

Calf Milk **Pasteurizer**

by Westwaard



Installation & Operation Manual

Model:

**20 Gallon Pasteurizers
(WP20G, WP20G with Wash)**

WESTWAARD
FABRICATORS for DARITECH

Revision Sheet

Release No.	Date	Revision Description
Rev. 0	8/5/2011	Manual Completion
Rev. 1	1/08/2013	Layout / Information Update
Rev. 1.1	3/27/2013	Pressure relief valve added to units
Rev. 1.2	9/26/2013	Corrections to part breakdowns
Rev. 1.3	12/27/2013	Updates to part breakdowns
Rev.2	6/20/14	Layout / Information Update
Rev 2.2	9/16/2016	Wiring Diagram and Control Box Layout Update
Rev. 2.3	6/4/2025	HMI part number additions

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Preface

These instructions are supplied with the product and;

- The purpose of this manual is to provide an overview of the safety, installation and operation of this product.
- This manual is designed to be modular and is only in relation to the mentioned product.
- This manual should always be kept with or near the equipment even when the equipment is sold.
- It is the responsibility of the end user to test and maintain the unit to assure continued effectiveness of the machine.

Westward, reserves the right to make changes due to technical developments in the data and images in this manual.

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Arrangement

This manual is arranged in 5 primary sections, with pages, paragraphs, figures, and tables numbered in sequence.

Section 1 – Safety

This section contains critical information essential to the safe operation of the machine.

Section 2 – Installation

This section describes what needs to be done to install the Pasteurizer unit.

Section 3 – Panel Controls

This section identifies and describes the process to program the Pasteurizer Control Cabinet.

Section 4 – Operation

This section will walk you through the different operations modes and settings of the Pasteurizer unit.




Section 5 – Wiring Diagram / Parts List

Covers the Wiring Diagram for PLC control cabinet and the cabinets internal components for the 20 gallon & 20 gallon with wash.

Explanation of Symbols

The following symbols are used within this manual to alert the reader to important information or potentially hazardous conditions.

Safety Symbols draw attention to adjacent text and should always be read and thoroughly understood.

	WARNING! Warning signals danger to life or health of personnel. Death or serious injury may result if the danger is not avoided.
	CAUTION! Caution signals dangerous situations. Injury may result if the danger is not avoided.
	ATTENTION! Attention signals important information, risks to the product or the environment.

Section 1 - Safety

1.1 - Obligation of Care

This product has been designed and constructed while taking careful analysis and standards and other specifications to be compiled with to ensure a safe level of security.

This safety can only be achieved in practice when all of the necessary measures have been taken. It is part of the owner's obligation to plan and check these measures.

1.2 - General

The Westwaard Pasteurizer built for on farm pasteurization of "waste" milk for the use of feeding calves. It, under no circumstance, is to be used as a pasteurizer for human consumption. It is designed as an economical, reliable, easy cleaning method for the dairyman to pasteurize and distribute waste milk for calves. It is in the responsibility of the end user to test and maintain the unit to assure continued effectiveness of pasteurization.

1.3 - Precautions

- Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, repairing, unplugging or filling the unit.
- Be sure all safety covers are in good condition and properly installed before operating.
- Properly disconnect unit from electrical power source when servicing.
- Know and respect the machinery, approach moving parts with caution.
- Understand the location and function of all machinery and controls.
- Keep hands, feet and clothing away from any moving parts.
- Never remove / leave exposed guards during operation.
- Always Lock out, Tag out machine when shutting down for maintenance.
- Always be attentive for machine malfunctions or unusual noises. These can indicate problems requiring immediate attention.
- Particular attention must be paid to any supplementary or auxiliary items wired or plumbed to the system (detergents, acids, etc).
- Keep the DOOR TO THE ELECTRICAL CABINET CLOSED! Only authorized personnel may open the door when maintenance is necessary.



Only qualified maintenance personnel should perform maintenance or troubleshooting operations!

For additional safety information you can find local safety procedures via the Web Sites below.

Location	Administrated by	Web Site
In Canada	Canadian Center for Occupational Health and Safety	www.ccohs.ca
In USA	Occupational Safety and Health Administration	www.osha.gov
In European Union	European Agency for safety and Health at Work	www.europe.osha.eu.int

Section 2 – Installation



Once unit is placed, it is important to make sure the leveling feet are installed and adjusted so that the top of vat is level. The Vat has a built in 3” slope to drain.

2.1 - Included Accessories

Each pasteurizer unit will come with three attachments that can be mounted to the dispensing hose or inside the tank. These attachments connect to the unit using a cam lock for quick and easy connections.



Agi-wand

The agitation nozzle or Agi-wand, attaches to the quick cam connection on the inside of the pasteurizer tank. The Agi-wand is used to agitate the calf milk inside the tank to maintain a consistent temperature throughout the tank while the calf milk is pasteurized.

The spray ball is used in the cleaning cycle for proper mixing of chemicals and rinsing. The spray ball, like the Agi-wand, connects to the quick cam connection on the inside of the pasteurizer tank.



Spray Ball

The dispensing nozzle connects to the quick cam on the dispensing hose. The dispensing nozzle is used to transfer the pasteurized calf milk for distribution to calves.



Dispensing Nozzle

See part manual for replacements

2.2 - Connections



ELECTRICAL SHOCK HAZARD - Before continuing ensure that all power sources to the unit are disconnected before proceeding with any wiring or electrical connections.

i.- Electrical

20 Gallon Unit

30 Amp 240 VAC single phase receptacle.
Unit comes with 6' range cord with plug.

20 Gallon Unit
w/ Wash

30 Amp 240 VAC single phase receptacle.
Unit comes with 6' range cord with plug.



If wiring to a 240 VAC 3 phase system, care must be taken to make sure system is not wired into the high 3 phase leg.

ii. - Water Solenoid Inputs

The 20 gallon Pasteurizer has one water solenoid, if using the optional wash feature there will be three water solenoids. The solenoid(s) will need to be plumbed to a water supply before the unit can operate. The three solenoids are:

1. Cool Water Solenoid - for cooling through water jacket.
2. Hot Wash Water Solenoid (160°F minimum water supply) **(if equipped)**
3. Cold Wash Water Solenoid **(if equipped)**

The 20 gallon unit has ½” hook ups and will fit most garden hose connections. Once the unit is in place and level the connections can then be plumbed. After all the connections have been properly plumbed and checked for leaks only then can the water jacket be filled.

iii. – Water Line Hook-ups

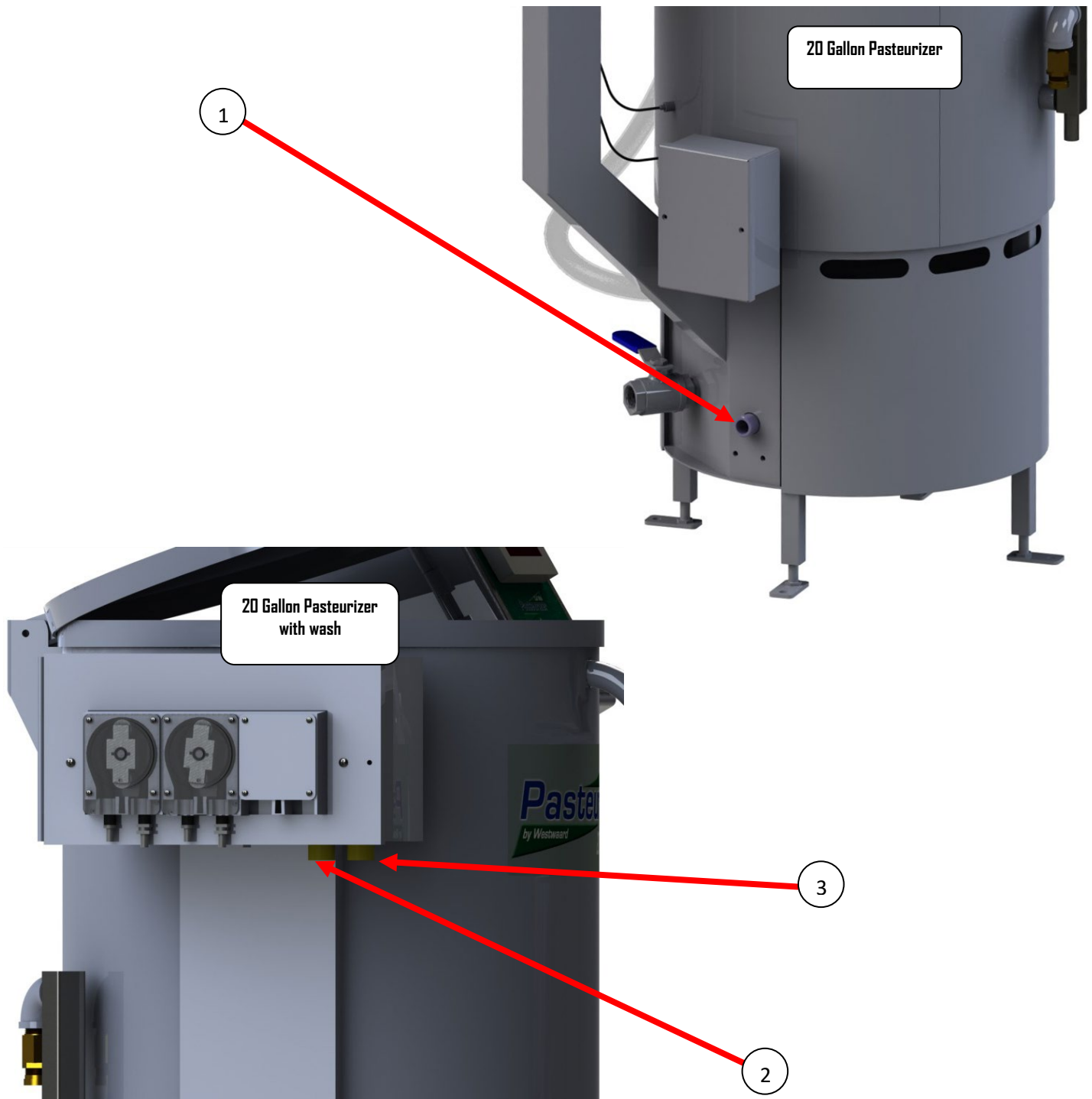
Pressure relief valve

The pressure relief valve is an emergency discharge to relieve pressure build up inside the tank. Pressure build up can occur when the discharge tube has restricted flow or has been plugged. The relief valve will trigger at 4psi to prevent the tank from over pressurizing and damaging the unit.

In no way is the relief valve to be tampered with or altered.

The solenoid is located next to the drain valve near the bottom of the pasteurizer unit. If equipped with the wash option, the remaining two solenoids connections will be on the bottom side of the CIP Box. Water connections are installed like your typical faucet layout, with hot being on the left and cold being on the right.

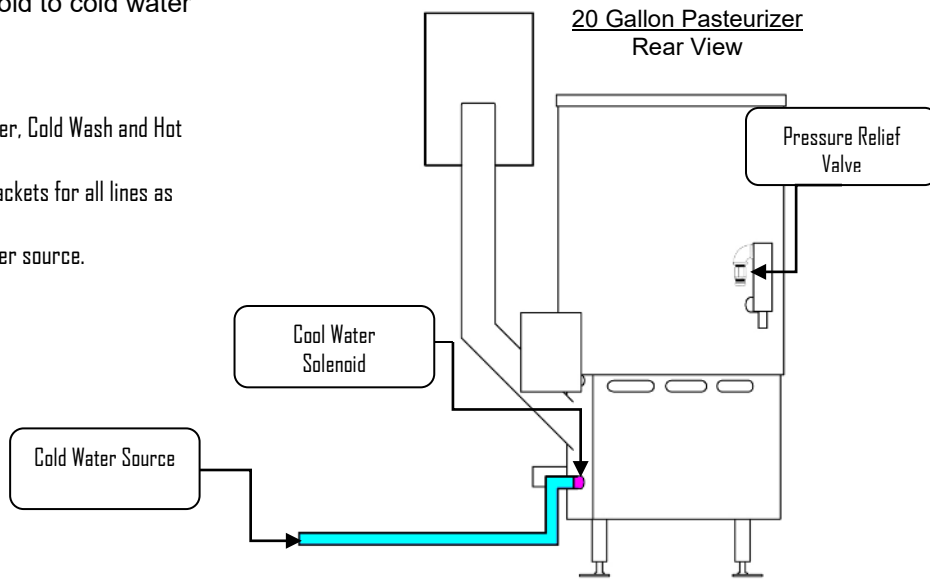
1. Cool Water Inlet
2. Hot Water Inlet (if equipped)
3. Cold Wash Inlet (if equipped)



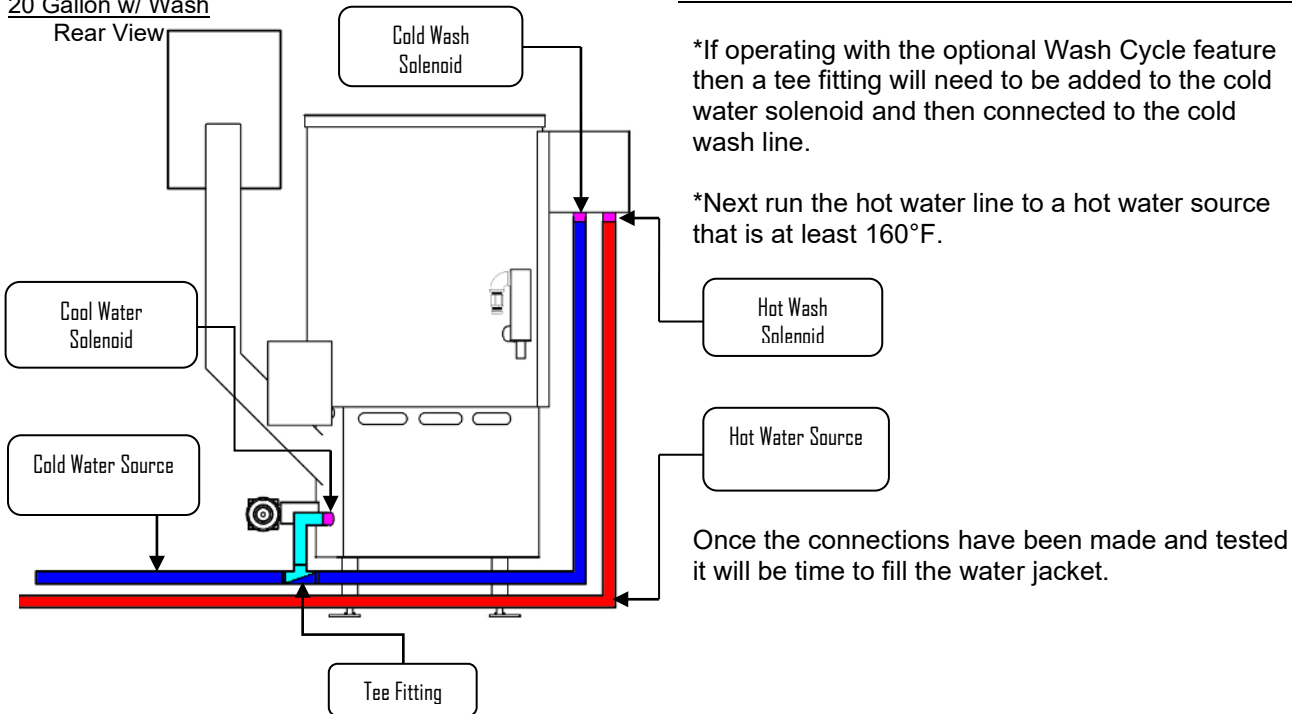
2.3. – In-field Hook-ups

Connect the Cool Water solenoid to cold water source.

- Minimum of ½" line on Cold Water, Cold Wash and Hot Wash Inlets.
- Fittings, Tee's and mounting brackets for all lines as needed.
- Minimum of 160°F from hot water source.



20 Gallon w/ Wash Rear View



The pasteurizer water jacket must be filled with water before the first use. Running the unit without water will result in failure of the heating element in less than a minute and will require it to be replaced.

To fill the water jacket:

1. From the *Home Screen* (mode selector switch in off position) select *Settings*.
2. Press *Operation Settings*.
3. Press *Service Menu*.
4. Manually turn on *Cold Water Solenoid* by pressing the *On/Off Button* on the left hand side.
5. Wait for the water jacket to fill with water, the jacket will be full once water starts to come out of the discharge tube on the side of the pasteurizer.
6. Press the *On/Off Button* once more to turn the *Cold Water Solenoid* off.
7. Press *Back* to leave the service menu.
8. The Pasteurizer is now ready for use.

Section 3 – Panel Controls

3.1 - Understanding Screen Layout

This unit is touch screen operated, to operate simply touch the screen where you want to navigate with your index finger to be taken to the selected subject.

3.2 Programming the Controls

All the programming for the PLC is done via the settings menu. The menu is only accessible from the Home screen when the selector switch is in the off position.



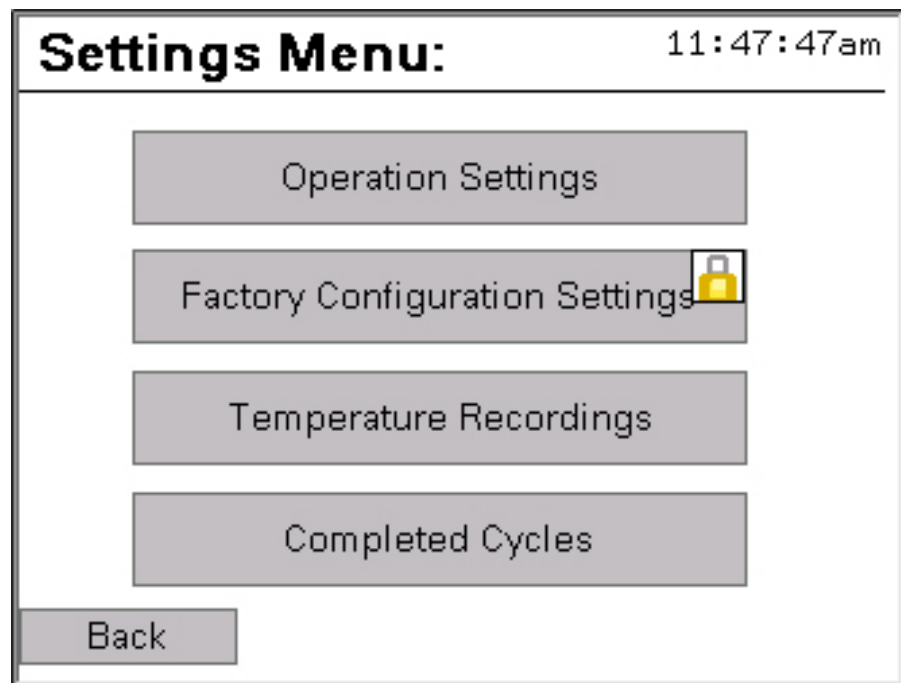
- Turn selector switch to the off position. This will take you to the home screen.
- The Main Menu screen will display the current temperature of the Pasteurizer in the bottom right hand corner.
- Press the “Settings” button at the bottom left of the screen to bring up the settings screen menu.

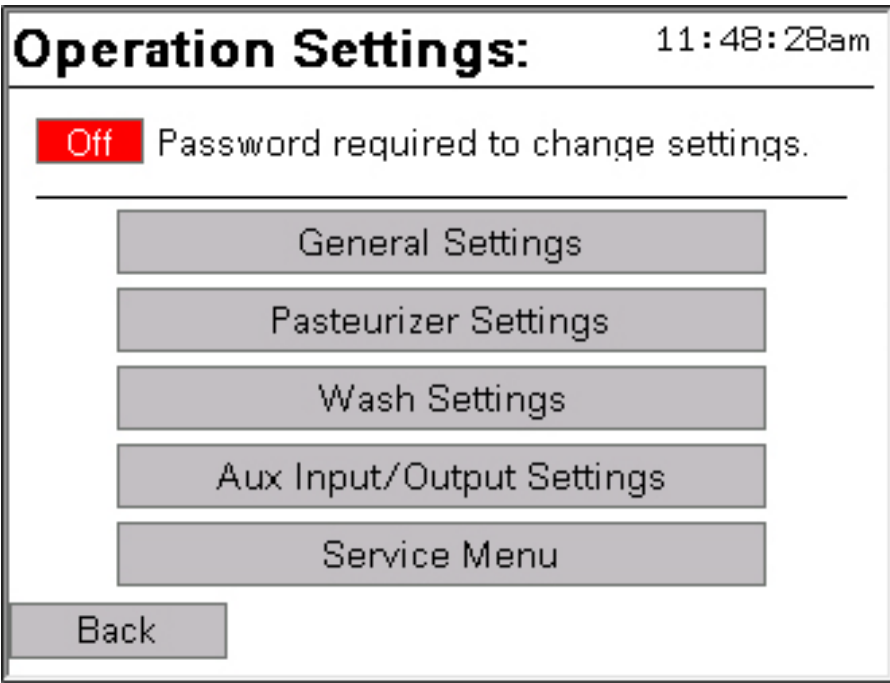
In the settings menu you can navigate to one of four other menus; Operation Settings, Factory Configuration Settings, Temperature Recordings, and completed Cycles.

Please note that the “Factory Configuration Settings” is for advanced use only and should only be changed under the advice of a dealer or trained technician.

Continue on to Operation Settings

- Press “Operation Settings” to bring up the Operation settings screen.



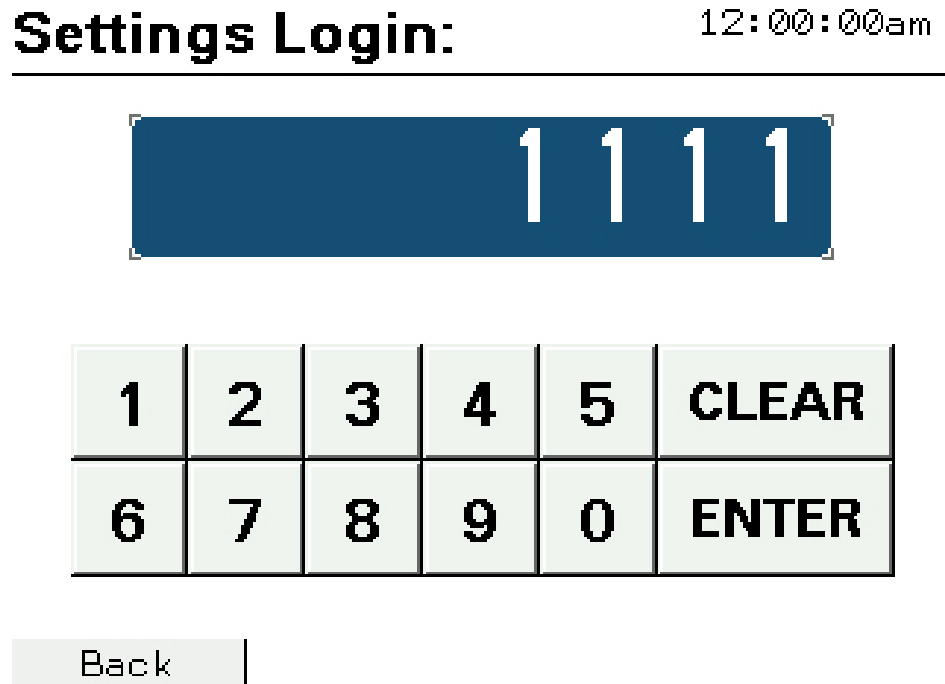


From this screen you can change the operating parameters for the pasteurizer.

-Enter in **1111** for the password and press **enter**.

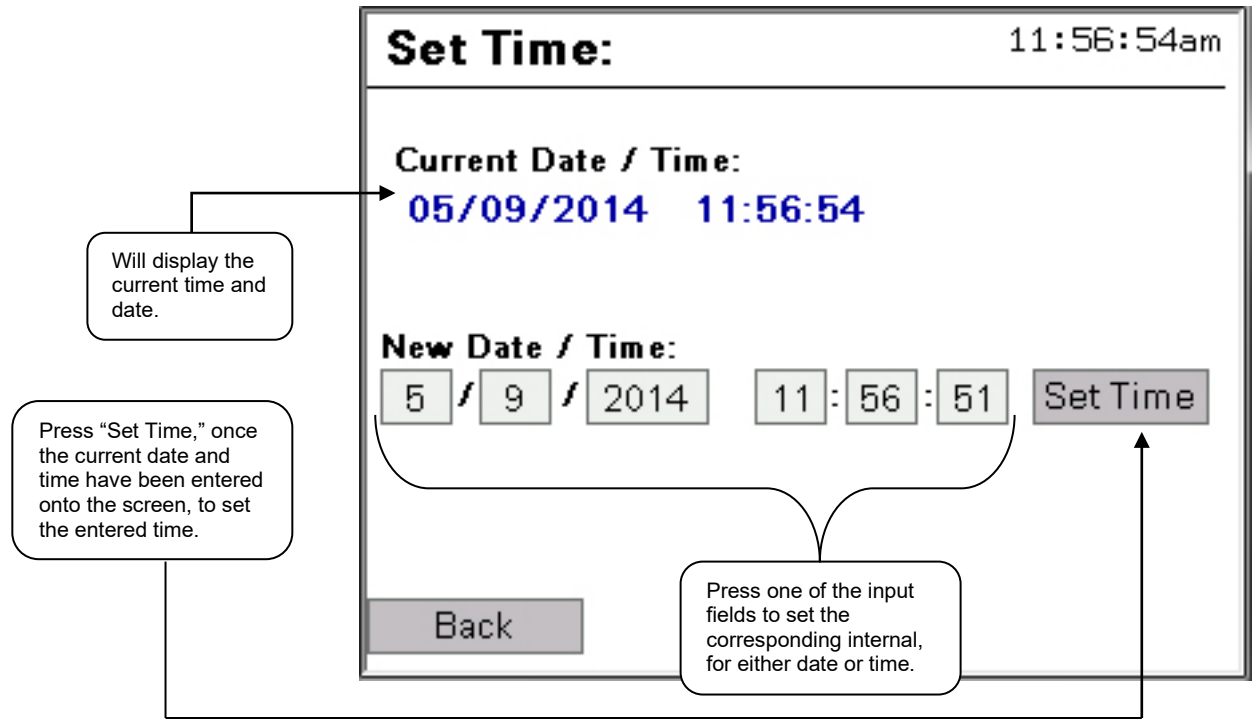
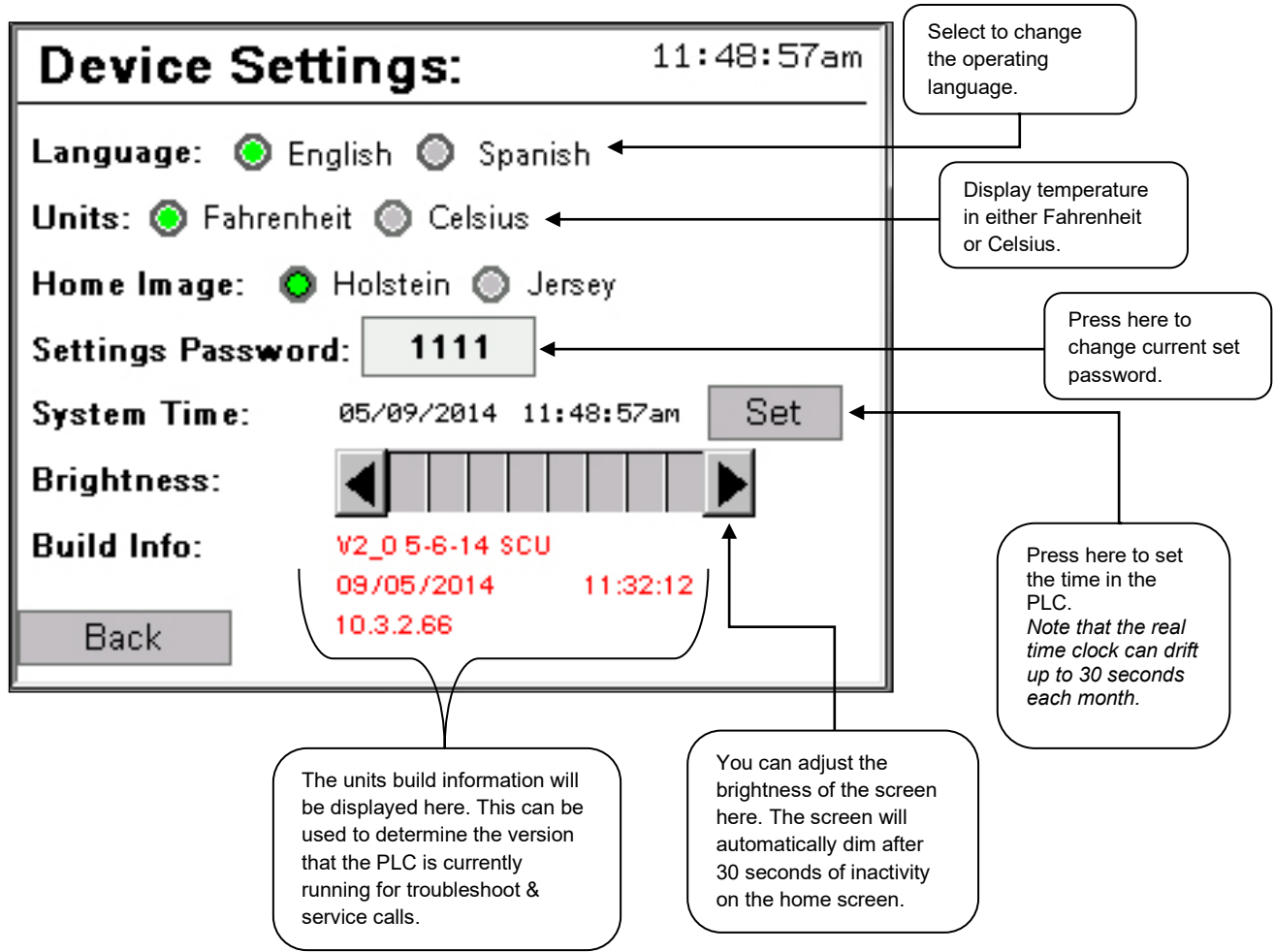
** This password can be changed inside *general settings*.

** If you forget the password, please contact your local dealership.



i. - General Settings Screen

From the general settings screen the end-user can customize how the screen and the content on the screen will be displayed. From this screen you can set; default language, units, home screen image, settings password, system time, and the display brightness.



ii. - Pasteurizer Settings Screen

The Pasteurizer Settings screen allows the user to set the time when each mode will activate during the day. Each mode must first be selected before the “Settings” button will appear. Once displayed on-screen press the “Settings” button to be taken to that modes device settings.

The unit can only operate in 1 mode at a time. Select the mode here by pressing the grey button. The grey button will turn green and a settings menu will appear on the right when the mode has been activated.

The unit can have multiple cycle types set to “On” at a time. You can toggle each cycle On or Off by pressing the green/red button.

To adjust the settings of a cycle type simply press the “Settings” button to the right to bring up that cycle types settings screen

Pre-Cool Mode Settings

Pre-cool mode sets when the pasteurizer will begin to cool the calf milk. This can be set to any time of the day and if desired multiple start times can be activated and set. The pre-cool temperature and cycle agitation time can also be set here for the Pre-Cool mode.

Temperature that the calf milk will maintain will waiting for pasteurization inside the tank.

The unit can have 3 different start times set. This allows the unit to pasteurize for feeding three times a day. For example, if you fill the unit at 10pm, it will pre-cool until 5 am at which point pasteurization will start. If you fill the unit at 7am, it will pre-cool until 6pm which at that point pasteurization will start. You can also turn off the second & third start time if you only feed once a day.

Reheat Mode Settings

Reheat mode sets when the pasteurizer will begin to reheat the calf milk inside the tank. This can be set to any time of the day and if desired multiple start times can be activated and set. The reheat temperature and cycle agitation time can also be set here for the Reheat mode.

Reheat Settings: 1:51:48pm

Reheat Temperature: 110.0 °F

Reheat Start Time 1: 5 : 00 AM

Enable Second Start Time

Reheat Start Time 2: 6 : 00 AM

Enable Third Start Time

Reheat Start Time 3: 7 : 00 AM

Cycle Agitation

On Time: 15 sec Off Time: 300 sec

Back

Set temperature that the calf milk will reach before feeding to the calves.

The unit can have 3 different start times set. This allows the unit to pasteurize for feeding three times a day. For example, if you fill the unit at 10pm, it will immediately pasteurize then cool down and maintain this cool temperature until 5 am at which point the unit will reheat to the set reheat temperature.

Cycle agitation will agitate the milk after pasteurization has occurred, waiting for the reheat start time.

Calf Milk Cycle Settings

Calf Milk settings will allow for the customization of the pasteurizer heating process and will allow the user to adjust the temperature, pasteurize time, cool temperature and cycle agitation. These settings can be changed, though it is not recommended due to the Pasteurized Milk Ordinance.

Calf Milk Settings: 1:54:34pm

Pasteurize Temperature: 145 °F

Pasteurize Time: 30 min

Cool Temperature: 110 °F

Cycle Agitation:

On Time: 15 sec

Off Time: 300 sec

Back

Set to change how hot the pasteurizer will become.

Set to change the duration that the milk will be heated.

This must be set at least 4°F above supply water temperature.

Cycle agitation will agitate the milk during pasteurization to maintain a consistent heat throughout the calf milk.



Pasteurized Milk Ordinance states, milk must be heated to 145°F and held there for 30 minutes. Any changes from these settings may result in non-pasteurized milk.

Colostrum Cycle Settings

Colostrum is an excellent source of nutrients and immune proteins that convey protection to the neonatal calf. Setting up the colostrum settings will allow for a constant temperature for feeding calves without having to worry about overheating the colostrum and destroying antibodies and proteins.

Colostrum Settings: 3:17:37pm

Pasteurize Temperature:

Pasteurize Time:

Cool Temperature:

On **Cycle Agitation:**

On Time:

Off Time:

Set to change how hot the pasteurizer will become.

Set to change the duration for heating the colostrum.

This must be set at least 4°F above supply water temperature.

Cycle agitation will agitate the milk during pasteurization to maintain a consistent heat throughout the calf milk.



Exceeding a temperature higher than 140°F with colostrum will cause proteins to Solidify resulting in a pudding like substance and loss in nutrients.

Colostrum Thaw Cycle Settings

The main concern regarding thawing frozen colostrum is to thaw the ice without degrading the immune proteins. This is best done with warm (not hot) water (< 120°F, 50°C) and allowing to thaw for about one hour. Colostrum Thaw settings allows the operator to set the thawing temperature and time for the colostrum.

Colostrum Thaw Settings: 3:18:11pm

Thaw Temperature:

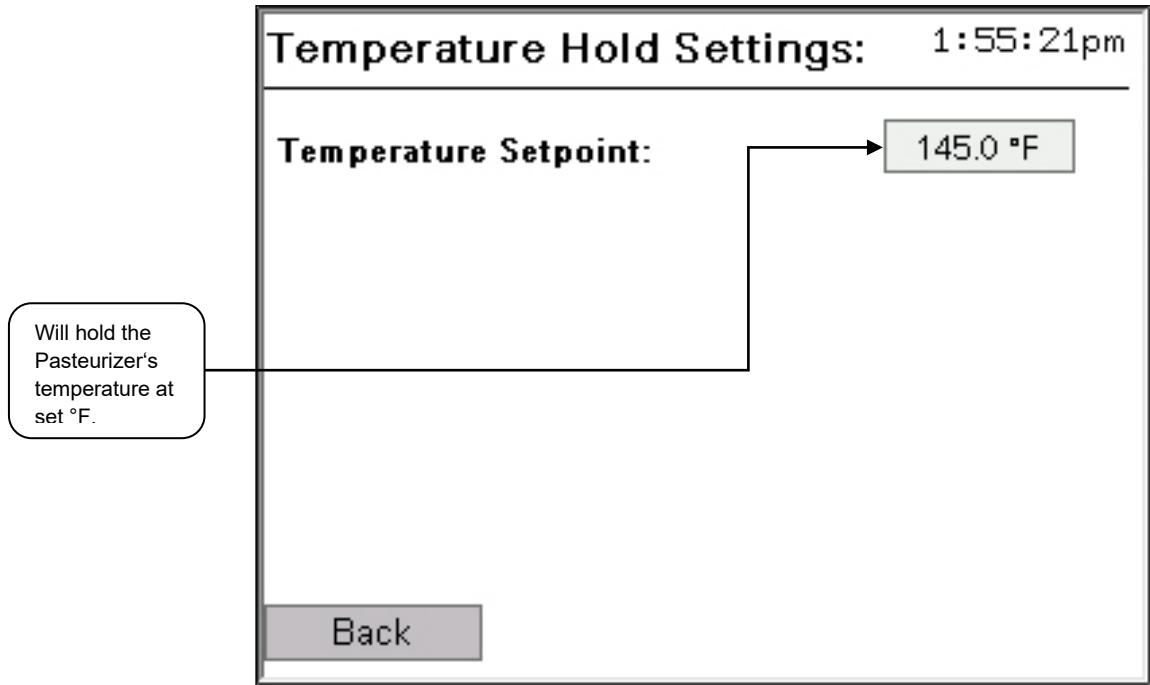
Thaw Duration

Set to change the amount of time that the colostrum will be de-thawed.

Set to change how hot the pasteurizer will become.

Temperature Hold Settings

The temperature hold feature is a heat or cool override that will last until the temperature hold is disabled. On this settings screen you can set the desired temperature that the pasteurizer unit will maintain.



iii. - Wash Settings

These settings will allow for the set up of the wash cycle. Each cycle can be customized to perform a different task, whether from a rinse, detergent or acid cycle. Here you can also toggle a cycle to the OFF position to disable it from activating during a wash phase.

Wash Settings: 1:59:14pm

Wash Cycles:

- On PRE-RINSE CYCLE
- On DETERGENT CYCLE
- On RINSE CYCLE
- On ACID CYCLE
- On FINAL RINSE CYCLE

Press button to toggle cycle on or off.

Press settings to bring up individual wash cycle settings.

Cycle Settings

Wash cycle settings allows for each one of the cycles to be custom set. This screen will allow the operator to set the name of the cycle, the water temperature, chemical pump operation and fill / circulation / drain time.

Wash Cycle 1 Settings: 12:00:00am

Cycle Name:

Water Temperature: Cold Hot Warm

Element Assist: On

Chem Pump: Pump 1 Pump 2 Off

Chem Pump time: sec.

Fill time: sec.

Circulation time: sec.

Drain Time: sec.

Press to add or edit a name to the wash cycle.

Select either Cold Hot or warm by pressing the

Toggle On/ Off for heating element assist

Set duration time for Fill, Circulation and Drain

iv. – Aux Input / Output Settings

The Aux Input / Output or Aux IO settings allow the pasteurizer to add in automated or remote control inputs. These custom components allow the pasteurizer to be more flexibility to custom additional features making the unit more user friendly to a specific dairy. To apply additional features, wiring will need to be installed to the terminal blocks located inside the control panel. The input / output terminal blocks hook ups are displayed below after the Aux IO description.

Aux IO Settings: 1:59:12pm

Input:

- Trigger Dispense 0.000 sec
- Dispense on Input
- Pre-cool Pasteurize Start Disabled

Output:

- Divert: 0.0 °F 0 sec
- Wash Drain Valve Disabled

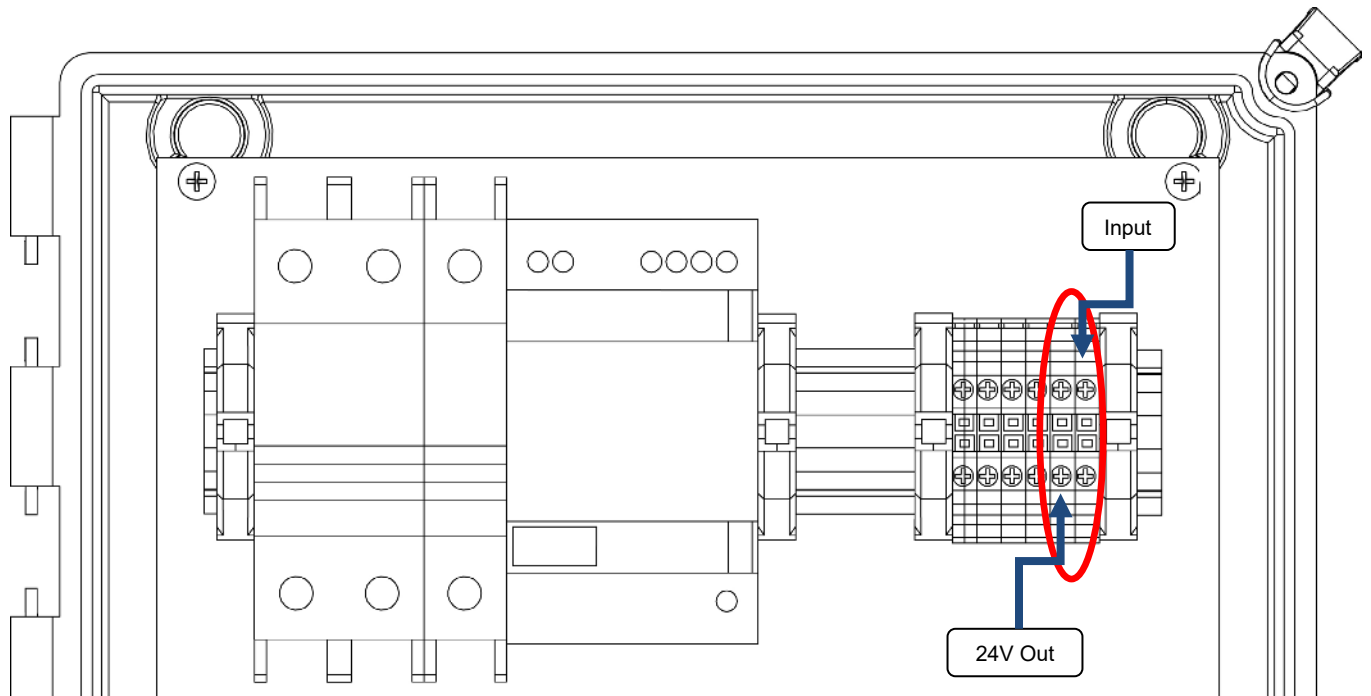
Back

Callouts:

- An active switch that once pressed will activate the pasteurizer pump to dispense liquid from the vat for a set amount of time before shutting off.
- An active switch that once toggled will activate the pasteurizer pump to continually dispense liquid from the vat until the switch is turned off.
- Enabled if using a remote start button or switch, that is not in reach of the pasteurizer control box touch screen.
- Divert will activate the pasteurizer pump when a set temperature is reached. The pump will run for a set amount of time before shutting off.
- Enable if using an electric drain valve.

Aux Wire Connections

Each control box comes with two auxiliary terminal blocks, one for input and one for output. The auxiliary terminal blocks are located inside the control box in the top right corner on a terminal distribution block. The input and output terminal blocks are the last two on the right in the distribution block. The two auxiliary terminal blocks can be seen in the red circle in the image below.



v. - Service Menu Screen

The service menu will allow for the manual operation of each device on the pasteurizer unit. This manual can be used to troubleshoot each device if a problem is detected.

Service Menu: 2:00:08pm

Off	Pump Motor
Off	Heating Element / Hot Water Solenoid
Off	Cold Water Solenoid
Off	Cold Water Wash Solenoid
Off	Hot Water Wash Solenoid
Off	Aux Output

Back Sensor Settings

Press a button to toggle output On or Off.

Pressing the back button will shut off all outputs.

Wash Solenoids only available with Wash Cycle feature.

Press to bring up Water Jacket Sensor Settings



Running pumps with no liquid can burn out pump seals.

Water Jacket Sensor Settings

The Water jacket sensor settings control the range of the pasteurizer unit for temperature consistency. This allows the product inside the vat to heat or cool with less variance in temperature drop. The Water jacket sensor settings can be found in the Service Menu from the Operation Settings screen.

Water Jacket Sensor Settings: 2:02:43pm

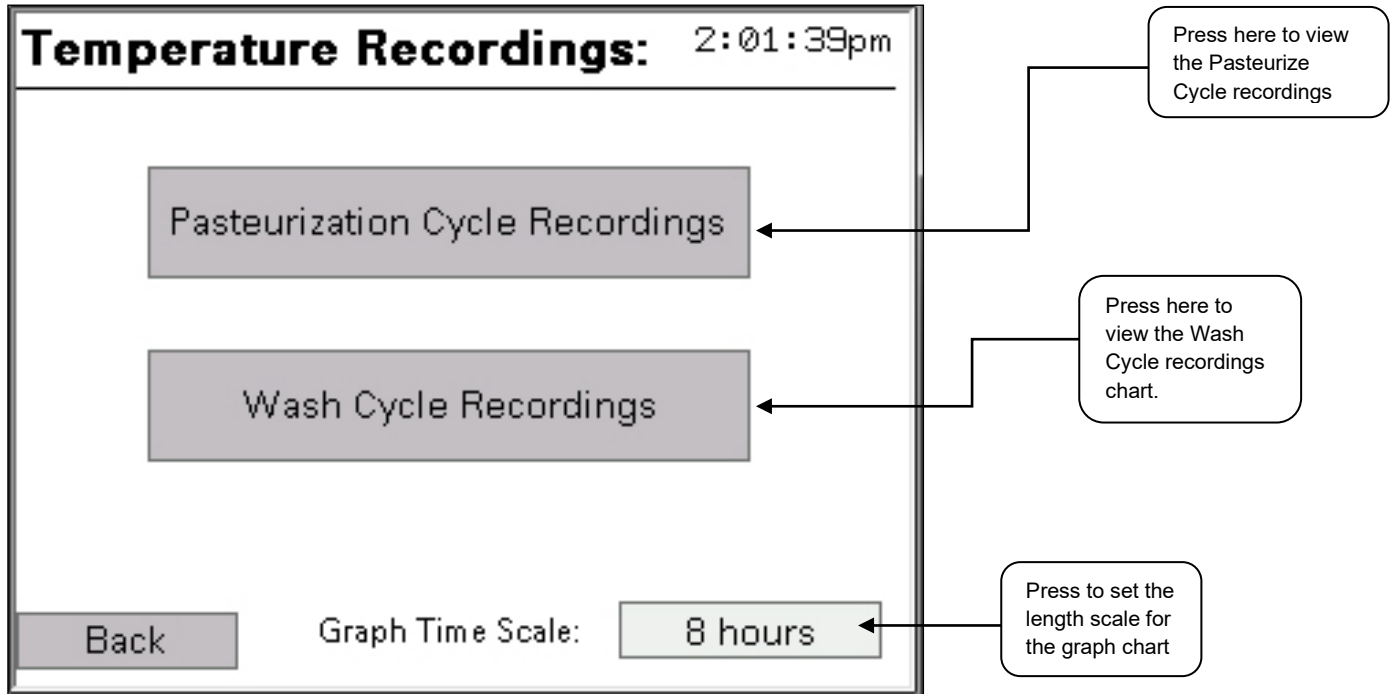
Jacket Temperature Offset:	0.0 °F
Jacket Sample Interval:	0.200 Sec
Jacket Samples for Average:	20
Jacket Temperature Raw Value:	68.1 °F
Jacket Temperature For Logic:	68.2 °F
Jacket Temperature Display Rounded:	68 °F
Jacket Temperature Converted:	68.0 °F

Back

Although easily accessible, the water jacket sensor settings should only be changed with the explicit instructions of an authorized dealer or technician.

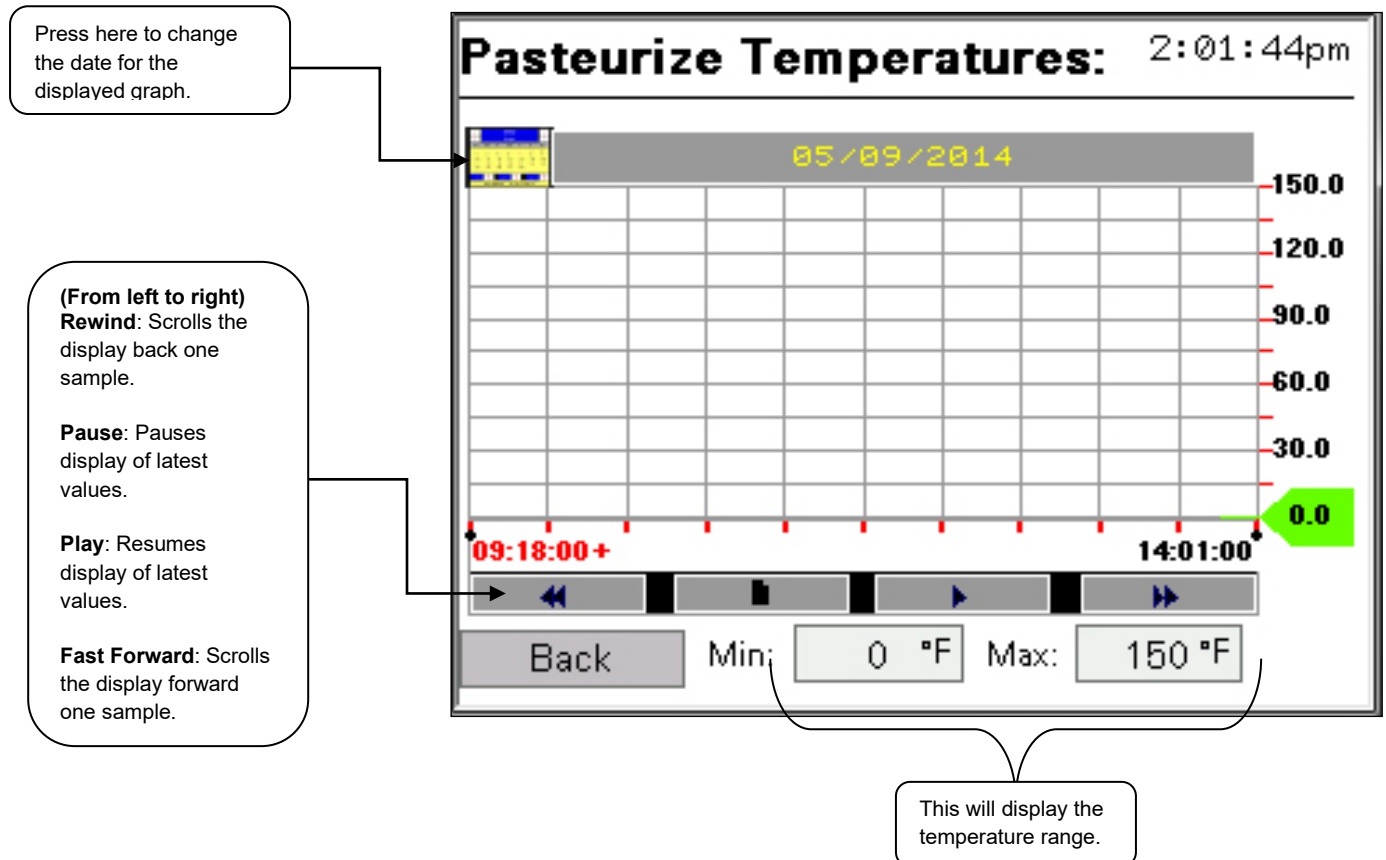
3.7 Temperature recordings

Temperature Recordings can be found on the Settings Menu screen (see section 3.2). Here all the data is recorded from the pasteurizer cycles. Pasteurization and Wash cycle data can be viewed in a graph format from time of day to temperature reached.



i. – Pasteurize & Wash Cycle Graph

This graph will illustrate the hour and recorded temperature on any given day. Temperatures are logged throughout each wash and pasteurization cycle and all information is stored here for viewing and data logging. To view past dates click on the calendar in the top left corner to enlarged the calendar size.



3.8 Completed Cycles

Completed Cycles Screen can be found on the Settings Menu screen (see section 3.2). This screen will record the last 8 completed cycles and the cycle duration.

Completed Cycles:		2:02:34pm
<u>Date/Time:</u>	<u>Cycle Type:</u>	<u>Duration:</u>

Back

3.8 Menu Diagram

- Home Screen
 - Settings
 - Operation Settings
 - General Settings
 - Language
 - Unit Display (Fahrenheit, Celsius)
 - Home Image
 - Settings Password
 - System Time
 - Brightness
 - Pasteurizer Settings
 - Operating Mode **** only 1 mode can be selected**
 - Pre-cool
 - Start times
 - Pre-cool temperature
 - Cycle agitation
 - Reheat
 - Start times
 - Reheat temperature
 - Cycle agitation
 - Manual
 - Cycle Types **** multiple different cycle types can be enabled**
 - Calf Milk Pasteurize
 - Pasteurize hold time
 - Pasteurize temperature
 - Cool temperature
 - Colostrum Pasteurize
 - Pasteurize hold time
 - Pasteurize temperature
 - Cool temperature
 - Colostrum Thaw
 - Hold duration
 - Heat temperature
 - Temperature Hold
 - Hold Temperature
 - Wash Settings (Only Available with Wash Cycle option)
 - Cycle 1-5 Settings
 - Cycle name
 - Water temperature
 - Element assist
 - Fill time
 - Circulation time
 - Drain time
 - AUX Input / Output Settings
 - Trigger Dispense
 - Dispense on Input
 - Pre-cool Pasteurize Start – Enable/Disable
 - Divert
 - Hot Water Assist
 - Wash Drain Valve – Enable/Disable
 - Service Menu
 - Pump Motor - On/Off
 - Burner – On/Off
 - Cold Water Solenoid – On/Off
 - Cold Water Wash Solenoid – On/Off (Only Available with Wash Cycle option)
 - Hot Water Wash Solenoid – On/Off (Only Available with Wash Cycle option)
 - Temperature Recordings
 - Pasteurization Cycle Recordings
 - Chart of recordings
 - Wash Cycle Recordings
 - Chart of recordings (Only Available with Wash Cycle option)
 - Completed Cycles
 - List all completed Pasteurize and Wash Cycles

Section 4 – Operation

The Westwaard Pasteurizer is an agitated batch pasteurizer. A PLC controls all functions of the unit. The WP uses an electric heating element to heat a water jacket, which transfers the heat through to the milk in the unit to set temperature and keep it there for set holding duration. It then cools the milk by passing cold water through the water jacket until the milk reaches the set temperature. Please be aware the PMO for a batch pasteurizer calls for heating to 145 degrees and holding it at that temperature for 30 minutes. Any adjustment made to the heat temperature can take the unit out of what the call out is for proper pasteurization.



Vat reaches temperatures of approximately 150° F during heating cycle. Contact with vat will create burn risks. Caution must be taken with young children around equipment.



Never plug or impede the discharge tube. High temperatures can create a pressure build up inside the units cooling jacket, any impediment in the discharge tube may cause the unit to implode.



Guards and covers which prevent contact with electrically energized or moving parts or are required to direct the flow of air for effective cooling, must not be removed or left open during operation.

4.1 Pasteurization

Pasteurizer Operation Modes

-The Westwaard Pasteurizer can operate in only **one** of the following modes:

- Pre-cool Pasteurization
- Reheat Pasteurization
- Manual Pasteurization

-Refer to section 3.4 to change mode of operation.

i. Pre-cool Pasteurization

In Pre-cool mode, the product will maintain a set pre-cool until the set pasteurize start time. At that point, the product will run through the selected Pasteurization Cycle, then cool back down to the set temperature. The cycle is now complete.


***There can be 2 set start times for this cycle.*

1.	Close manual drain valve.
2.	Install agitation tube in vat.
3.	Load milk into unit.
4.	Move selector switch to pasteurize position.
5.	If more than 1 cycle type is enabled, select either Calf Milk or Colostrum Pasteurization Cycle.

Pasteurization Cycle: 12:00:00am

Select cycle:

i. Pre-cool Pasteurization (continued)

<p>6.</p>	<p>Set Pasteurize start times by pressing the hour and minute blocks. Press AM/PM to toggle. Then press <i>Pre-cool Cycle Start</i> to begin cycle.</p>	<p>Calf Milk Cycle: 12:00:00 am</p> <p>Pasteurize start time 1: <input type="text" value="6"/> : <input type="text" value="00"/> <input type="button" value="AM"/></p> <p>Pasteurize start time 2: <input type="text" value="5"/> : <input type="text" value="00"/> <input type="button" value="PM"/></p> <p><input type="button" value="Pre-cool Cycle Start"/></p> <hr/> <p><input type="button" value="Manual Pasteurize Start"/></p> <p><input type="button" value="Back to Select Cycle Type"/></p>
<p>7.</p>	<p>Screen will display the status of the pre-cool cycle.</p>	<p>Calf Milk Cycle: 12:00:00 am</p> <p>Pre-cool cycle ON</p> <p>Target Temperature: 57 °F</p> <p>Pasteurize Start Time: 6:00 AM</p> <p>Cycle Agitation: Enabled 10.0 sec on, 45.0 sec off</p> <p style="text-align: right;">65 ° F</p>
<p>8.</p>	<p>Screen will display progress on heating once the clock reaches pre-cool start time.</p>	<p>Calf Milk Cycle: 12:00:00 am</p> <p>Heating ON</p> <p>Target Temperature: 145 °F</p> <p></p> <p style="text-align: right;">65 ° F</p>
<p>9.</p>	<p>Once milk reaches the set temperature, the unit will maintain this temperature for 30 minutes providing a countdown of time remaining for the hold duration.</p>	<p>Calf Milk Cycle: 12:00:00 am</p> <p>30 min Temperature Hold</p> <p>Hold time remaining: 00:29:59</p> <p>Hold Temperature: 145 °F</p> <p style="text-align: right;">145 ° F</p>

i. Pre-cool Pasteurization (continued)

10.	After the hold duration is complete, the unit will start to cool the milk to the set temperature.
------------	---

Calf Milk Cycle: 12:00:00 am

Pasteurization Complete
Cooling ON

Target Temperature: **55 °F**

145 °F

11.	Pasteurization cycle is now complete. Move selector switch to off position to use pump switch to dispense.
------------	--

Calf Milk Cycle: 12:00:00 am

**Pasteurization Cycle
Complete**

Maintaining Temperature

Turn switch to off/pasteurize to dispense

Cycle Agitation: **Enabled**
15.0 sec on, 300.0 sec off

105 °F

ii. Reheat Pasteurization

In Reheat mode, the product will immediately start the Pasteurization Cycle, cool back down to the set temperature and maintain this temperature until the set reheat start time. At that point the product will be reheated to set temperature ready to dispense. The cycle is now complete.
****There can be 2 set start times for this cycle.**

1.	Close manual drain valve.
2.	Install agitation tube in vat.
3.	Load milk into unit.
4.	Move selector switch to pasteurize position.

5.	If more than 1 cycle type is enabled, select either <i>Calf Milk</i> or <i>Colostrum</i> Pasteurization Cycle.
-----------	--

Pasteurization Cycle: 12:00:00am

Select cycle:


Calf Milk Pasteurization

Colostrum Pasteurization

Colostrum Thaw

Temperature Hold

ii. Reheat Pasteurization (continued)

<p>6.</p>	<p>Set Reheat start times by pressing the hour and minute blocks. Press AM/PM to toggle. Then press <i>Reheat Cycle Auto Start</i> to begin cycle.</p>	<p>Calf Milk Cycle: 12:00:00 am</p> <p>Reheat start time 1: <input type="text" value="5"/> : <input type="text" value="00"/> <input type="button" value="AM"/></p> <p>Reheat start time 2: <input type="text" value="6"/> : <input type="text" value="00"/> <input type="button" value="PM"/></p> <p><input type="button" value="Reheat Auto Cycle Start"/></p> <hr/> <p><input type="button" value="Manual Pasteurize Start"/></p> <p><input type="button" value="Back to Select Cycle Type"/></p>
<p>7.</p>	<p>Screen will display progress on heating.</p>	<p>Calf Milk Cycle: 12:00:00 am</p> <p>Heating ON</p> <p>Target Temperature: 145 °F</p> <p> 65 ° F</p>
<p>8.</p>	<p>Once milk reaches the set temperature, the unit will maintain this temperature for 30 minutes providing a countdown of time remaining for the hold duration.</p>	<p>Calf Milk Cycle: 12:00:00 am</p> <p>30 min Temperature Hold</p> <p>Hold time remaining: 00:29:59</p> <p>Hold Temperature: 145 °F</p> <p>145 ° F</p>
<p>9.</p>	<p>After the hold duration is complete, the unit will start to cool the milk to the set temperature and maintain this temperature until the set re-heat start time.</p>	<p>Calf Milk Cycle: 12:00:00 am</p> <p>Pasteurization Complete</p> <p>Cooling ON</p> <p>Target Temperature: 57 °F</p> <p>Re-Heat Start Time: 6:00 PM</p> <p>Cycle Agitation: Enabled 10.0 sec on, 45.0 sec off</p> <p>145 ° F</p>


ii. Reheat Pasteurization (continued)

10.	Reheat cycle will heat up the milk to the set temperature.
------------	--

Calf Milk Cycle: 12:00:00 am

Re-heat cycle ON

Target Temperature: 110 °F



108 °F

11.	Once the milk has reached the set temperature, the cycle is complete, and the milk can be dispensed.
------------	--

Calf Milk Cycle: 12:00:00 am

Pasteurization Cycle Complete

Maintaining Temperature

Turn switch to off/pasteurize to dispense

Cycle Agitation: **Enabled**
15.0 sec on, 300.0 sec off

105 °F

iii. Manual Pasteurization

In Manual mode, the product will immediately start the Pasteurization Cycle, cool back down to the set temperature. The cycle is now complete.

1.	Close manual drain valve
2.	Install agitation tube in vat
3.	Load milk into unit
4.	Move selector switch to pasteurize position

5.	If more than 1 cycle type is enabled, select either <i>Calf Milk</i> or <i>Colostrum</i> Pasteurization Cycle:
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Pasteurization Cycle: 12:00:00am

Select cycle:


Calf Milk Pasteurization

Colostrum Pasteurization

Colostrum Thaw

Temperature Hold

iii. Manual Pasteurization (continued)

<p>6.</p>	<p>Press <i>Manual Start</i> to begin cycle.</p>	<p>Calf Milk Cycle: 12:00:00 am</p> <div style="text-align: center; border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p>Manual Start</p> </div> <p style="text-align: center; border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Back to Select Cycle Type </p>
<p>7.</p>	<p>Screen will display progress on heating.</p>	<p>Calf Milk Cycle: 12:00:00 am</p> <p style="font-size: 24pt; font-weight: bold; text-align: center;">Heating ON</p> <p style="text-align: center;">Target Temperature: 145 °F</p> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 20px;">  <div style="font-size: 36pt; font-weight: bold;">65 ° F</div> </div>
<p>8.</p>	<p>Once milk reaches the set temperature, the unit will maintain this temperature for 30 minutes providing a countdown of time remaining for the hold duration.</p>	<p>Calf Milk Cycle: 12:00:00 am</p> <p style="font-size: 24pt; font-weight: bold; text-align: center;">30 min Temperature Hold</p> <p style="text-align: center;">Hold time remaining: 00:29:59 Hold Temperature: 145 °F</p> <div style="text-align: center; margin-top: 20px;"> <p style="font-size: 36pt; font-weight: bold;">145 ° F</p> </div>
<p>9.</p>	<p>After the hold duration is complete, the unit will start to cool the milk to the set temperature.</p>	<p>Calf Milk Cycle: 12:00:00 am</p> <p style="text-align: center;">Pasteurization Complete</p> <p style="font-size: 24pt; font-weight: bold; text-align: center;">Cooling ON</p> <p style="text-align: center;">Target Temperature: 55 °F</p> <div style="text-align: center; margin-top: 20px;"> <p style="font-size: 36pt; font-weight: bold;">145 ° F</p> </div>

iii. Manual Pasteurization (continued)

10.	Pasteurization cycle is now complete. The milk can now be dispensed.
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Calf Milk Cycle: 12:00:00 am

**Pasteurization Cycle
Complete**

Maintaining Temperature

Turn switch to off/pasteurize to dispense

Cycle Agitation: **Enabled**
15.0 sec on, 300.0 sec off

105 °F

4.2 Colostrum Thaw

-Must be enabled to activate on screen, refer to section 3.4 to enable.

1.	Close manual drain valve.
2.	Install agitation tube in vat.
3.	Place frozen bags of colostrum in vat.
4.	Fill vat with water at least 3" above colostrum bags.
5.	Move selector switch to pasteurize position.
6.	Press <i>Colostrum Thaw</i> .
7.	Press <i>Thaw Cycle Start</i> .



Pasteurization Cycle: 12:00:00am

Select cycle:

Colostrum Thaw: 12:00:00 am

- Vat filled with water
- Colostrum loaded

4.2 Colostrum Thaw (continued)

<p>8.</p>	<p>The unit will bring the water in the vat up to the set temperature.</p>	<p>Colostrum Thaw: 12:00:00 am</p> <p>Thaw cycle ON Target Temperature: 110 °F</p>  <p style="text-align: right;">80 °F</p>
<p>9.</p>	<p>Once the water reaches the set temperature, the unit will hold this temperature for the set time to allow thermal transfer to the frozen colostrum bags. The screen will show a countdown of the time remaining for the hold cycle.</p>	<p>Colostrum Thaw: 12:00:00 am</p> <p>Thaw cycle HOLD Target Temperature: 110 °F Hold time remaining: 00:29:57</p>  <p style="text-align: right;">110 °F</p>
<p>10.</p>	<p>The Colostrum Thaw Cycle is now complete. Remove bags from the vat and feed.</p>	<p>Colostrum Thaw: 12:00:00 am</p> <p style="text-align: center;">Colostrum Thaw Cycle Complete Turn switch to off position and drain</p>

4.3 Temperature Hold

-Must be enabled to activate on screen, refer to section 3.4 to enable.

1.	Move selector switch to pasteurize position.
2.	Press <i>Temperature Hold</i> .
3.	The unit will bring the substance in the vat up to the set temperature.
4.	Once the water reaches the set temperature, the unit will hold this temperature. Move selector switch to off position to stop the Temperature Hold and be brought back to the home screen.

Pasteurization Cycle: 12:00:00am

Select cycle:

- Calf Milk Pasteurization
- Colostrum Pasteurization
- Colostrum Thaw
- Temperature Hold

Temperature Hold: 12:00:00am

110 °F

Temperature Hold Start

Back to Select Cycle Type

Temperature Hold: 12:00:00am

Target Temperature:

110 °F

Turn switch to off position to stop

80.0 °F

4.4 Wash Mode



Wash Mode only available with optional Wash Cycle feature.

The Westwaard Pasteurizer has an onboard CIP system. It washes in a similar method to a typical dairy bulk tank. PLC runs a 5 cycle wash by dispensing chemicals through Peristaltic Pumps. The 5 cycles are Pre-Rinse, Detergent, Rinse, Acid, and a final rinse to make sure all chemicals have been rinsed out from the unit. Chemical levels will need to be evaluated and adjusted by a dairy sanitation supplier.



It is recommended that you run a final clear rinse cycle to remove any remaining acid from the hoses and pump. Failure to do so can result in curdling milk, if acid residue and milk mix in following batch.



Mixing of wash chemicals can cause potential dangerous fumes. Extreme caution must be taken when testing and setting of wash cycle to make sure chemicals are not allowed to mix.

1.	Open manual drain valve.
2.	Rinse out unit with warm water using a hose.
4.	Attach spray ball attachment.
5.	Move selector switch to wash position.
6.	Press <i>Cycle Start</i> .
7.	Unit will cycle through each cycle giving you a visual display of the progress of each step.

Wash Cycle: 12:00:00 am

- Wash valve open
- Spray ball installed
- Hose connected to vat
- Vat rinsed

Cycle Start

Wash Cycle: 12:00:00am

PRE-RINSE CYCLE	Warm	Filling
DETERGENT CYCLE	Hot	Pending
RINSE CYCLE	Warm	Pending
ACID CYCLE	Warm	Pending
FINAL RINSE CYCL	Cold	Pending

Wash time remaining: 00:34:04

80.0 °F

4.4 Wash Mode (continued)

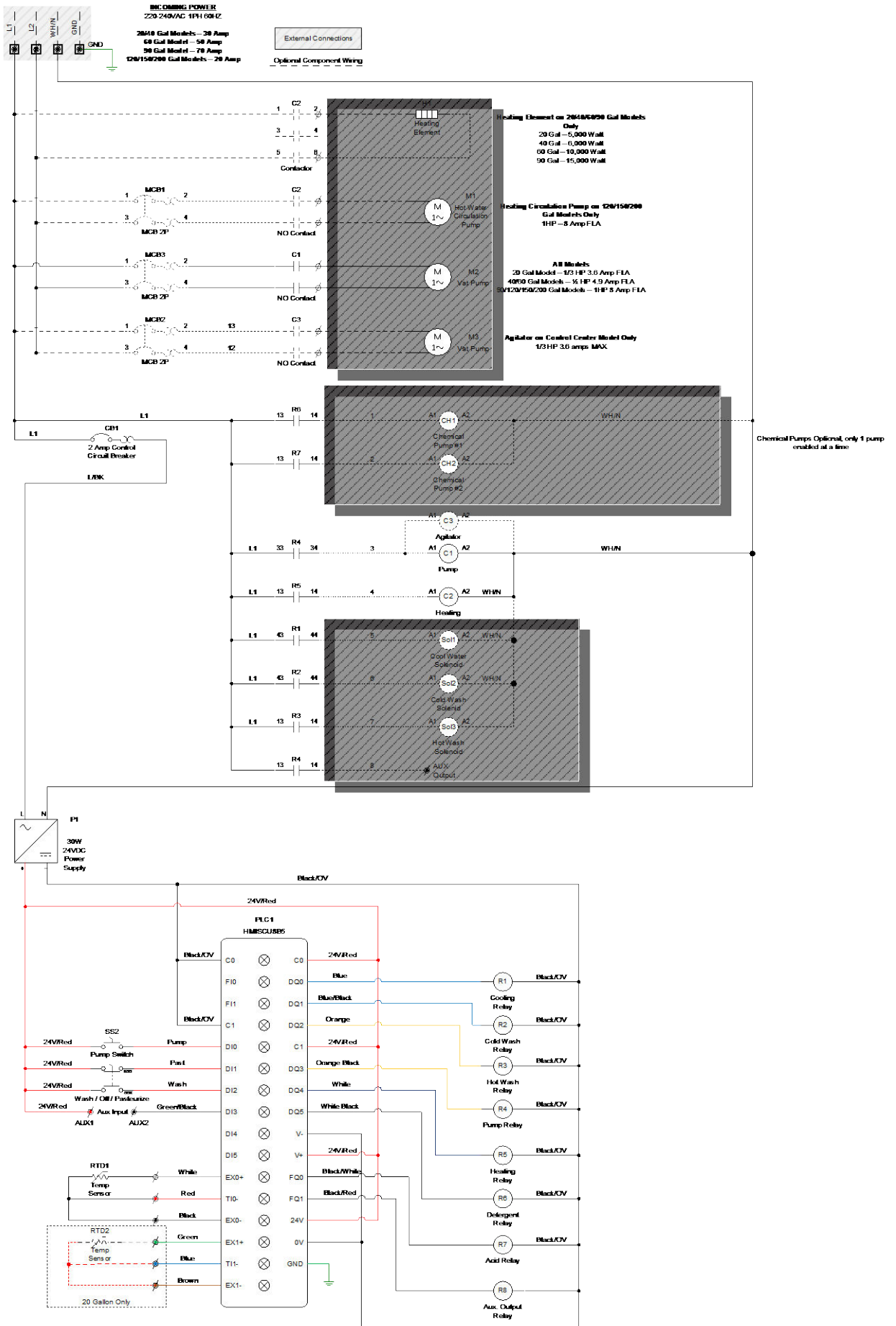
8.		<p>Wash Cycle: 12:00:00 am</p> <hr/> <p>Wash Cycle Complete</p> <p>Turn switch to off/pasteurize</p>
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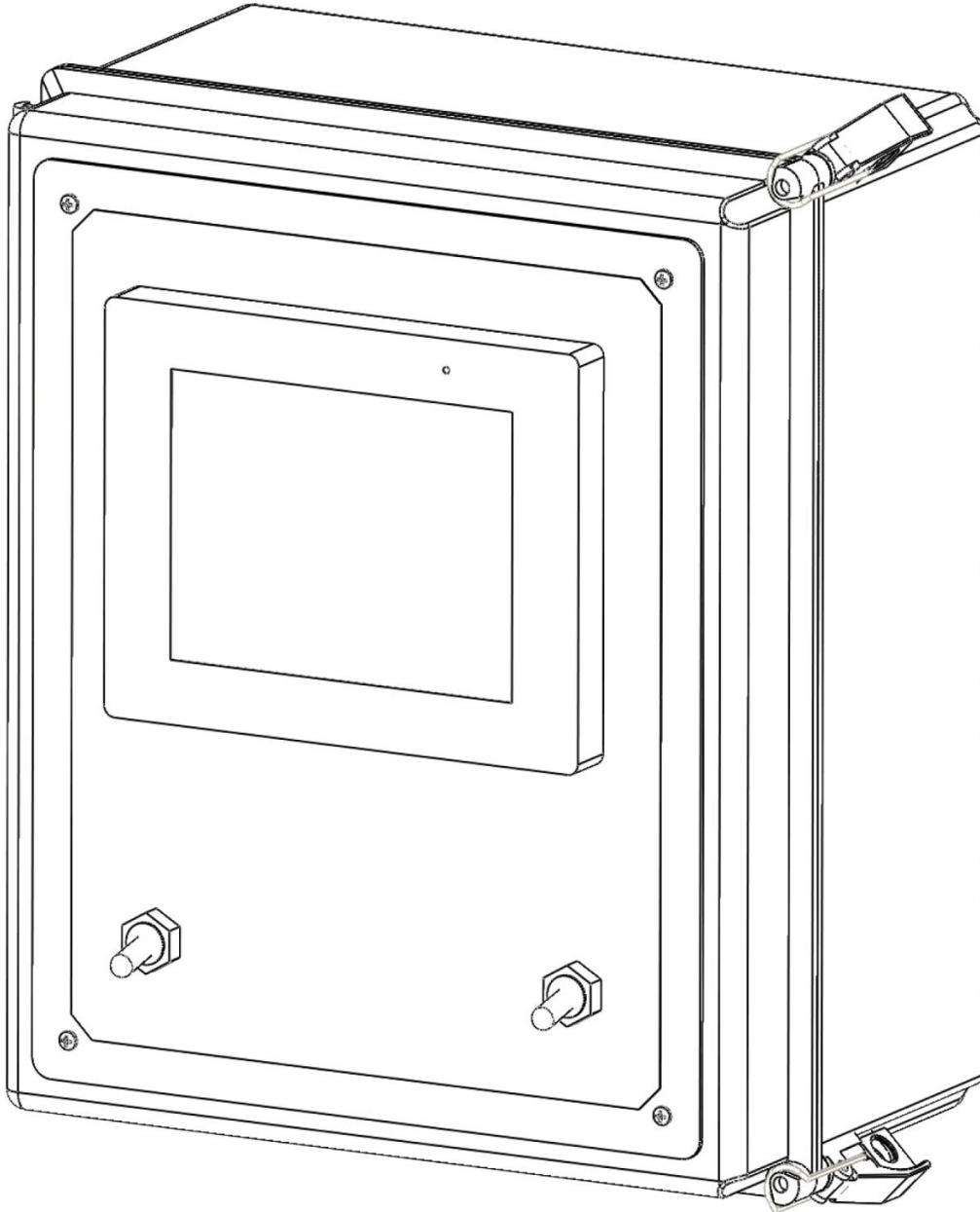
4.5 Dispense Mode

With selector switch in OFF position, dispense pump can be run using switch on front of control panel. For unloading unit into calf buckets or bottles, install fork dispense nozzle, and use ball valve on end of hose to control milk flow.

1.	Move selector switch to the off position.
2.	Remove hose from vat.
3.	Attach dispensing nozzle onto hose.
4.	Turn pump on/off using the pump switch on the front of the panel.
5.	Use ball valve to regulate flow.

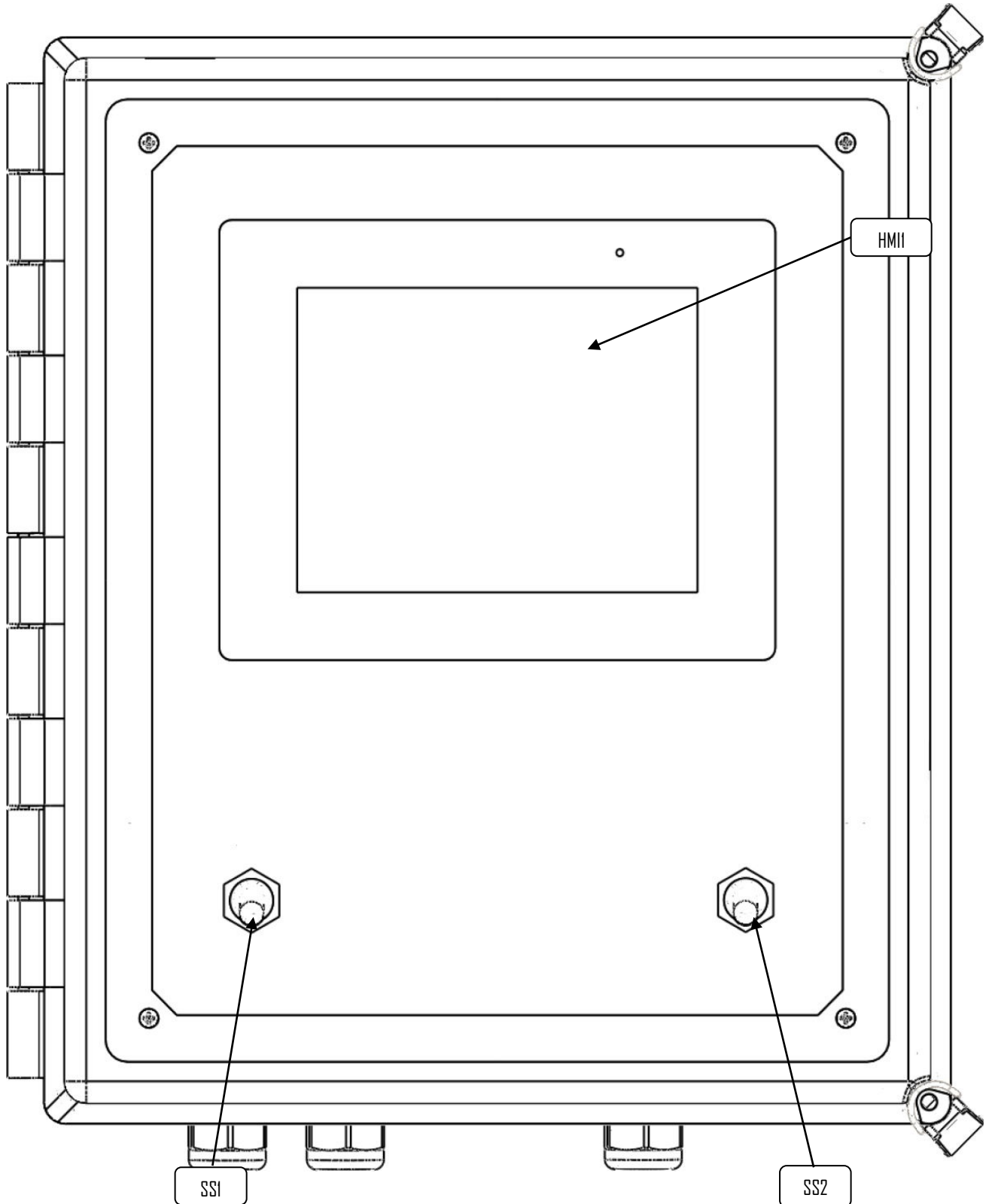
Section 5 – Wiring Diagram & Control Box Component





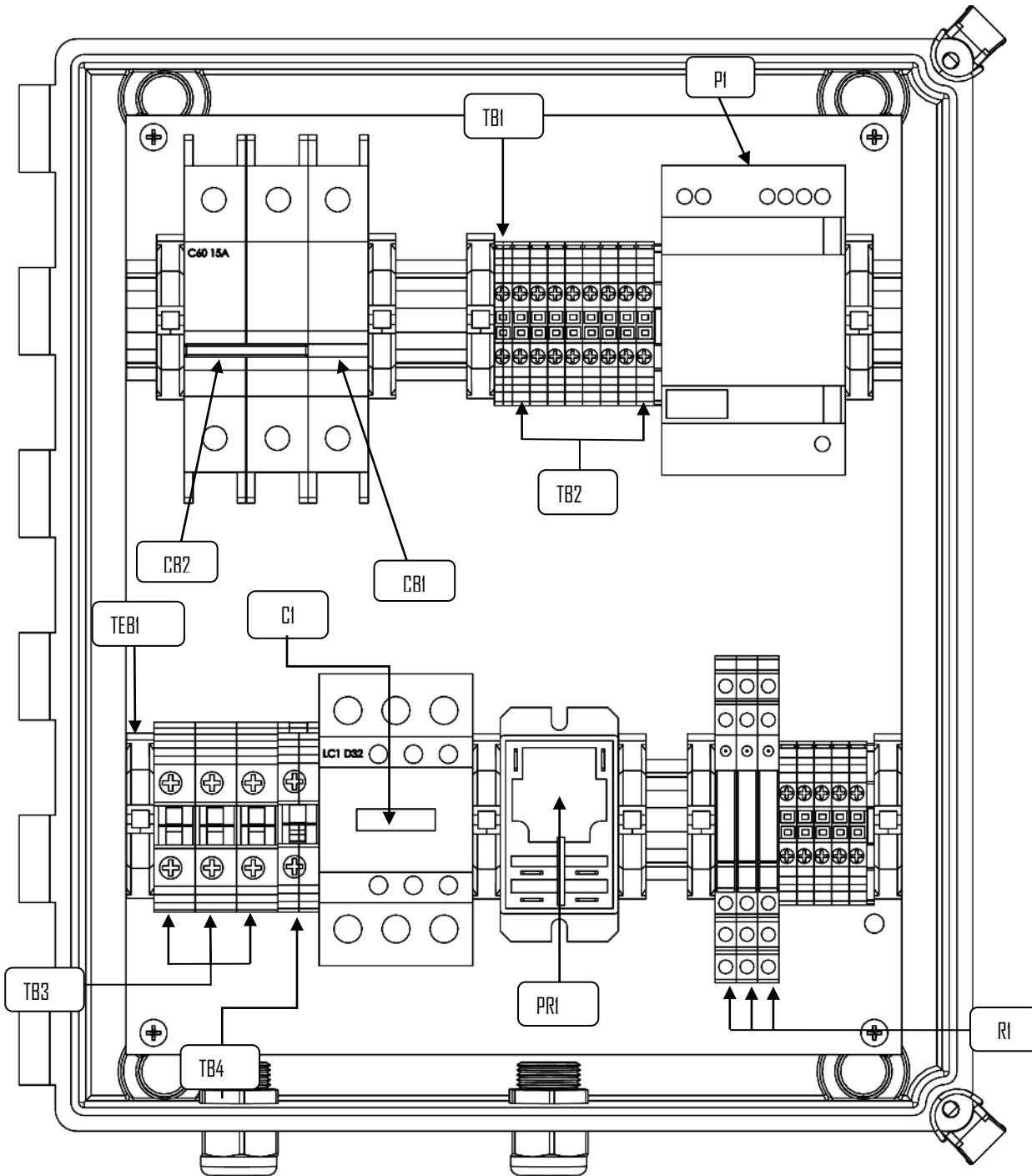
**Pasteurizer Control Cabinet
Model: WP20G & WP20G with Wash
Component List**

Front Panel



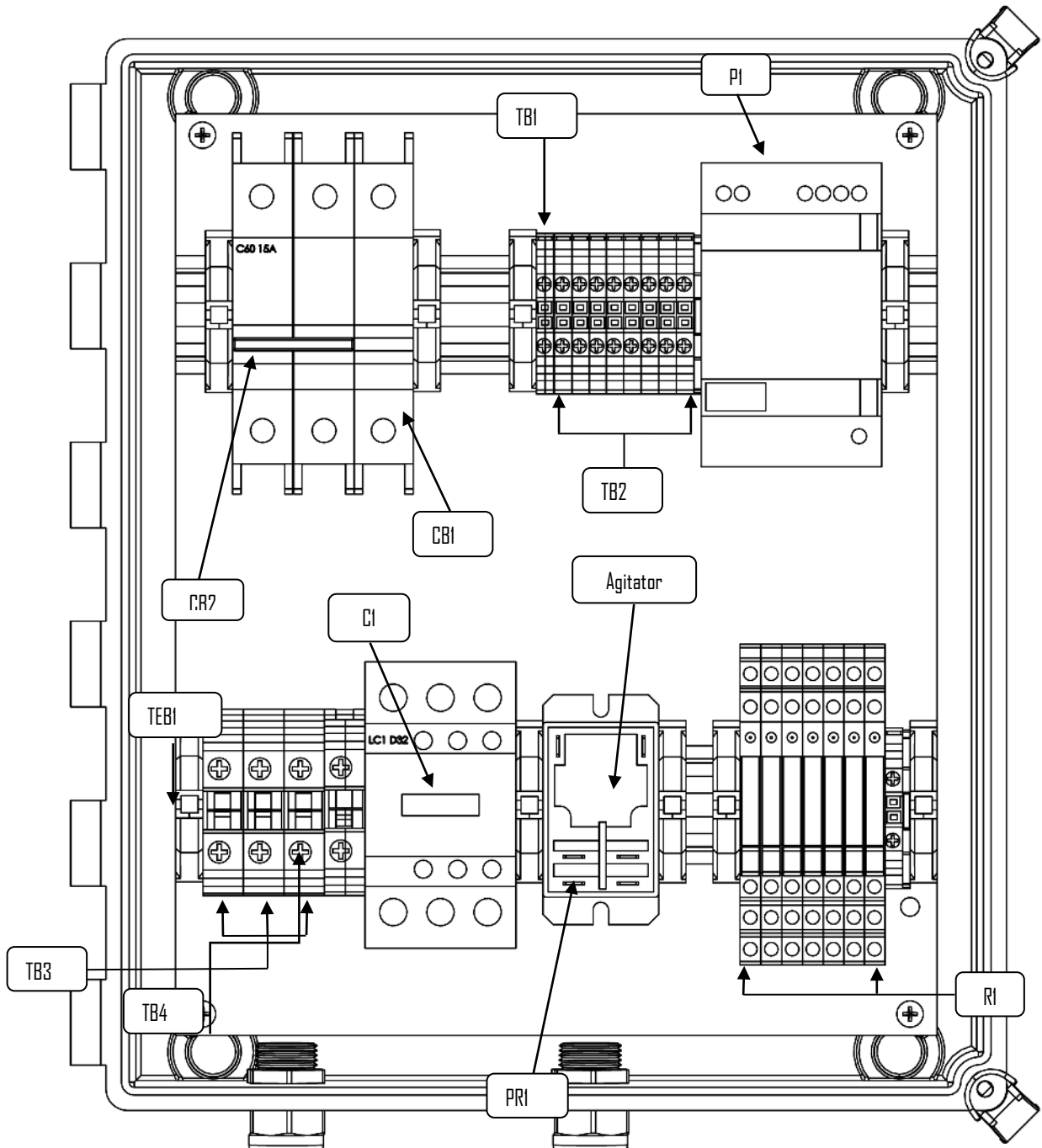
Label	Part #	Description
HM11	D413	5.7" Touch Screen HMISCU
	L135	Schneider Rear Module for Integrated PLC Controller
	Q130	Schneider STU/SCU 5.7" HMI Front Screen Only
SS1	6605 (A608 for 20 Gallon Unit (Standard))	DN-OFF-ON IP Toggle Switch W/Tab
SS2	A608	DN-OFF IP Toggle Switch W/Tab

Internal Components - 20 Gallon Unit (Standard)



Label	Part #	Description
PI	J849	30W Power Supply
CB1	P465	6A Circuit Breaker
CB2	S791	15A Circuit Breaker
CI	K507	240V 32A Contactor
TB1	V791	2.5mm Terminal Grounding Block
TB2	J749	2.5mm Terminal Block
TB3	X737	16mm Terminal Block
TB4	Z414	16mm Terminal Grounding Block
PRI	N792	30A Power Relay
RI	Y606	Slice Relay

Internal Components - 20 Gallon Unit with Wash (optional)



Label	Part #	Description
P1	J849	30W Power Supply
CBI	P465	6A Circuit Breaker
CBI	S791	15A Circuit Breaker
CI	K507	240V 32A Contactor
TB1	V791	2.5mm Terminal Grounding Block
TB2	J749	2.5mm Terminal Block
TB3	X737	16mm Terminal Block
TB4	Z414	16mm Terminal Grounding Block
PRI	N792	30A Power Relay
RI	Y606	Zelio Relay
TEB1	N458	Terminal End Block

Contact

For Technical Support, to order Replacement Parts, or for questions about other products, please contact your local dealer.

