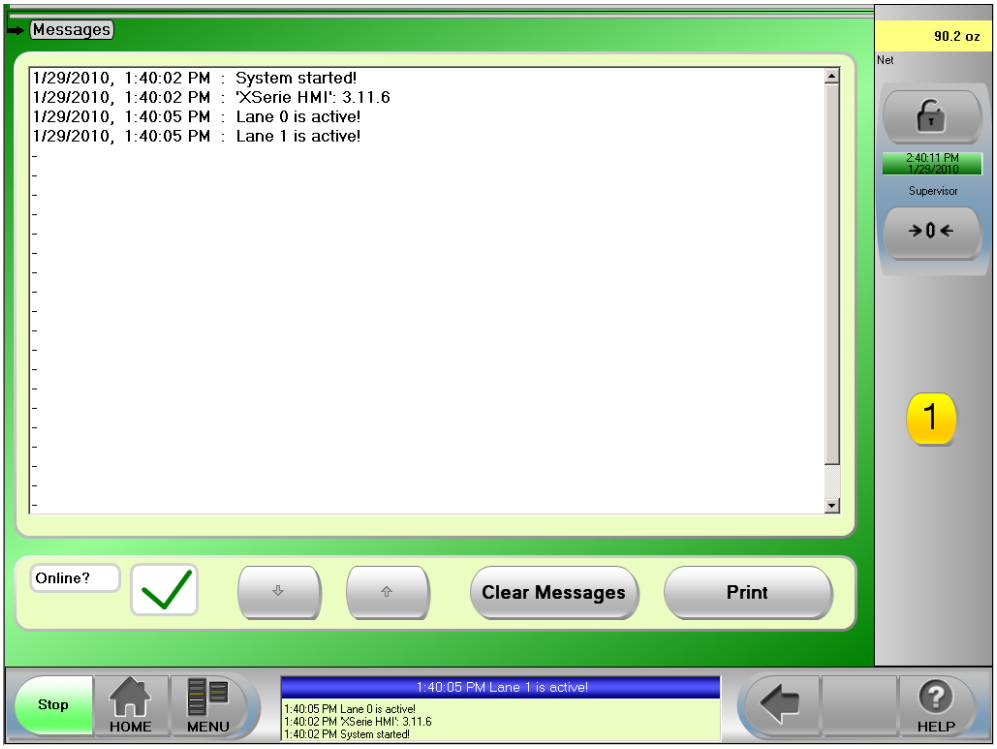


Figure 8.1: Messages Screen

Messages Screen Definitions

Screen Name	Description
Online?	Green Checkmark to enable or restart after a disable or pause Red Dash to disable or pause
Down Arrow	To scroll down
Up Arrow	To scroll up
Clear Messages	Clears all messages
Print	Prints the messages to a USB Stick or attached printer

8.2 State

Access Level: Supervisor (Operator can view the screen)

Path: Menu–Information–State

The state screens gives the status of the machine, output/input information, allocated actions and positions.

8.2.1 OMAC Machine Status

Access Level: Supervisor (Operator can view the screen)

Path: Menu–Information–State–OMAC Machine Status

The *OMAC Machine Status* (Open Modular Architecture Control) screen provides a graphical representation of the current status of the machine. The current status is bright green.

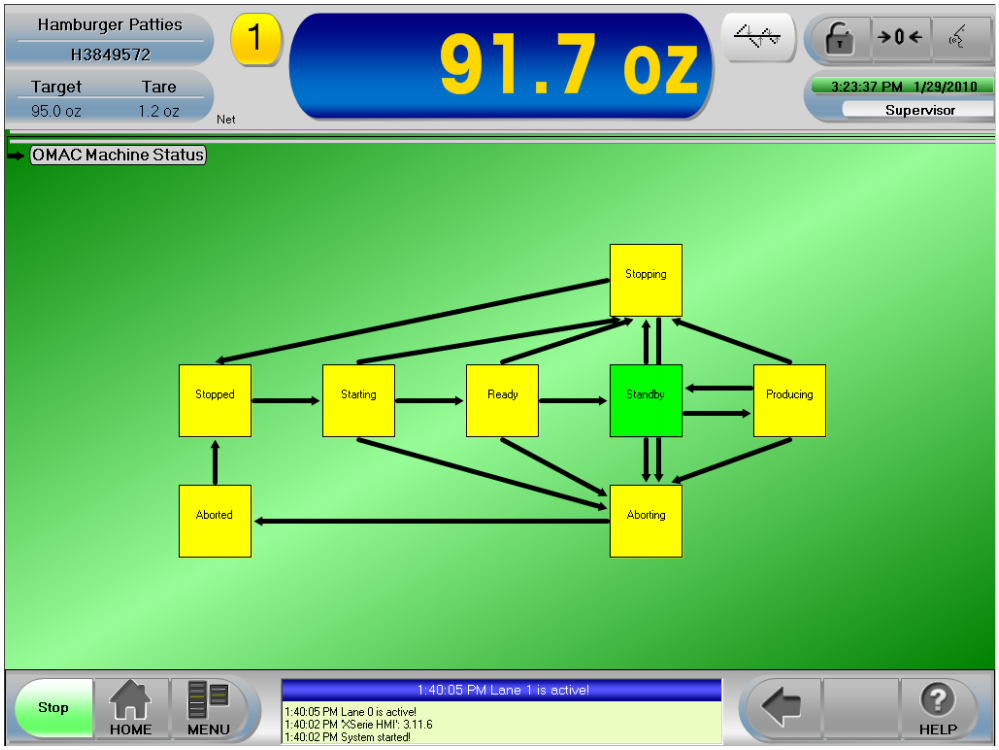


Figure 8.2: OMAC Machine Status Screen

OMAC Machine Status Screen Definitions

Screen Name	Description
Stopping	Checkweigher is stopping
Producing	After a product has passed the WLB, throughput drops to zero
Aborting	Checkweigher is about to abort
Aborted	Checkweigher has aborted
Stopped	Checkweigher is stopped
Starting	Checkweigher is starting up
Ready	Ready to weigh
Standby	The belts are up to speed and ready to weigh

8.2.2 Components Status

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–State–Components Status

The *Components Status* screen provides the operating status of the checkweighers various components. The components configuration depends on the options purchased and the configuration of the checkweigher. Components being software, hardware, loadcell, light sensors,and motors.

If areas are green the components status is good.

If areas are red there is a break in the connection or contact. Select the corresponding component and the connector or contact displays. Check your electrical drawing inserted in your customer manual for electrical connections.

Figure 8.3: Components Status Screen

Components Status Screen Definitions

Screen Name	Description
Checkweigher Ready	Checkweigher status is good
Up Arrow	Returns or backs out to the previous status
Hardware	List the current hardware
Components Ready (1)	Lane 1 load cell status
Motor Area	
Motors	List the motor order and the Analog output, max. scale, current value percent
Interlock	Interlock connector & contact information
Drive Error	Drive error connector & contact information
Emergency Run	Exist
Emergency Stop	Exist
Components Ready (1)	Lane 1 load cell status

8.2.3 Output Info

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–State–Output Info

The *Output Info* screen displays which output is assigned to which function. The name of an output can be defined and changed in the *Logic Outputs* screen and assigned to functions in the *Function Allocation* screen during system setup.

Toggle the lane icon and the current weight displays.

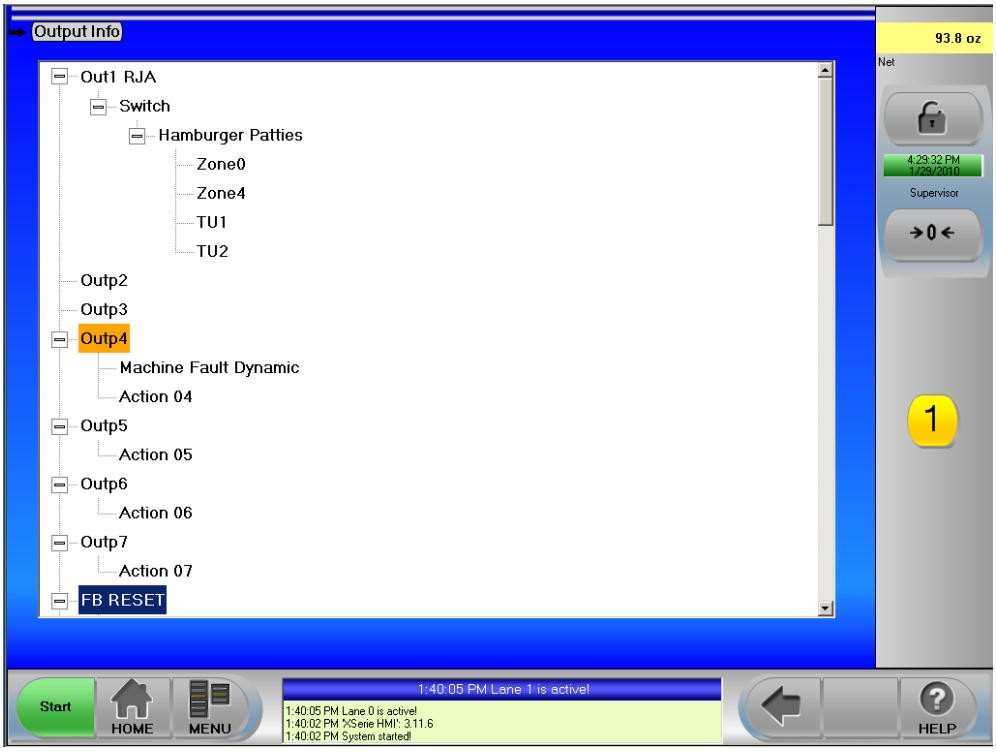


Figure 8.4: Output Info Screen

8.2.4 Input Info

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–State–Input Info

The *Input Info* screen shows which output is assigned to which function. The name of an input can be defined and changed in the *Logic Inputs* screen and assigned to functions in the *Function Allocation* screen during system setup.

Toggle the lane icon and the current weight displays.

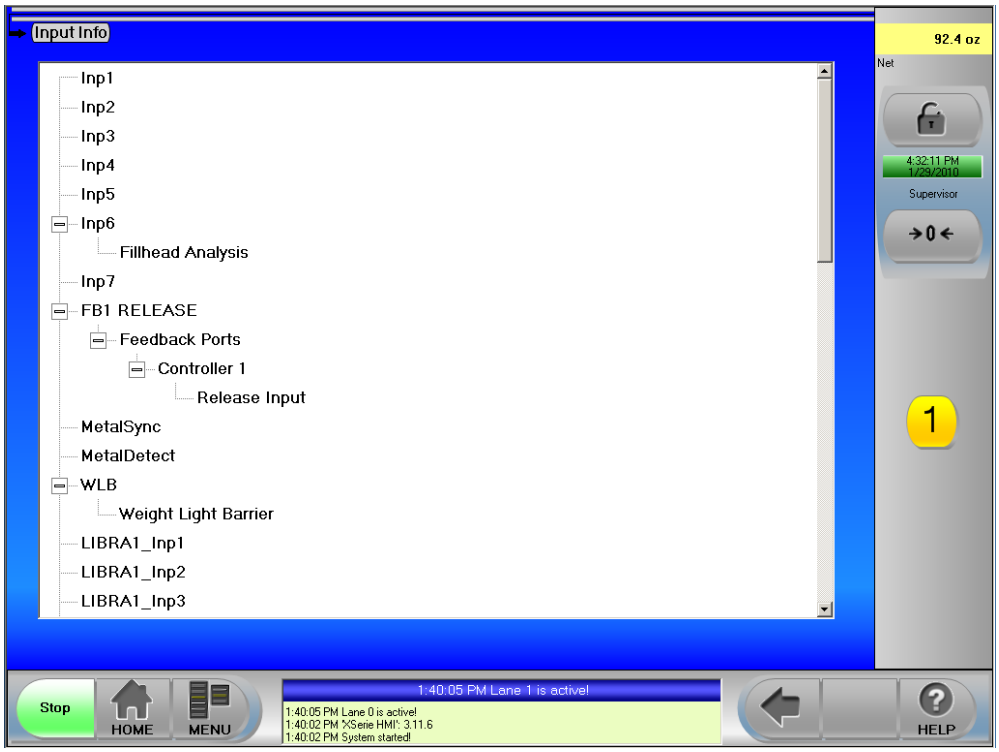


Figure 8.5: Input Info Screen

8.2.5 Allocated Actions

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–State–Allocated Actions

The *Allocated Actions* screen shows the specific functions or events which have been assigned to a specific action during setup on the *Function Allocations* screen.

Toggle the lane icon and the current weight displays.

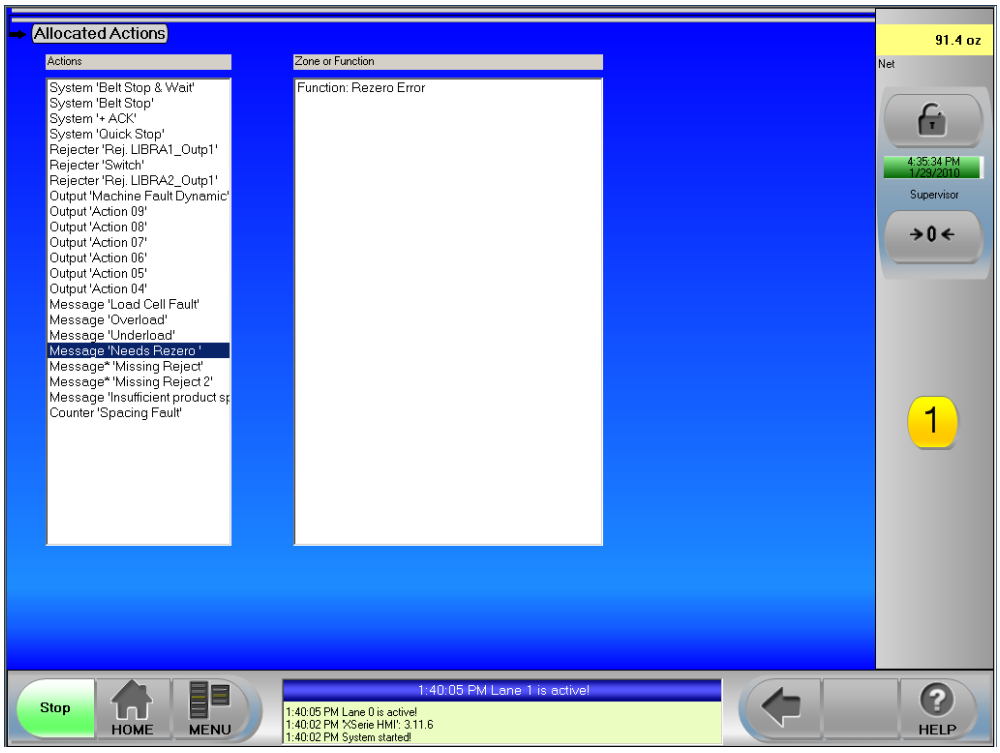


Figure 8.6: Allocated Actions Screen

Allocated Actions Screen Definitions

Screen Name	Description
Actions	This column shows the list of actions currently active on the system (message display or output actions)
Zone or Function	This column shows the zone or function that trigger the selected action

8.2.6 Positions

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–State–Positions

The *Positions* screen shows the control's expectation for the WLB (Weight Light Barrier) location, the Evaluation Distance, and the location of the rejector(s).

The evaluation distance indicates the useful length of the scale. The blue-green bar indicates the actual length of the scale conveyor. The typical setting for the evaluation distance is the scale length minus 10 mm. This value is set in the *Lane Setup* screen.

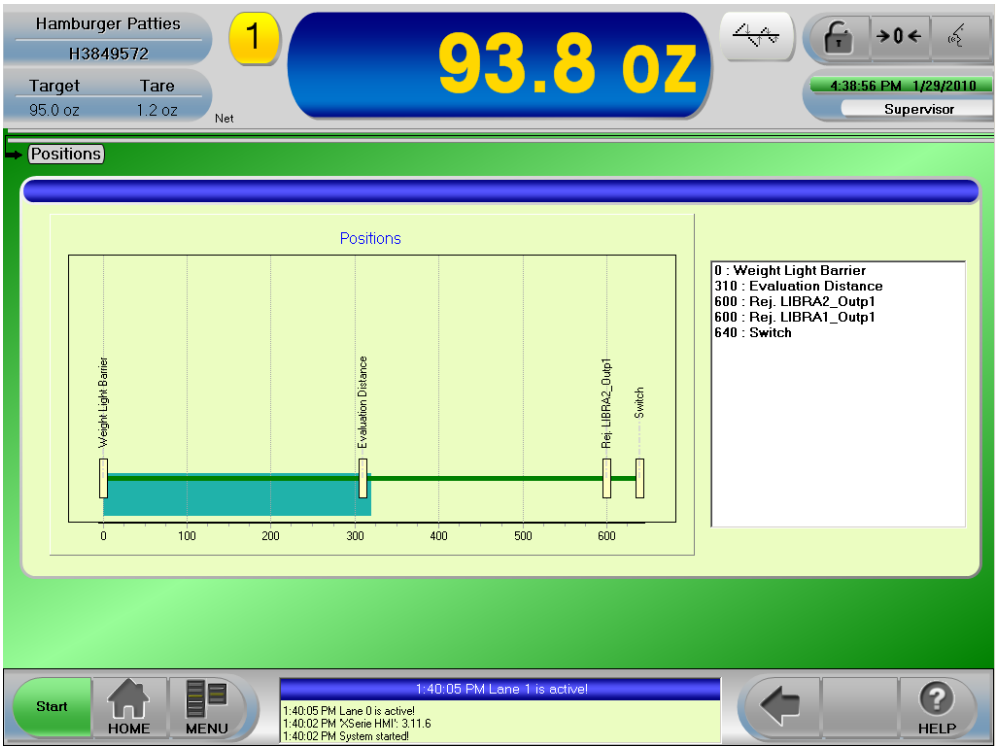


Figure 8.7: Positions Screen

8.3 XRTC

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–XRTC

The *XRTC* is the real time control of the X-Series checkweigher.

8.3.1 XRTC: Log Selection

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–XRTC–XRTC: Log Selection

The *XRTC: Log Select* screen is used to select which categories of messages are to be logged from the XRTC. This screen is used by technicians to help diagnose a problem.

The items that are checked under *Item Tracking* will be listed on the Log Message screen.

Figure 8.8: XRTC: Log Selection Screen

XRTC: Log Selection Screen Definitions

Screen Name	Description
Select Information	Select topic
Item Tracking	Log message category (a checked item is selected to be logged)
Unselect All	Unselects all categories
Mark Selected Row	Toggles between selecting the row and unselecting the row
OK	Accepts the selection and toggles to *XRTC: Log Message* screen

8.3.2 XRTC: Log Message

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–XRTC–XRTC: Log Selection

The *XRTC Log Message* screen is used to view the message categories that were selected on the *Log Select* screen. This screen is used by technicians to help diagnose a problem.

Figure 8.9: XRTC: Log Message Screen

XRTC: Log Message Screen Definitions

Screen Name	Description
Start	Select to begin logging messages into the message area of the screen
Selection	Toggles to the *XRTC: Log Select* screen
Clear Messages	Select to clear the messages
Save Now	Saves the XRTC: Log Messages onto a USB stick
Start File Logging	Select to begin logging messages to a file
Stop File Logging	Select to stop file logging message

8.3.3 XRTC: Motor and IO

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–XRTC–XRTC: Motor and IO

The *XRTC: Motor and I/O* screen is used to check the real time control handling of the motor control and discrete input and output circuits. A technician will use this screen to check the [rp[er

Figure 8.10: XRTC: Motor and IO Screen

XRTC: Motor and IO Screen Definitions

Screen Name	Description
Motor Start Chain	Contacts that are activated are highlighted. The customer schematic can be used to diagnose problems in the start/stop chain
Inputs	The color of the indicator is shown as green when current is flowing in the input and red when it is not
Outputs	The color of the indicator is shown as green when the output is energized and red when it is not. Touching an output will cause a dialog box to appear.
Ticks	Motor ticks are not supported for multi-lane checkweighers because a WLB needs to be attached to the XRTC as a trigger.
Oscilloscope	Toggles to the *XRTC Oscilloscope* screen
Start	Starts XRTC Analysis Connection

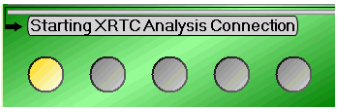


Figure 8.11: XRTC: Start Analysis Connection

8.3.4 XRTC: Oscilloscope

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–XRTC–XRTC: Oscilloscope

The *XRTC: Oscilloscope* screen provides a visual window of the real time operation of the motor control and discrete input and output circuits. This screen can also be used as a troubleshooting tool to check the timing of sensor inputs and control outputs.

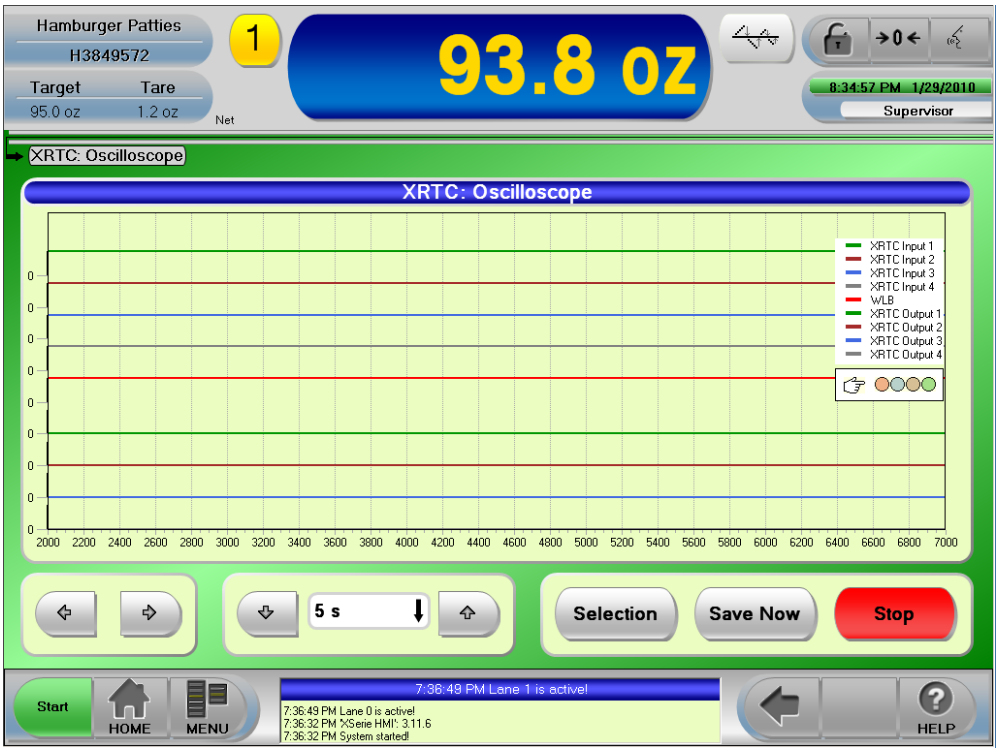


Figure 8.12: XRTC: Oscilloscope Screen

XRTC: Oscilloscope Screen Definitions

Screen Name	Description
Selection	Touch to choose which inputs and outputs are displayed
Save Now	Saves the contents of the captured input/output to an internal file, the file can be saved onto a USB stick on the *File Copy* screen
Start	Touch to start the XRTC analysis
Stop	Stops collecting data

8.4 System Information

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–XRTC–System Information

The *System Information* screen displays the checkweigher and HMI details such as serial number, software, firmware, hardware, major components, active options, user login log, and network IP addresses.

Figure 8.13: System Information Screen

System Information Screen Definitions

Screen Name	Description
Select Information	Select topic to see information: ■ Versions ■ Metrological ■ Network ■ Active Options ■ CPU
Print	Prints the messages to a USB Stick or attached printer

8.5 Stored Printouts

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Information–XRTC–Stored Printouts

The *Stored Printouts* screen displays the stored print records. Select a print(s) to view or print.

Figure 8.14: System Information Screen

System Information Screen Definitions

Screen Name	Description
Mark Selected Row	Marks selected row
Mark All Rows	Toggles between marking all rows and unmarking all rows
Preview	Preview the current marked file and can be saved onto a USB stick or printed to an attached printer
Print Marked Rows	Prints the marked files to a USB Stick or attached printer
Delete Marked Rows	Deletes the marked files

This page left intentionally blank.

9 Maintenance

This chapter contains information on how to backup and restore data either internally or with the USB stick provided with the control.

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Maintenance–Data Backup

You can make a backup of the current configuration, the current software settings including all relevant files, all current articles, and all current production data.

Backups are time stamped and up to three backups can be stored and when a fourth backup is initiated the oldest backup is deleted.

9.1 Backup Internally

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Maintenance–Data Backup–Backup Internally

From the *Backup Internally* the files will be backed to the systems hard drive. Touch *Setup* and/or *Software* then touch *Backup*.

Figure 9.1: Backup Internally Screen

Backup Internally Screen Definitions

Screen Name	Description
Backup	Touch to perform Backup function
Setup	Backup Current Setup
Software	Backup Current Software
Check USB Stick	Searches for USB stick

9.2 Backup USB Stick

Access Level: Supervisor (Operator can view the screen)

Path: Menu–Maintenance–Data Backup–Backup USB Stick

Before performing a *Backup USB Stick,* first insert the USB stick into the USB port located on the control enclosure. Touch *Setup* and/or *Software* then touch *Backup.*

If the control doesn't find the USB Stick touch **Check USB Stick**. If the USB is not found check the USB configuration on **Setup–General–Miscellaneous Screen**.

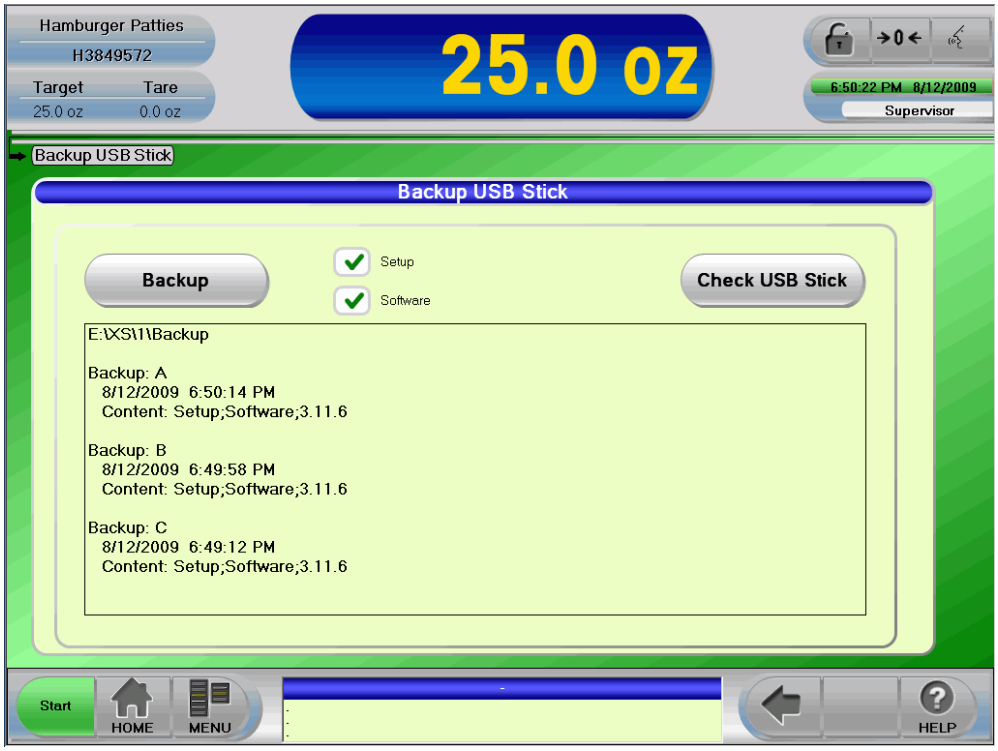


Figure 9.2: Backup USB Screen

Backup USB Screen Definitions

Screen Name	Description
Backup	Touch to perform Backup function
Setup	Backup current package Setups
Software	Backup Current Software
Check USB Stick	Searches for USB stick

9.3 Restore Internally

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Maintenance–Data Backup–Restore Internally

The *Restore Internally* screen enables you to restore the system *Setup* and/or *Software* from the internal drive. Choose which file you want to restore from then touch **Restore from Backup**. A confirmation displays.

Figure 9.3: Restore Internally Screen

Restore Internally Screen Definitions

Screen Name	Description
Restore from Backup	Touch to initiate the Restore

9.4 Restore USB Stick

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Maintenance–Data Backup–Restore USB Stick

The *Restore USB Stick* screen enables you to restore the system *Setup* and/or *Software* from the USB stick.

1. Plug the USB stick into the USB port on the control enclosure.
2. Choose Setup and/or Software.
3. Restore USB Stick dialog displays. Drill down and touch a FIFO file then touch OK.
4. The Backup files display on the screen. Choose which Backup file you want to restore from and touch **Restore from Backup**. A confirmation displays.

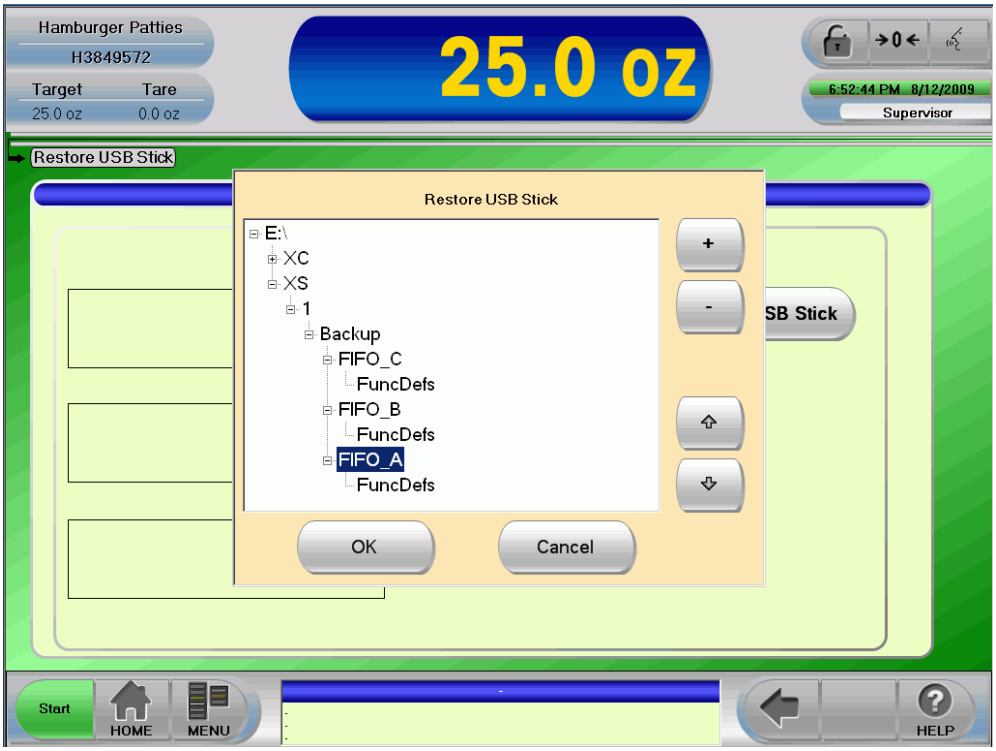


Figure 9.4: Restore USB Stick Dialog Screen

Restore USB Stick Screen Definitions

Screen Name	Description
Check USB Stick	Searches for USB stick
Restore from Backup	Touch to initiate the Restore
OK	Touch OK to choose and close the dialog
Cancel	Closes the dialog
+	Opens the dialog or drill down to the next dialog
–	Closes the dialog or go back to the previous level on the dialog
↑	Moves up to previous dialog
↓	Moves down to next dialog

Figure 9.5: Restore From USB Stick Screen

9.5 File Copy

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Maintenance–File Copy

The *File Copy* screen provides the ability to export machine data files onto a USB Stick as archives or to be transmitted elsewhere (e.g. to another checkweigher).

Touch **Source** to see where the source files are stored.

Figure 9.6: File Copy Screen

File Copy Screen Definitions

Screen Name	Description
Source	Select to display where the source files are
OK	Touch OK to choose and close the dialog
Cancel	Closes the Source files
+	Opens the dialog
–	Closes the dialog or go back to the previous level on the dialog
↑	Moves up to previous file
↓	Moves down to next file
Mark Selected Row	Marks single rows
Mark All Rows	Toggles between marking all rows and unmarking all rows
Copy	Copies marked files onto the USB stick

9.5.1 File Copy Source Screen

The *Source* screen shows the available files. Choose a file then touch **OK**.

Figure 9.7: File Copy Source Files

Figure 9.8: File Copy Marked Rows

9.6 Shutdown

Access Level: Access restricted

Path: Menu–Maintenance–Shutdown

The *Shutdown* screen provides access to external X-Series control applications. These applications provide access to restricted features and setup options. Additionally, the *Shutdown* screen provides the ability to close the HMI itself.

Figure 9.9: Shutdown Screen

10 Function Allocations

This chapter contains information about Function Allocation. Each purchased option has a factory default setting. Depending on the option purchased, there may be default system outputs and message actions for an option. Sometimes the option requires a task to be performed and Function Allocation allows the task to be allotted to an action. The end-user can make changes to the factory default settings with the correct access level.

10.1 Function Allocation Setup

After an option has been purchased and enabled then the *Sensor, Inputs, Actions,* and *Parameters* are setup on the Function Allocation screen at the factory.

Access Level: Supervisor

Path: Menu–Setup–System–Functions–Function Allocations

Select the enabled option under *List Of Functions* then select **Edit** and change the *Inputs* and *Actions* desired when the Option occurs (See Figure 11.2) and set the *Parameters* then select **OK** and **Save**.

NOTE: Your screen may vary from the one shown below depending on which options are enabled.

Figure 11.1: Function Allocations Screen

Function Allocation Screen Definitions

Screen Name	Description
List Of Functions	This column list all of the functions
✓ USED	Function or option is enabled.
• NOT USED	Function or option is not enabled
➔ Entity	Function that is used more than once

Under *List Of Functions* there are 2 groups (✓ USED, ● NOT USED) with 4 sub-groups listed under each (Standard, Control, Function, and Events). The enabled options have a blue checkmark and entity options have a red arrow.

Standard	Standard function or option
Control	Function or option used for monitoring purposes
Function	Function or option extending the weigher by independent services
Events	Function or option based on events

When you select an option, notice that the current settings display on the right side of the screen.

Figure 11.2: Function Allocation With Selected Option

Function Allocation Screen Definitions

Screen Name	Description
List Of Functions	This column list all of the functions
Edit	Pre-existing function which can be edited
Add	Adds a function (requires Technician or higher access)
Remove	Deletes a pre-existing function (requires Technician or higher access)
Save	Saves edits

10.2 Function Allocation Edits

Each purchased option has a factory default setting. Depending on the option purchased, there may be default system outputs and message actions for an option. The *Sensor, Inputs, Outputs,* and *Actions* are assigned and the *Parameters* are setup on the *Function Allocation* screen. The end user can make changes to the factory default settings with the correct access level.

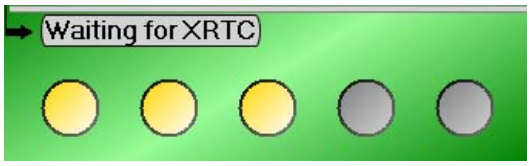
Access Level: Supervisor

Path: Menu–Setup–System–Functions–Function Allocations

Select the enabled option under *List Of Functions* then select **Edit** and change the *Inputs* and *Actions* desired when the event occurs and set the *Parameters* then select **OK** and **Save**.

Waiting for XRTC displays momentarily while the new configurations are being saved on the XRTC, then returns to the *Function Allocations* screen.

NOTE: The drives are temporary disabled while the XRTC stores the new configurations.



NOTE: Your screen may vary from the example shown below depending on options purchased.

Figure 11.3: Reject Verify Screen Example

Default Settings

Screen Name	Description
Inputs	List of available inputs
Reject Verify [1]	Name of option
Inputs	The "Input" used to support this option
Actions	The "Actions" used to support this option
Actions	List available Action choices
Sensor	WLB

10.3 Actions: Systems

The default list of system functions coincide with the chosen option.

Actions Name	Description
Belt Stop	Conveyor shutdown. The drive motors will be stopped. They use the deceleration ramps that have been defined in the motor settings (**Setup–System–Motor–Motor Setup**). After the stop the drive motors are immediately released again and they can be restarted at once with the motor buttons – irrespective of the current input level.
Belt Stop & Wait	Conveyor shutdown stops the drive motors. While stopping they use the deceleration ramps that have been defined in the motor settings (**Menu–Setup–System–Motor–Motor Setup**). In addition to the drives the motor release is also switched off therefore, manual starting isn't possible. When the fault is cleared the checkweigher recognizes the fault is cleared and the drive release is restored. The drives can be switched on again with the motor buttons. This action can create a "component" in the "component status" (**Menu–Information–Status–Component Status**) of the checkweigher. This action is offered only for functions that can recognize the release of a fault situation: e.g. external backup.
Quick Stop	Conveyor shutdown stops the drive motors. While they do not use the deceleration ramps that have been defined in the motor settings; the deceleration ramps for the action "Quick Stop" are fixed (invariably set) and very short. The drives can be switched on again with the motor buttons. This action should only be used for critical fault situations since the products stopped by "Quick Stop" can come to slip. A typical use of this action is the stop after countercheck near at the end of the outfeed belt.
+ ACK	This action can be activated in addition to the above mentioned actions: Every conveyor shutdown. The HMI displays a confirmation, after "OK" is selected then the motors can be restarted.

10.4 Actions: Outputs

The Output Actions screen allows you to connect a software function to a hardware output. The output action can be a dynamic or static action. The default actions are set at the factory and the parameters can be changed by the end user with the correct access level.

Outputs settings are defined as either a Machine Fault or Process Fault and depending on which is affected depends on which output is used.

Category	Description
Machine Fault	Factory default is output 4. Alerts the end user to a failed physical state of a mechanical part of the checkweigher, e.g. Low pressure monitoring
Process Fault	Factory default is output 5. Allows the end user to view the indication of process performance e.g. SPC option

Access Level: Supervisor

Path: Menu–Setup–System–Functions–Output Actions

The end-user can change the *Description* and *Duration* under tab *1* for all or for a specific lane, then select **Apply** to accept changes and before leaving the screen a confirmation displays.

NOTE: Your screen may vary from the example shown below.

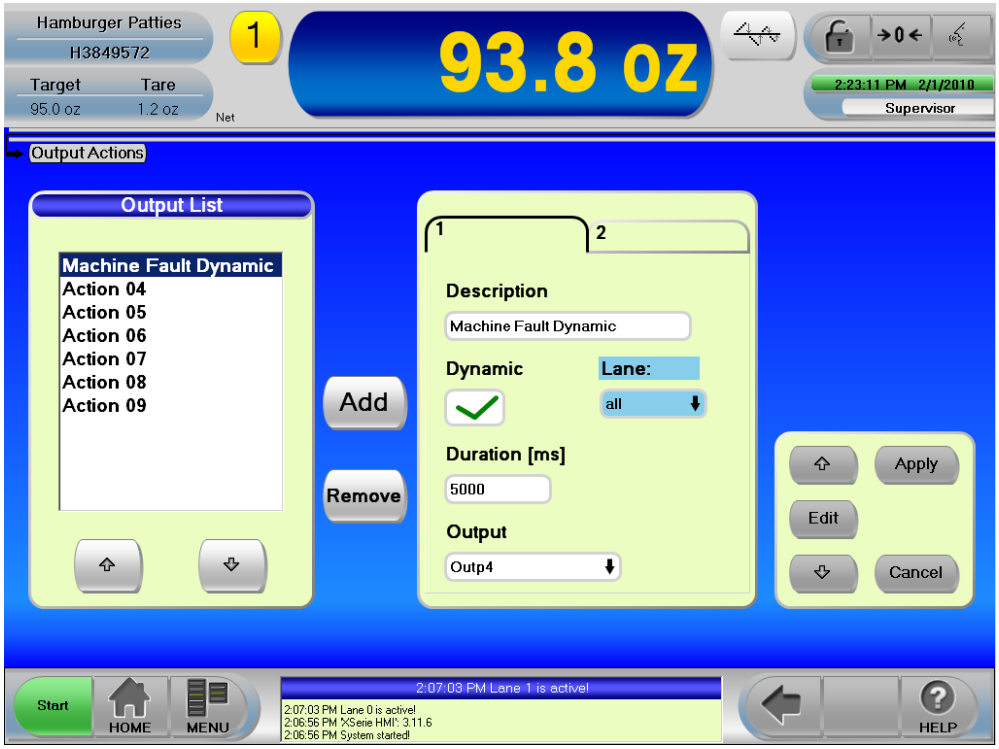


Figure 11.4: Output Actions - Tab 1

Output Actions Definitions - Tab 1

Screen Name	Description
Add	Creates a new Action to the Output List
Remove	Removes an Action from the Output List
Description	User defined description
Lane	Output action can be lane specific or apply to all lanes
Dynamic	Green Checkmark - Enabled (Dynamic output is set with the leading edge of the logic input and is reset after the allotted time in Duration) Red Line - Disabled (Static output is set with the leading edge of the logic input and is reset with the second edge)
Duration [ms]	Only displays if "Dynamic" is enabled. The assigned output will be set with the first signal edge of the function and will reset after time set in "Duration [ms]"
Output	The physical output assigned to the output action

Under tab *2,* the end-user can change the *Mode, Distance,* and *Delay* which applies to all lanes, after changes are made, select **Apply** to accept changes and before leaving the screen a confirmation displays.

NOTE: Your screen may vary from the example shown below.

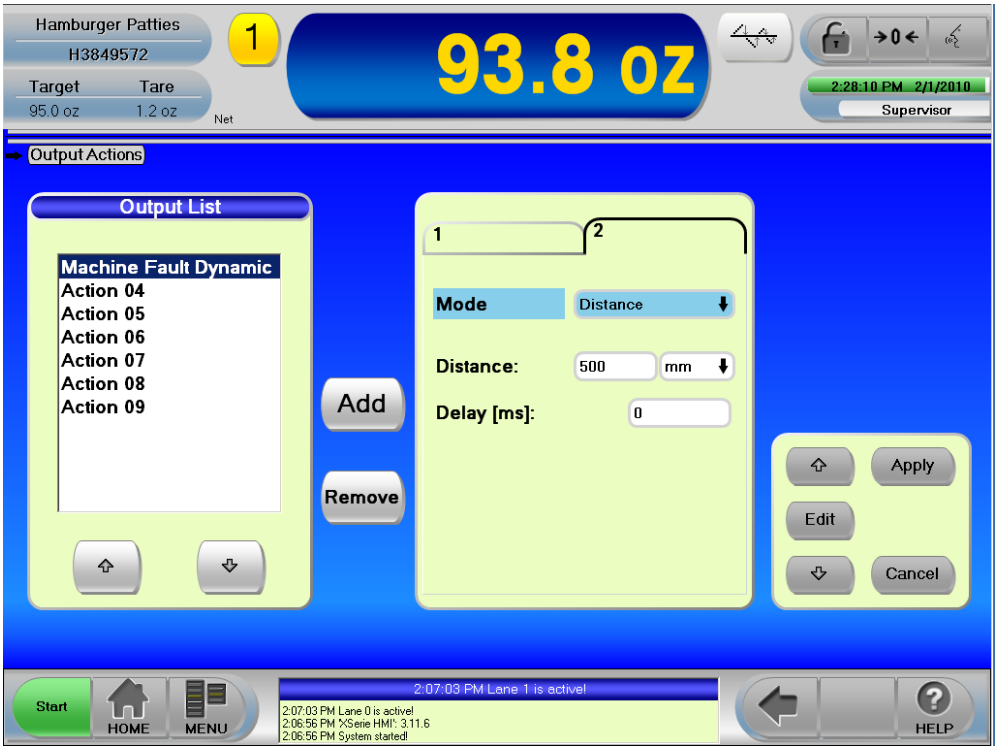


Figure 11.4: Output Actions - Tab 2

Output Actions Definitions - Tab 2

Screen Name	Description
Add	Creates a new Action to the Output List
Remove	Removes an Action from the Output List
Mode	Off Distance - Action triggered after a defined distance Time - After allotted time the defined Action resumes
Distance	Defined distance triggered by the WLB
Delay [ms]	Indicates how many ms the action becomes triggered before reaching the distance

10.5 Messages

After an option has been enabled at the factory a default message is entered which displays on the HMI when an error, overload, underload, spacing fault, missing object, stop belt etc. occurs.

Access Level: Supervisor

Path: Menu–Setup–System–Functions–Message Actions

This screen is used when you want to create, delete, or edit the text for the specific message. Once you have created a message action, you can then use the *Function Allocation* screen to assign the message action to an event. Maximum of 2 messages can be displayed per action.

Select **Add** then select the *Text* field and type the desired message on the virtual keyboard and select **OK** then select **Apply**.

To remove a message, select the message under *Message List* and select **Remove** then select **Apply**.

NOTE: Your screen may vary from the example shown below depending on which options are purchased

Figure 11.3: Message Actions Screen

Message Screen Definitions

Screen Name	Description
Message List	List of existing messages
Text	Message text input
Add	Add or edit a message
Remove	Remove an existing message
Apply	To enable edits
Cancel	Cancel edit

This page left intentionally blank.

11 Interfaces

This chapter contains information about the possible interfaces to the checkweigher.

11.1 Overview

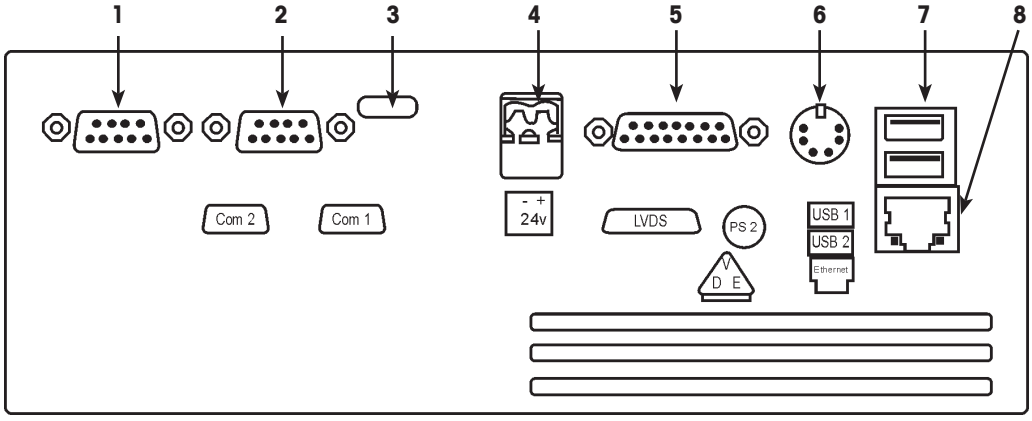


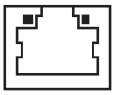
Figure 11.1: Overview Interfaces and Connections

1. Serial Interface COM2 D-Sub 9 Pins
2. Serial Interface COM1 D-Sub 9 Pins
3. LED indicator 12 V/5 V
4. 24 VDC
5. HMI (Terminal Connection)
6. PS/2 (Keyboard Connection)
7. USB (2x)
8. Ethernet

If the X-Series control has to be equipped with an external accessible interface (extension of the IPC connection) it is usually located in the control enclosure floor in the cable conduit.

11.2 Ethernet

Ethernet is a network connection for Local Area Network (LAN).



All X-Series controls are equipped with an Ethernet interface, which is located on the IPC inside the control enclosure.

A link is indicated by a yellow LED on the right hand side of the connector; active data transmission is indicated by a green blinking LED on the left hand side of the connector.

11.3 USB

USB is a serial I/O interface.

Both USB interfaces (USB1 and USB2) function identically and are located in the control enclosure on the X-Series IPC.

An optional USB interface can be mounted on the side of the control enclosure and is protected by a cover when not in use.

11.4 PS2 Keyboard Connection

An external keyboard can be connected to the X-Series IPC.

11.5 Serial interfaces COM1 and COM2 D-Sub / 9pins

Serial interface ports for communicating with end-user devices.

- Interface V24/RS232C with or without handshake lines with a maximum transmission line length of approx. 10 m
- Interface CL20 (current loop 20 mA) active or passive, with a maximum transmission line length of 1000 m
- Interface RS422A with a maximum transmission line length of 1000 m

11.5.1 Interface Configuration

NOTE: The shield of an interface cable must always be grounded (See Chapter 1: Wire Split Procedure For Shielded Cable).

CAUTION

NEVER CONNECT THE "SCREENING" WITH GND. (SIGNAL GROUND TxD/RxD)

The interface adaptors of COM 1 and COM 2 have been setup as required by the application. The default setting made for COM 1 is "V24 / RS232C".

The interface has the following parameters:

11.5.2 Customized Configuration

Baud rate: 1200, 2400, 4800, 9600, or 19200 baud
Parity: even, uneven, none
Stop bits: 1, 2
Data bits: 7, 8

NOTE: For data transmission without handshake lines do not make connections to the contacts 7 (RTS) and 8 (CTS).

The "ex" configuration is as follows:

11.5.3 Default Configuration

Baud rate: 9600 baud
Parity: none
Stop bits: 1
Data bits: 8

11.5.4 The Interface Connection

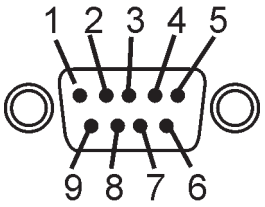
Cables produced by the customer must comply with the following specification:

- Screened (shielded)
- Twisted in pairs
- Line resistance < 125 W/km
- Line cross-section > 0.14 mm2
- Line capacitance < 130 nF/km

11.5.5 COM 1: RS232C With Handshake Lines

D-SUB connector, 9 pins. Suitable plug: D-SUB 9 (female).

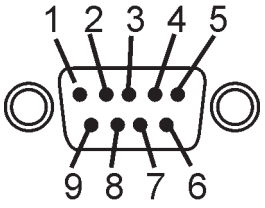
NOTE: For data transmission without handshake lines do not make connections to the contacts 7 (RTS) and 8 (CTS).



1	Not used
2	RxD, reception line of the checkweigher
3	TxD transmission line of the checkweigher
4	Not used
5	Neutral/Gnd
6	Not used
7	RTS
8	CTS
9	Not used

11.5.6 CL2 Interface (Line Current 20 mA)

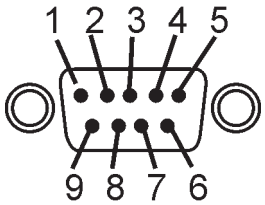
D-SUB connector, 9 pins. Suitable plug: D-SUB 9 (female).



1	RxD+
2	RxD–
3	Not used
4	TxD+
5	TxD–
6	Not used
7	Not used
8	Not used
9	Not used

11.5.7 RS422A Interface

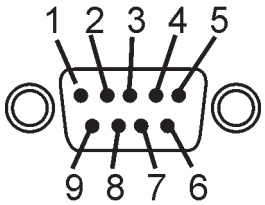
D-SUB connector, 9 pins. Suitable plug: D-SUB 9 (female).



1	TxD–
2	Not used
3	TxD+
4	Not used
5	RxD–
6	Not used
7	RxD+
8	Not used
9	Not used

11.5.8 CL2 Interface (Line Current 20 mA)

D-SUB connector, 9 pins. Suitable plug: D-SUB 9 (female).



1	TxD–
2	Not used
3	TxD+
4	Not used
5	RxD–
6	Not used
7	RxD+
8	Not used
9	Not used

11.6 Setup Interface Menus

The following screens are used to configure the serial ports on the checkweigher to match the end-user's equipment that they will be connected to. There are two types of interface setups "Serial Setup PC" and the "Serial Setup XRTC". If the port setting is not available it will not show on the drop down list.

The *Baud Rate, Data Bits, Parity,* and *Stop Bits* settings are standard parameter settings for serial communications. They must match the settings of the device that the checkweigher is communicating with over the port. The *Protocol* setting selects the communication protocol to be used for that port.

Access Level: Supervisor

Path: Menu–Setup–Systems–Interfaces

Select a field to activate and change a parameter then select **Apply**.

11.6.1 Serial Setup PC

Figure 11.2: Serial Setup PC Screen

Serial Setup PC Screen Definitions

Screen Name	Description
Baud	1200, 2400, 4800, 9600, 19200
Data Bits	7, 8
Parity	None, Odd, Even
Stop Bits	1, 2
Protocol	None, Weight Data, BarcodeScanner, Tare Gross

11.6.2 Serial Setup XRTC

Figure 11.3: Serial Setup XRTC

Serial Setup XRTC Screen Definitions

Screen Name	Description
Baud	1200, 2400, 4800, 9600, 19200
Data Bits	7, 8
Parity	None, Odd, Even
Stop Bits	1, 2
Protocol	None, Weight Data, BarcodeScanner, Tare Gross
Serial Format 1 XRTC	COM ports may be further configured

12 Data Output Formats

This chapter list the available output data formats.

12.1 Serial Interface Output Weight Data Formats

Depending on which format number was selected in the serial outputs 1, 2, 3, 4, 5, 6, 7, or 8 or special formats 2000, 2001, 2053, or 2076 selected in the interface configuration the string is designed as follows:

Be sure to type the format characters in All Caps.

NOTE: Please inquire about special formats.

Format 1: (STX)...(ETX) with package name

The string consists of 22 characters.

Start	Package name	Weight	Unit	End
(STX)	XXXXXXXXXX	XXXXXXX	XXX	(ETX)

Field	Description
Start (STX)	1 character: (Hex)02
Package name	10 characters, left justified
Weight	7 characters, number of the decimal place according to the configuration (0, 1, 2 or 3), no decimal point with 0 decimal places, right justified with leading blanks
Unit	3 characters, left justified (g/kg/oz/lb)
End (ETX)	1 character, (Hex)03

Example: (STX)COFFEE¬¬¬¬¬500.00g¬¬(ETX)

Format 2: (STX)...(ETX) without package name

The string consists of 12 characters.

Start	Weight	Unit	End
(STX)	XXXXXXX	XXX	(ETX)

Field	Description
Start (STX)	1 character: (Hex)02
Weight	7 characters, number of the decimal place according to the configuration (0, 1, 2 or 3), no decimal point with 0 decimal places, right justified with leading blanks
Unit	3 characters, left justified (g/kg/oz/lb)
End (ETX)	1 character, (Hex)03

Example: (STX)¬¬0.512kg¬(ETX)

Format 3: (CR)(LF) with package name

The string consists of 22 characters.

Package name	Weight	Unit	End
XXXXXXXXXX	XXXXXXX	XXX	(CR)(LF)

Field	Description
Package name	10 characters: left justified
Weight	7 characters: number of the decimal place according to the configuration (0, 1, 2 or 3), no decimal point with 0 decimal places, right justified with leading blanks
Unit	3 characters: left justified (g/kg/oz/lb)
End (CR)(LF)	2 characters: (Hex)0D, 0A

Example: COFFEE¬¬¬¬¬¬¬¬1.2g¬¬(CR)(LF)

Format 4: (CR)(LF) without package name

The string consists of 12 characters.

Weight	Unit	End
XXXXXXX	XXX	(CR)(LF)

Field	Description
Weight	7 characters: number of the decimal place according to the configuration (0, 1, 2 or 3), no decimal point with 0 decimal places, right justified with leading blanks
Unit	3 characters: left justified (g/kg/oz/lb)
End (CR)(LF)	2 characters: (Hex)0D, 0A

Example: ¬¬¬¬¬50g¬¬(CR)(LF)

NOTE: Data output formats 5-8 include the weight zone. The zone is characterized as follows:

OK	is the zone of "accepted" (i.e. "good") products)
–	is the first (inner) zone of underweights
+	is the first (inner) zone of overweights
—	with five zones: second (outer) zone of underweights
++	with five zones: second (outer) zone of overweights

Format 5: (STX)...(ETX) with package name and classification

The string consists of 24 characters.

Start	Package name	Weight	Unit	Zone	End
(STX)	XXXXXXXXXX	XXXXXXX	XXX	XX	(ETX)

Field	Description
Start (STX)	1 character: (Hex)02
Package name	10 characters: left justified
Weight	7 characters: number of the decimal place according to the configuration (0, 1, 2 or 3), no decimal point with 0 decimal places, right justified with leading blanks
Unit	3 characters: left justified (g/kg/oz/lb)
Zone	2 characters: right justified with leading blanks (OK, –, +, —, ++)
End (ETX)	1 character: (Hex)03

Example: (STX)COFFEE¬¬¬¬¬500.00g¬¬OK(ETX)

Format 6: (STX)...(ETX) without package name and classification

The string consists of 14 characters.

Start	Weight	Unit	Zone	End
(STX)	XXXXXXX	XXX	XX	(ETX)

Field	Description
Start (STX)	1 character: (Hex)02
Weight	7 characters: number of the decimal place according to the configuration (0, 1, 2 or 3), no decimal point with 0 decimal places, right justified with leading blanks
Unit	3 characters: left justified (g/kg/oz/lb)
Zone	2 characters: right justified with leading blanks (OK, –, +, —, ++)
End (ETX)	1 character: (Hex)03

Example: (STX)¬¬0.512g¬¬¬+(ETX)

Format 7: (CR)(LF) with package name and classification

The string consists of 24 characters.

Package name	Weight	Unit	Zone	End
XXXXXXXXXX	XXXXXXX	XXX	XX	(CR)(LF)

Field	Description
Package name	10 characters: left justified
Weight	7 characters: number of the decimal place according to the configuration (0, 1, 2 or 3), no decimal point with 0 decimal places, right justified with leading blanks
Unit	3 characters: left justified (g/kg/oz/lb)
Zone	2 characters: right justified with leading blanks (OK, –, +, —, ++)
End (CR)(LF)	2 characters: (Hex)0D, 0A

Example: COFFEE¬¬¬¬¬¬¬¬1.2g¬¬—(CR)(LF)

Format 8: (CR)(LF) without package name and classification

The string consists of 14 characters.

Weight	Unit	Zone	End
XXXXXXX	XXX	XX	(CR)(LF)

Field	Description
Start (STX)	1 character: (Hex)02
Weight	7 characters: number of the decimal place according to the configuration (0, 1, 2 or 3), no decimal point with 0 decimal places, right justified with leading blanks
Unit	3 characters: left justified (g/kg/oz/lb)
Zone	2 characters: right justified with leading blanks (OK, –, +, —, ++)
End (CR)(LF)	2 characters: (Hex)0D, 0A

Example: ¬¬¬¬¬50g¬¬¬+(CR)(LF)

Format 2000: (CR)(LF) weights only

The string consists of 9 characters.

Weight	End
XXXXXXX	(CR)(LF)

Field	Description
Weight	7 characters: number of the decimal place according to the configuration (0, 1, 2 or 3), no decimal point with 0 decimal places, right justified with leading blanks
End (CR)(LF)	2 characters: (Hex)0D, 0A

Example: ¬¬¬49.2(CR)(LF)

Format 2001: (CR)(LF) weights only (with leading zeros)

The string consists of 9 characters.

Weight	End
XXXXXXX	(CR)(LF)

Field	Description
Weight	7 characters: number of the decimal place according to the configuration (0, 1, 2 or 3), no decimal point with 0 decimal places, right justified with leading blanks
End (CR)(LF)	2 characters: (Hex)0D, 0A

Example: 00049.2(CR)(LF)

Format 2053: (STX)... (CR)(LF)(ETX) weights only

The string consists of 12 characters.

Start	Leading Char	Weight	End
(STX)	Space	XXXXXXX	(CR)(LF)(ETX)

Field	Description
Start	1 character: (Hex)02
Leading Char	1 character: (Hex)20
Weight	7 characters: number of the decimal place according to the configuration (0, 1, 2 or 3), no decimal point with 0 decimal places, right justified with leading blanks
End (CR)(LF)(ETX)	3 characters: (Hex)0D, 0A, 03

Example: (STX)¬¬¬¬49.2(CR)(LF)(ETX)

Format 2076: (STX)... (ETX) weights with backslash

The string consists of 10 characters.

Start	Leading Char	Weight	End
(STX)	/	XXXXXXX	(ETX)

Field	Description
Start	1 character: (Hex)02
Leading Char	1 character: /
Weight	7 characters: number of the decimal place according to the configuration (0, 1, 2 or 3), no decimal point with 0 decimal places, right justified with leading blanks
End (ETX)	1 character: (Hex)03

Example: (STX)/¬¬¬49.2(ETX)

12.2 Ethernet Interface Data Communications

There are many ways for transmitting data to the checkweigher via the intranet or for requesting data from the checkweigher via the intranet.

The Ethernet port is used for the following applications:

- FreeWeigh.Net
- LogInServer
- CW-ReAcT II
- GARECO

Parameters are entered at the checkweigher only once. For applications where the data must be further processed, for example weight data or GARECO, it is important to understand how the Ethernet and TCP/IP work.

12.2.1 TCP/IP Overview

In the 1960s, the American military placed an order to create a protocol that should allow for a standardized communication, irrespective of the hardware and software used, between any number of different networks. From this requirement specification, the protocol TCP/IP arose in the year 1974. Even though TCP and IPS are always mentioned together in one word, they are two protocols one of which works on top of the other. The Internet Protocol (IP) ensures the right addressing technique and delivery of the data packets while the Transport Control Protocol (TCP) which is on top of it is responsible for the transfer and protection of the data.

IP Addresses

Under IP each network subscriber has an unique internet address, which is often referred to as "IP number". This internet address is a 32-bit value that is always transmitted by four decimal numbers separated by decimal points (8-bit values) for better legibility (dot notation). The internet address consists of Net ID and Host ID, with the Net ID serving for addressing of the network and the Host ID serving for the addressing of the network subscriber within a network.

The network administrator can choose the assignment of the Host ID to the network subscriber and thus the resulting IP address. Ensure that an IP address is assigned one at a time.

TCP/IP Ethernet

TCP/IP is a purely logical protocol and always requires a physical basis. Today, Ethernet has the biggest popularity among the physical network topologies, and so the Ethernet is in most TCP/IP networks.

TCP – Transport Control Protocol

As IP is an unsecured, connectionless protocol, it normally works together with the TCP on top of it, the latter ensuring the protection and the handling of data. TCP establishes a connection between two Network subscribers for the duration of the data transmission. During the connection, conditions will be determined – for example the size of the data packets – which are applied to the connection during the entire connection duration. TCP can be compared to the telephone connection as an example. Subscriber A dials to subscriber B; subscriber B accepts the connection by picking up the handset, the connection then remains until one of the two subscribers hangs up.

TCP – Client-Server Principle

The network subscriber who builds a connection is called "the client". The client makes use of a service offered by the server, with – depending on the service – one server being capable of serving several clients simultaneously. The network subscriber to which the connection is made is called "the server". A server waits for a "client" to establish a connection to it. In TCP context, these two are referred to as TCP client and TCP server.

TCP Connection

TCP has fixed mechanisms for the established connection between client and server. An established connection is used to synchronize both subscribers in accordance with the data flow to be transferred, and to exchange transfer parameters such as the package length and receive-memory capacity.

Flow Controls

TCP has several ways to ensure the data transfer:

- The sender must maintain all data i.e. keep them available until they are acknowledged by the recipient.
- In case of faulty packages, for example data packages with a wrong checksum, the recipient returns the last acknowledgement number to the sender, whereas the sender repeats the data package.
- In case of lost packages the sender repeats all packages, after a timeout has ended, after the acknowledgement was received.

Port Numbers

TCP also forwards the data to the target computer user program, by contacting different user programs – also referred to as "services" – via different port numbers. All port numbers from 0 to 1023 are occupied by standardized services.

The following table shows typical applications.

Port	Name	Application/Service
21	FTP	File Transfer
23	TELNET	Terminal over Network
25	SMTP	Simple Mail Transfer
53	DOMAIN	Domain Name Service
80	HTTP	Hypertext Transfer
115	SFTP	Simple File Transfer

12.2.2 Checkweigher Configuration

Access Level: Supervisor

Path: Menu–Setup–System–Interfaces–Network

To setup the checkweigher as a subscriber on the network, the IP address must be entered first. The IP address must be unambiguous within the intranet. Also the sub-net entry screen must be set to a value which is valid for your network. These two values are of extreme importance for the correct function of the checkweigher on the network. The values should always be determined by the network administrator, the settings shown in the figure below represent only an example!

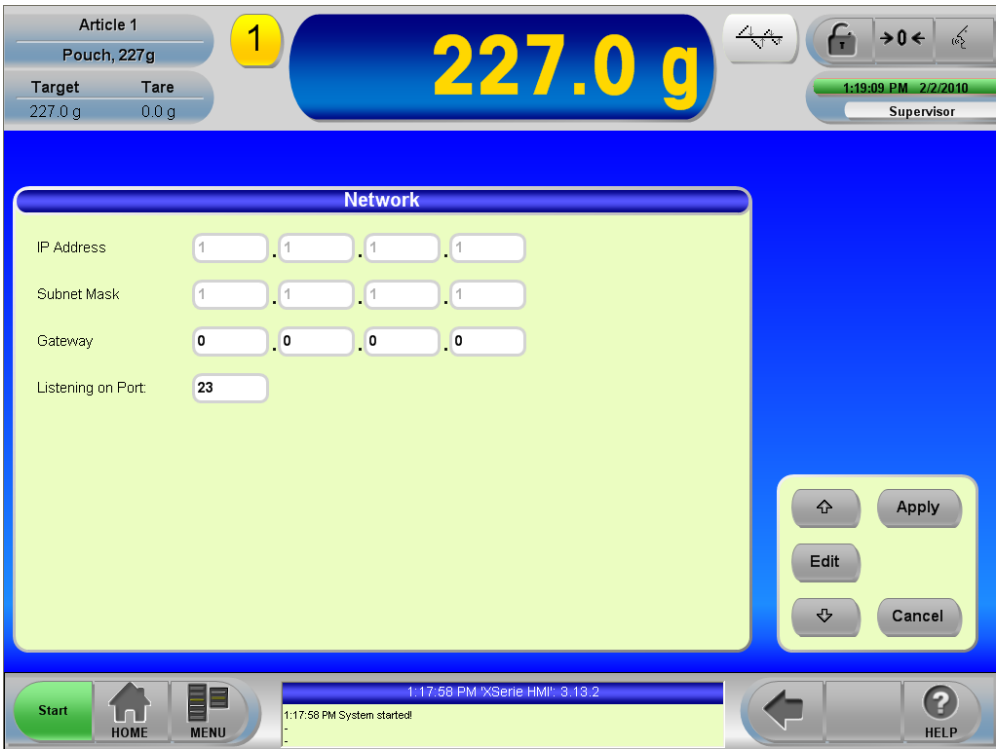


Figure 12.1: Graphics Table Screen

Network Screen Definitions

Screen Name	Description
IP Address	Set at the factory cannot be changed by end-user
Subnet Mask	Set at the factory cannot be changed by end-user
Gateway	End-user server IP address
Listening on Port	23 - Standard HyperTerminal value

Network Configuration Screen

With optional GARECO or FreeWeigh.Net purchased and enabled the checkweigher can send the weight data of the weighed products and will answer instructions from the remote control protocol per a TCP/IP connection from a TCP client to the checkweigher.

When the TCP server is started, it looks for the "Connect on port:" for connection inquiries/requests from TCP clients. Any desired value can be entered. However, be aware that all values which are less than 1023 may cause conflicts with standard network services.

The value 23 is the standard service "HyperTerminal" is based upon this port number.

Restart the checkweigher.

12.2.3 HyperTerminal Ethernet Test

HyperTerminal is a text-based window that can be used to remotely control another computer (host) on the network. All modern operating systems include a HyperTerminal client program. The HyperTerminal client establishes a TCP/IP connection with a server, receives the keyboard entries from the user, sends them to the server and then displays the characters received by the server on the HyperTerminal screen.
To start HyperTerminal see the path below.

Access level: Supervisor

Path: (on MS Windows, usually under: "**C:\Program Files\Windows NT\hypertrm.exe**"
-or-
From your PC select **Start–All Programs–Accessories–Communications–HyperTerminal**

After HyperTerminal opens:

Type "**Test**" in the *Name* field

Select **OK**

Figure 12.1: Type Name

From the *Connect using:* drop down list select **TCP/IP (Winsock)**

Figure 12.2: Select Connection TCP/IP (Winsock)

In the *Host address* field type the Checkweigher host address.
Select **OK**

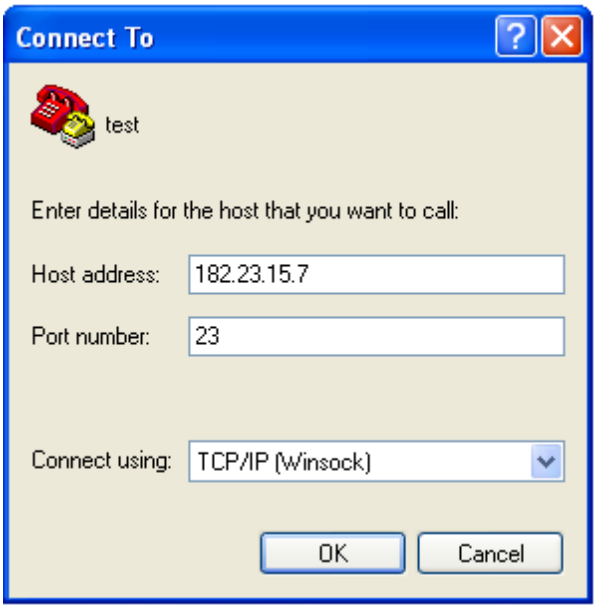


Figure 12.3: Host Address Screen

Select the **Disconnect Phone** icon

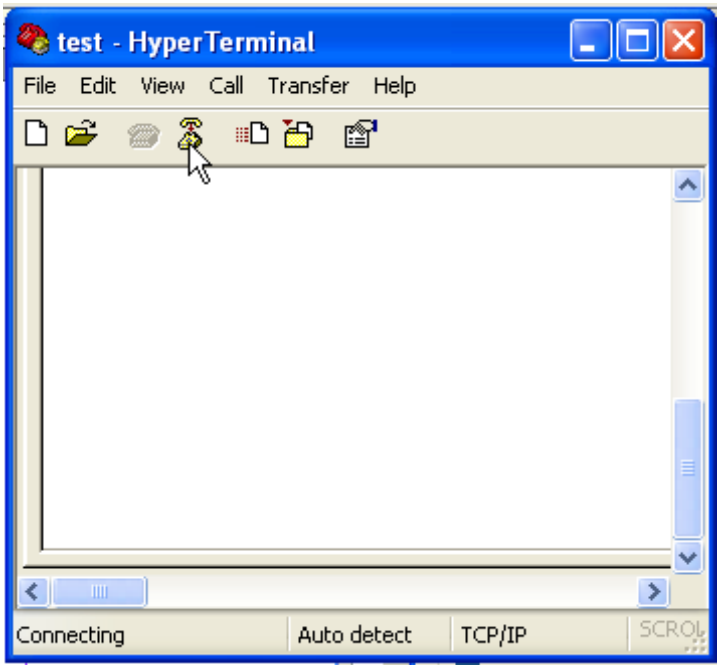


Figure 12.4: Select Disconnect Phone

On the Hyperterminal screen Select **File-Properties**.

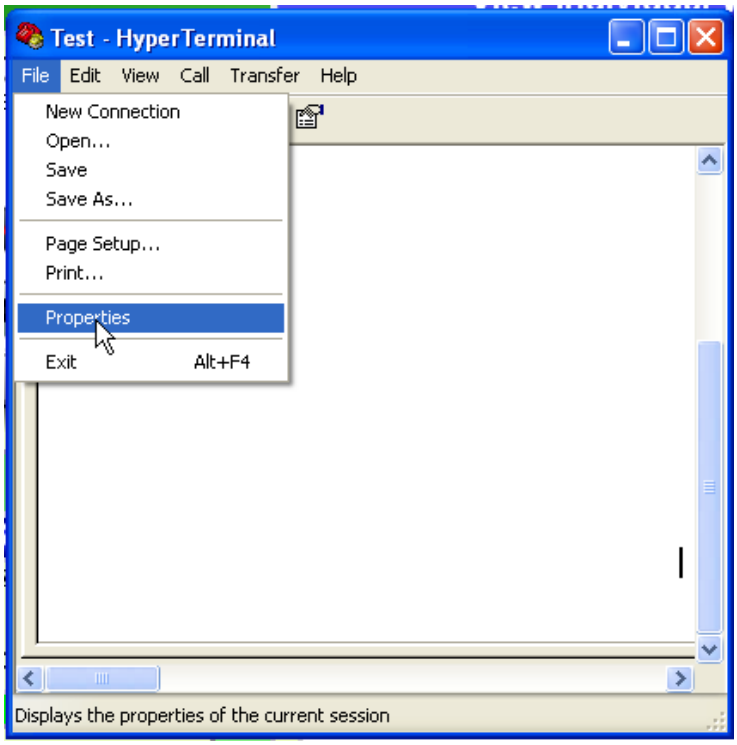


Figure 12.5: Open Properties

Select the **Settings** tab.

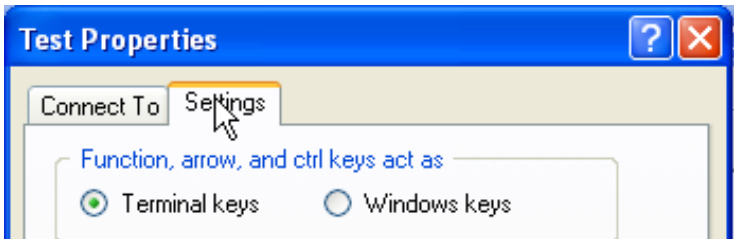


Figure 12.6: Settings Tab

Select **ASCII Setup**.

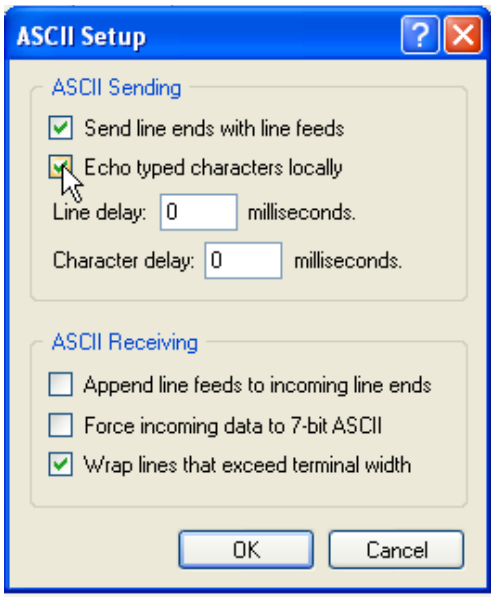


Figure 12.7: ASCII Setup

Enable ☑ *Send line ends with line leeds*
Enable ☑ *Echo typed characters locally*
Select **OK,** select **OK** again.

Select the **Phone** Icon to start the test.

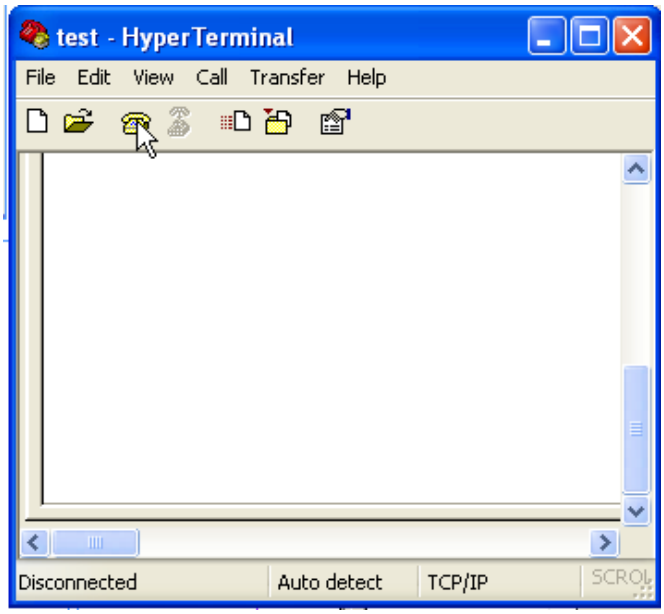


Figure 12.8: Phone Icon

If the test is successful you should see the following screen.

Type in "All Caps" **WD_TEST**
If communication is OK "WD_OK" appears.
Type in "All Caps" **WD_START** and the weights will start recording.

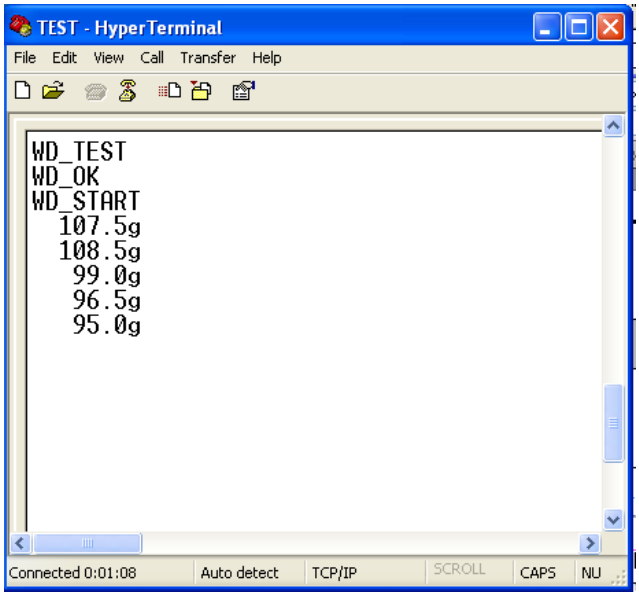


Figure 12.9: Recorded Weights

12.3 Receiving Weight Data Via TCP

1. Establishing the connection.
2. Determining the protocol type – if deviating from the standard setting.
3. Determining the protocol format – if deviating from the standard setting.
4. Starting the transmission.
5. Stopping the transmission.
6. Test the connection.

(SPACE) = Blanks, ASCII-HEX 20h

(CR)(LF) = Carriage Return, LineFeed (ASCII-HEX 0Dh 0Ah); with Telnet: "Enter" key

Establishing The Connection

1. Establish the connection.

Determining The Protocol Type

The protocol type determines which kind of weight value from the checkweigher shall be transferred. There are 4 different protocol types at your choice.

2. Transmit the string "**WD_SET_PROT**(SPACE)X(CR)(LF)", with X being a value from the following list:

X	Type of Protocol
2	Transmission of the current weight value (standard)
3	Transmission of the current weight value, with a transmission taking place only for "not rejected" products
4	Transmission of the gliding "mean value" after each weighing. This is the value that is also shown in the left speedometer (tacho gauge) of the basic screen.
5	Transmission of the mean value of the last "n" products, with "n" being user-entered at the checkweigher control. A transmission will take place only every "n" product.

NOTE: You need to determine the protocol type only in cases where it deviates from the standard setting X=2!

Determining The Protocol Format

Moreover, four different protocol formats are at your choice. After having determined the "what" now here is the determination of "how", with regard to the transmission. The protocol format determines the pattern of the character string in which the weight data will be sent.

3. Transmit the string "WD_SET_FORMAT(SPACE)X(CR)(LF)", with X being a value from the following list:

X	Protocol Format	Total No. Of Characters
1	(STX); 10 characters package name; 7 characters weight value; 3 characters weight unit; (ETX)	22
2	(STX); 7 characters weight value; 3 characters weight unit; (ETX)	12
3	10 characters package name; 7 characters weight value; 3 characters weight unit; (CR)(LF)	22
4	7 characters weight value; 3 characters weight unit; (CR)(LF) (standard)	12

NOTE: You need to determine the protocol format only in cases where it deviates from the standard setting X=4!

Starting The Transmission

4. Transmit the string ""**WD_START**(CR)(LF)".

From now on, for each product that follows now, the transmission will be performed based upon the set (entered) type and format.

Stopping the transmission

5. Transmit the string "**WD_STOP**(CR)(LF)".

The transmission is stopped.

Testing The Transmission

A peculiarity of a TCP connection between TCP server and TCP client is the fact that the client cannot determine automatically whether the server has perhaps cancelled the connection. For this reason the client can test by use of an instruction whether the connection still exists.

6. Transmit the string "**WD_TEST**(CR)(LF)".

In cases where the connection exists, the scales immediately send "**WD_OK**(CR)(LF)" as reply.

12.4 GARECO via TCP

1. Establish a TCP connection to the TCP server of the checkweigher by using HyperTerminal as described in this chapter. The TCP server for GARECO is now active and analyzes all incoming characters.
2. Send GARECO instructions to the checkweigher. You will immediately get the answer via the same connection.
3. Send for example: **FB_INFO**(CR)(LF). You will get the answer FB_INF xxx (CR)(LF) in the HyperTerminal window.

For information about further instructions please refer to the GARECO manual.

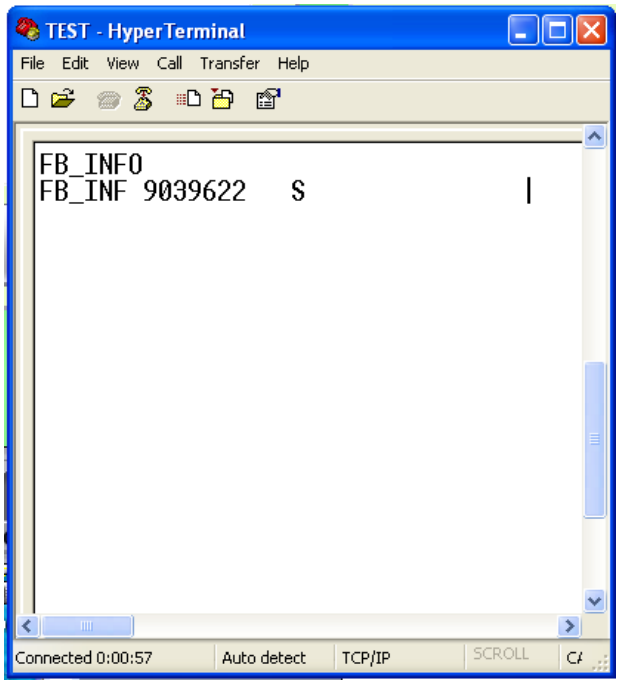


Figure 12.10: GARECO Example

This page left intentionally blank.

13 Error Messages & Actions, Troubleshooting And Emergency Run

This chapter contains information about possible error messages, actions, troubleshooting, and how to do an emergency run.

Access Level: Supervisor (Monitor and Operator can view the screen)

Path: Menu–Maintenance–Data Backup

Before you call for service on your machine please have the following information available for a more thorough response from the Mettler-Toledo Hi-Speed Customer Service Department (1-800-836-0836 or 1-607-257-6000).

- The Mettler-Toledo Hi-Speed order number
- Precise wording of the error message or detailed fault description

13.1 Product-Related Messages

Figure13.1: In the information field of the Home Screen text messages display which inform the operator about certain processes or malfunctions. Your system may or may not have all of these options.

Error Message	Description
***	If a weight value could not be determined, three asterisks appear in the weight display. They call the operators attention to the error message (clear text) displayed in the information field at the bottom of the basic (Home) screen. If there is no error message displayed in the information field then the asterisk indicate that the machine needs to be recalibrated.
Emergency Run Activated	The "emergency run" mode has been activated (i. e. the emergency run switch has been set to this position). The checkweigher represents a simple "conveyor" now. Weighing, product classification and sorting/rejecting by the checkweigher do not take place anymore. **NOTE:** The conveyors of the checkweigher must be switched on manually, by means of the conveyor start ("I") push-button (not with the menu field "start" on the screen).
Insufficient Item Spacing	The spacing is to small in-between items, e.g., incoming products are following too closely.
Successive Errors Detected	The self-diagnostics function "successive errors detection" has detected a series of "not accepted" items after the maximum number of successive "non accepts" entered by the user was reached, and has released this error message – as well as any additional reaction configured (e. g. activation of special contact or conveyor shutdown). Check the cause of the series of "non-accepts" and clear that fault. Possible causes are successive overweights or underweights, insufficient space between items and similar fault conditions which lead to the classification of the items as "not accepted".
Open Flap Detection	(Option) The self-diagnostics function "open flap detection" has detected a package that with an open flap and has released the message. The product is rejected by the rejecting device allocated to this function.
Askew Package Detected	(Option) The self-diagnostics function "askew packages detection" has detected a package that was askew to the transport belt, and has released the above message. The item concerned is rejected by the rejecting device allocated to this function.

Error Message	Description
Countercheck: Reject Failure	(Option) The "rejection countercheck" device (light barrier) has detected a product which actually should have been rejected. The self-diagnostics function "rejection countercheck" has released the above message. Depending on the chosen type of action, the transport belts have been stopped as well (conveyor shutdown) or the product concerned was finally rejected by a special rejector installed downstream for this purpose. The rejection failure which was detected by the "countercheck" can have various reasons: ■ There was a lack of compressed air such that the rejector's action was poor ■ The rejecting device is defective, badly aligned ,or mounted in an unsuitable place ■ The wrong distance has been entered on the Rejecter Settings screen for the rejecting device, causing it to react at the wrong point in time.
Countercheck: "Accepted" Product Missing	(Option) The countercheck device (light barrier) has detected a "good" product which did not reach the outfeed of the weighframe. The self-diagnostics function "rejection countercheck" has released the above message. Perhaps the good product was manually removed from the transport belt or it was rejected by accident (e.g., rejected along with a bad product).
Lack of Compressed Air, Air OK	(Option) The number on the screen indicates the number of the rejector which is low on compressed air (typically 90-140 psi). After the air compression is checked and resumed then "Air OK" displays.
Successive Errors Detected	When 2 or up to 99 (programmable) successive products are either all classified as "not accepted" (bad), a message is displayed on the XS Control "Successive Errors" and the Red light illuminates on the stack lights to inform the operator.
Overload	Weight value was higher than the weighframe's parameterized weighing range.
Underload	Weight value was lower than the weighframe's parameterized weighing range.
Metal Detected	(Option) Metal has been detected by the metal detector.
Metal Monitoring: Item Missing	(Option) After entering/modifying the metal detector parameters on the checkweigher control, the new settings could not be successfully transmitted to the metal detector. This failure can have various reasons: ■ The metal detector is switched off or the power supply to the metal detector is missing. ■ The cable connection between the checkweigher and the metal detector is bad, e.g.. disturbed or loose. ■ The serial interface parameters (of port COM1 or COM2) set correctly at the factory for transmissions between the checkweigher and the metal detector have been modified and are unsuitable for communication between checkweigher and metal detector.
Metal Detected or: Missing Metal Detected	(Option) The metal detection input of the checkweigher is receiving a signal. This means, depending on the optional metal detector's mode of operation, that the metal detector has detected a metal contaminated product, or (in inverse detection mode) a product a metal part of which is missing. Depending on the configuration of the checkweigher, the product has been rejected or the transport belts have been stopped (conveyor shutdown).

Error Message	Description
Product Backup, Backup Cleared	The external system (e.g. PLC) which is connected to the checkweigher has transmitted a "Product Backup" message to the checkweigher. After the product backup has been removed, the o.k. message "Backup Cleared" will appear on the screen.
Light barrier Is Obstructed	The interruption i. e. "dark phase" of the weighing light barrier (photoeye) takes too much time; the duration of the "dark phase" corresponds to more than 3 times the length of the weighing belt, or it is even permanently dark. This phenomenon can be the consequence of a dirty or badly aligned photocell, or reflector, respectively. If necessary, call the Mettler-Toledo Hi-Speed Service.
Insufficient Distance To Rejecting Device	The distance between the weighing conveyor and the sorting/rejecting device is too short, or the belt speed is too high, respectively; thus the rejecting device concerned cannot react quickly enough.
Incorrect Product Lengths	The weighing light barrier has recognized a "too long" item. This means a) that a item is longer than the weighing conveyor – or – b) (When the checkweigher is equipped with the option "item length check") that an item is longer than the "max." item length entered by the user in the Package Data. "Too long item" sometimes means that two items are too close together, i. e. without any gap in-between. Another reason for this error message may be wrong packaging of an item.
Reject Verify	(Option) Detects a package that should have been rejected by scanning across the accept path.
Remote Backup Detection (Light Barrier)	(Option) When the light barrier is blocked for longer than the preset time assigned by the customer (typically 0.1 to 2.5 sec.), a contact is activated to shut down the conveyor then the red light will display on the signal pole. Sensor is provided on a cable, for remote mounting on the customer conveyor.
Remote Billboard	Displays the mean value as items are weighed on the scale
3 Light Signal Pole:	■ Green light = the conveyor is running ■ Yellow light = the conveyor is idle ■ Red light = the conveyor is stopped
Loadcell Fault	1. Item passing the WLB is determined to be longer than than scale length entered in lane setup. This can be a legitimate fault OR it can be the result of a belt speed/ticksize problem that causes the system to measure the item length to be longer than its actual length. 2. Product Length entered in package setup is greater than scale length entered in lane setup. In this case, Loadcell Fault occurs each time an item passes the WLB. 3. An overload condition occurs in which the item is heavier than the Max Load setting in Loadcell Setup. **NOTE:** If Overload is included in Function Allocations, then the aforementioned condition will appear as an Overload instead of a Loadcell Fault. 4. If an underload condition occurs in which the item net weight (after tare subtraction) is less than zero. **NOTE:** If Underload is included in Function Allocations, then the aforementioned condition will appear as an Underload instead of a Loadcell Fault. 5. Insufficient rejecter timing which can be caused by a rejecter positioned too close to the evaluation point or rejecter duration too long.

13.2 Troubleshooting

13.2.1 How To Recognize A Weighing Problem

Watch the control's displays as the line runs. Some problems are easily spotted in this way. Example: if the weight display blinks as each item crosses the scale, but the weight values are 3-asterisk * * *, this may indicate a faulty weigh cell or incorrect calibration.

Become familiar with your checkweigher. Learn to distinguish between normal and abnormal operation. For example, if your checkweigher suddenly starts rejecting all items weighed, there may be a problem with the weigh cell, with the checkweigher's control or its setup – or a problem with your filler.

Learn the basic symptoms.

1. The machine fails a single, 25–pass scale accuracy test.
2. If you weigh the same item over and over, the displayed weights vary widely.

Test scale accuracy.
Accuracy is listed on the Machine Record Sheets, found in the documentation package sent with your system.

13.2.2 Drift (Gradual Change In Weight Values)

"Drift" means a consistent weighing error that changes gradually.
Typical symptoms: Your line is running and producing consistently good items (as verified by the check scale). In spite of this, the checkweigher displays the wrong net weight for each item. As your line runs, the displayed weights either become progressively heavier than the actual weights, or become progressively lighter.

13.2.3 Weight Displays 3-Asterisk * * * As Items Cross The Scale

This symptom suggests a failure of the load cell or its wiring or power supply. The most likely cause is an overloaded scale. An overload, even of short duration (as when a heavy tool is dropped onto the scale platform), can rupture the cell's internal strain gauges, which unbalances the bridge and causes the cell's output voltage to be abnormally high (resulting in 3-asterisk * * * weight value for every item).

13.2.4 Possible Causes For Weighing Errors

Short-term random weight errors:

- Item transfers on and off the weigh pan is not smooth. Check the weigh pan alignment and height of infeed conveyor.
- Items swaying or rocking as they cross the scale weigh pan. Check the weigh pan alignment and product guides.
- Bulk product or other foreign material buildup on the weigh pan or inside the scale housing.
- Improper alignment of the weigh pan.
- Any noticeable air currents which affect items on the scale. (Place your hand just above the weigh pan, and the infeed and discharge ends of the checkweigher. As a general rule, any draft which you feel can affect accuracy.)
- Mechanical vibration transmitted to the scale through the floor or by other machines touching the checkweigher or possible machine vibration such as a forklift.

Drift:

- Air currents affecting items on the scale. (Place your hand in the position of an item being weighed. Any draft you can feel can cause drift.)
- Faulty weigh cell.
- Mechanical vibration, transmitted through the floor or by other machinery touching the checkweigher. To correct, reposition machinery so the checkweigher is separated by visible air gaps from other equipment.
- Incorrect setup values. To correct, compare values with those listed in the Control Record Sheets; reenter if incorrect. Then recalibrate. The Control Record sheet is in your documentation set sent with your system.

Weight display appears "stuck" – shows 3-asterisk * * * for every item weighed, and doesn't change as items cross the scale.

- Faulty weigh cell, wiring to weigh cell, or power supply.
- Incorrect calibration or incorrect initial setup, including timers.

The checkweigher weighs each item normally, but then suddenly starts displaying 3-asterisk * * * for every item weighed.

- Faulty weigh cell.

Please have your job number available and call the Mettler-Toledo Hi-Speed Customer Service Department at 1-800-836-0836 or 1-607-257-6000

13.3 Emergency Run

In the case of a general failure of your Mettler-Toledo Hi-Speed checkweigher the emergency run facility enables you to maintain the conveyors' function. All checkweighers feature this emergency run circuit.

NOTE: The weighing function of the checkweigher and all other functions are deactivated in the case of emergency run. Only the conveyors are running in order to transport the items.

CAUTION

AFTER OPENING THE CONTROL ENCLOSURE, LIVE WIRES ARE ACCESSIBLE.
THIS PROCEDURE MUST BE DONE BY A QUALIFIED ELECTRICIAN OR TECHNICIAN ONLY.

The *Emergency run switch* for controlling the speed during the emergency run is located in the control enclosure on the XRTC module.

1. Open the door of the control enclosure.
2. On the XRTC module notice the blue botton located on the lower right side.

Figure13.1: Emergency Run Button

3. Slightly turn the blue controller clockwise. There will be a slight resistance at first.
4. Start the conveyors by selecting the **Start** pushbutton.
5. Set the desired speed for the emergency run.

14 Checkweigher Function And Terms

This chapter explains what the checkweigher function is and list the common checkweigher terms.

14.1 What Is A Checkweigher?

Packaging and processing companies use checkweighers to guard against giving away too much product or not providing the consumer with enough product. Checkweighers also help companies use statistical analysis techniques to maintain tight quality control and reduce costs.

Basically, a checkweigher weighs items as they move along a production line, classifies them into preset weight zones, and ejects those items that are unacceptable. A checkweigher often consists of a transport, to move items along a conveyor line; a scale; a scale eye which triggers the weighing cycle; a control, such as the X-series, which analyzes the weight signal and makes statistical decisions; and a rejector station, to remove unacceptable items.

Checkweighers can be both continuous motion and intermittent motion. A continuous motion checkweigher never has items stop on the scale; an intermittent motion checkweigher has items come to a complete, but very brief stop, on the scale. Depending on the item they could enter the scale butt-to-butt or spaced.

14.2 Checkweigher Terms

Checkweigher
A mechanism which weighs items as they move along a production line; classifies the items into preset weight zones (typically as overweight, acceptable, and underweight); and ejects or sorts items of unacceptable weight.

Control
The checkweigher's electronic console.

Counts
On the display, the total number of items classified into each zone.

Fault count
On the display, this value is the number of items with spacing errors and/or weights outside of Zone 0.

Good rezero indicator
This indicator lights when the scale is empty and has settled fully. In many cases, a Good Rezero requires a one-item gap in the flow. If 15 minutes pass without a Good Rezero, the Needs Rezero indicator will display.

Item
A specific product. For example, if your product is 20-ounce boxes of cereal, an item is a single box of cereal.

Menu
Menu lets you access all the functions available to the user who is currently logged in the system.

Needs Rezero indicator
This indicator alerts the operator that excessive buildup on the scale is preventing a Good Rezero or that it's been 15 minutes without a Good Rezero.

Net weight
The weight of the product in the package.

Nominal weight
This weight is the target weight or desired net product weight.

Package
On the display, this is the name you've given the product you're running. For example, you may run 20-ounce boxes of cereal and 14-ounce boxes of crackers. Cereal is the package you would set-up. An item is specific – such as a single 20-ounce box of cereal.

Profile
A profile is a group of users who share common characteristics (for example, all speak English and need access to the Statistic screens).

Rejecter
This mechanism removes unacceptable items from the line after receiving a signal from the control. The reject may be a 24VDC signal, or may be the actual mechanical plow, push-off, or air-blast reject mechanism.

Rezero
Refers to automatic compensation for product buildup on the scale platform or gradual changes in the weight signal from the scale as components age.

NOTE: To perform a Rezero, the control weighs the empty scale. If the Rezero is good (see Good rezero indicator), the weight is stored and used as a zero reference when weighing the next items.

Scale
The weight sensing assembly of a checkweigher. The scale's electrical output is the weight signal.

Tare weight
This value is the weight of the packaging without any product (e.g., an empty box).

Target weight
This weight is the nominal or desired net product weight.

Weigh light barrier (WLB)
Usually a photoelectric scanner which triggers a weighing cycle when an item interrupts its light beam.

Weigh pan
This assembly actually carries the item across the scale during weighing.

Weight display
Each item's net weight or a variation as a plus or minus from the target weight appears here as the production line runs.

Weight signal
The electrical output signal from the scale. It is an analog signal; the output voltage is proportional to the weight applied to the scale.

This page left intentionally blank.

METTLER TOLEDO HI-SPEED
5 Barr Road
Ithaca, N.Y. 14850 USA

©Mettler-Toledo Hi-Speed 2010
Printed in U.S.A.

Phone: 607-257-6000
Toll Free: 1-800-836-0836
Fax: 607-257-5232
Email: hispeed@mt.com
www.mt.com/hi-speed