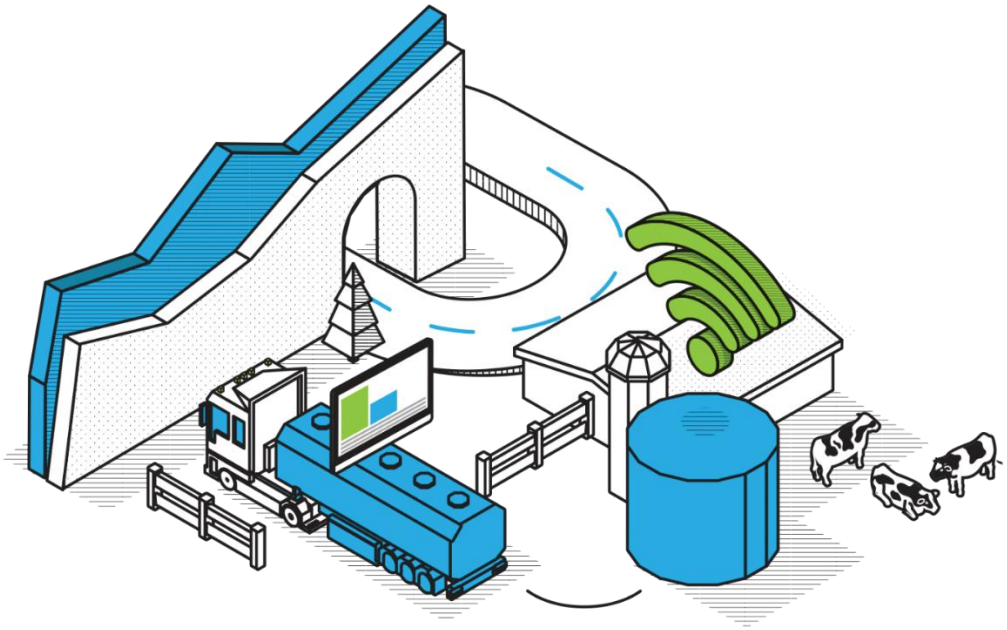


US FloStream

Operator Manual

Table of Contents

1.0 PURPOSE

This document will detail the Driver Instructions for using the Piper FloStream

2.0 ACRONYMS AND ABBREVIATIONS

- *HMI – Human Machine Interface for the purpose of this document refers to Eaton XV102.*
- *CAN – Controller Area Network, network interface used by the HMI.*
- *CSV—Comma separated values files in this program the field separator is the "," character.*

3.0 USER ACCESS LEVELS

There are two user access levels on the system; this only applies to the setup menu

- Operator - No password required
- Supervisor - Default password
  - Setup menu advanced access.

4.0 SYSTEM OVERVIEW

GETTING STARTED

The application for operator interface and data files are held on an SD card mounted in the side of the TS7 HMI.

(NOTE: DO NOT REMOVE OR INSERT THIS CARD WITH THE UNIT POWERED ON)

5.0 HARDWARE

TS 7 Touch-screen Operator Control Cabinet

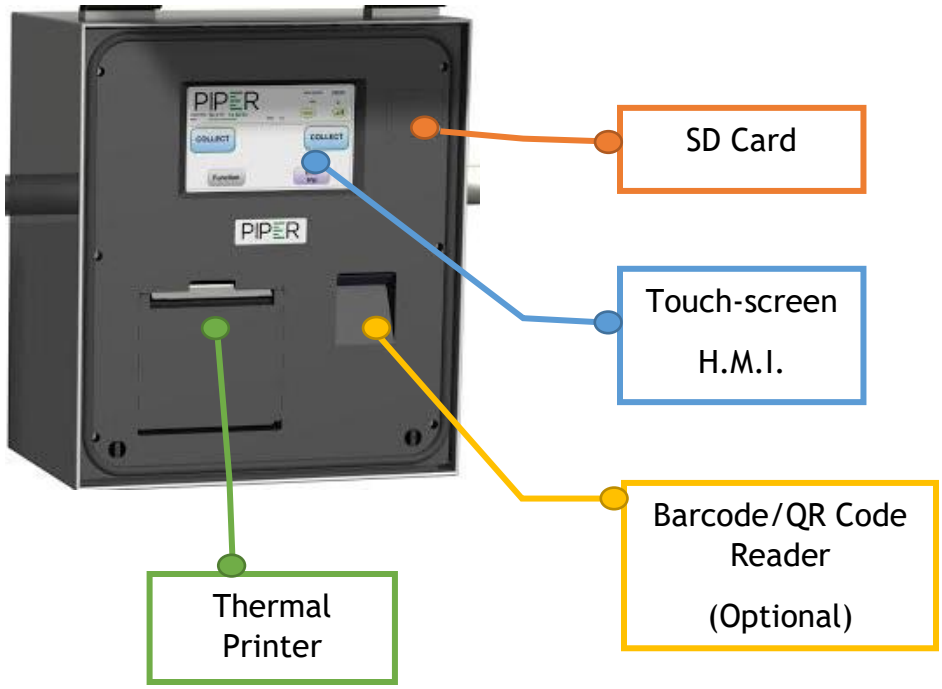


Figure 1 *(Piper TouchScreen Controller)*

6.0 USING THE SYSTEM

The H.M.I provides a user-friendly interface for using all the features of the Piper FloStream system. The end user (driver) is prompted through-out each menu for the necessary input information to progress to the next step of the process. The main system menus are:

1- Logon (Starting a new trip)
2- Collection (Farm pickup)
    a. Clearing the hose
    b. Air blow
3- CIP
4- Function (diagnostic screens)

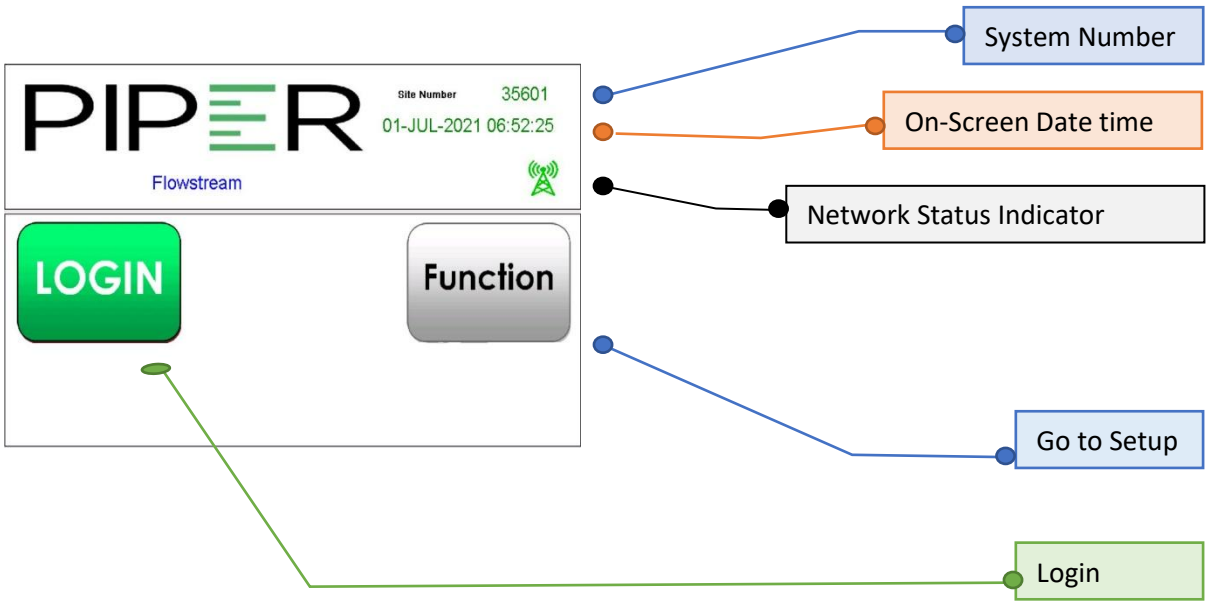
This manual will outline the core menu flow for each of the menus listed above as well as hidden features.

NOTE: Some menus may be skipped depending on configuration variables selected during set-up & commissioning.

7.1 Starting the Program

The program will start automatically when the system is powered up.

7.2 Home Screen



7.3 Network Status Indicators

The status indicators are explained in *Table 1* below. These indicators are shown on the home screen and on the home screen

Communications	
Symbol	**Description**
	GREEN: Connection to Server OK.
	YELLOW: Establishing connection to Server
	RED: NO Connection to Server.

Table 1 *Status Indicators*

7.4 Keypad

The HMI has a virtual keypad that can be used for entering values.

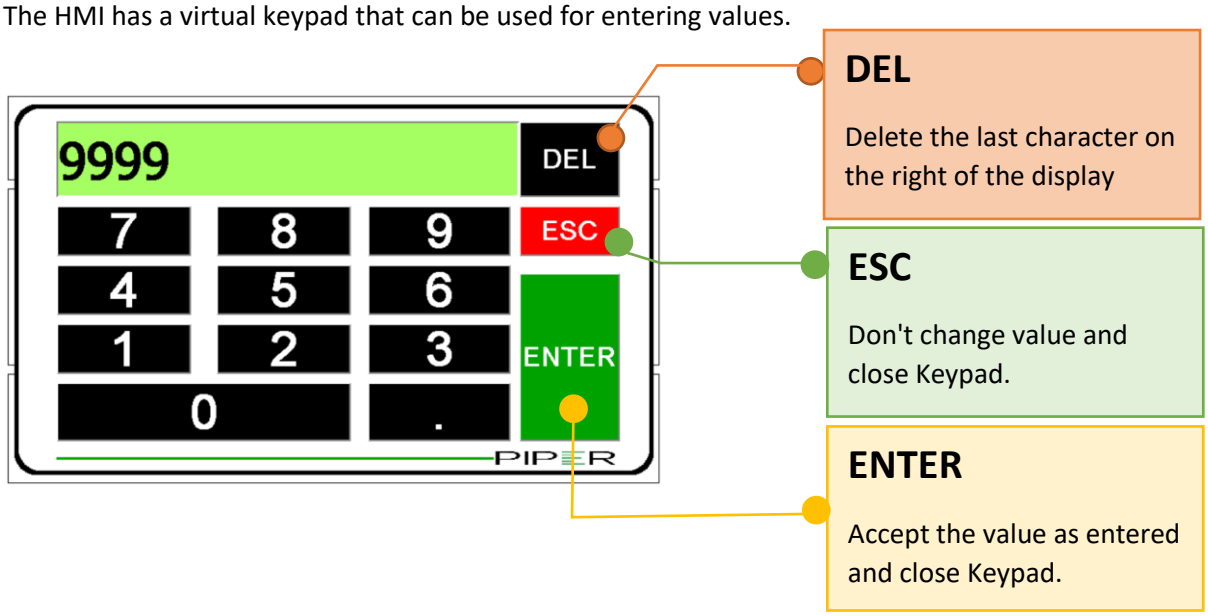
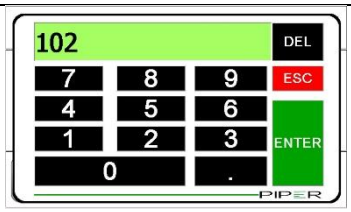
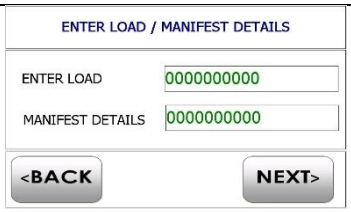
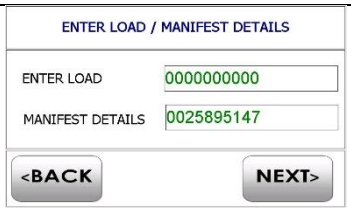


Figure 2 *Keypad*

LOGGING ON

INDEX	FUNCTION	SCREEN	TOUCH	ACTION
1 Log-on	Log-On		LOGIN	Go to Index 2
2 Driver Number	The last entered driver number is prompted, the operator can then either choose to accept by pressing next or touch the driver number panel to enter a new number. The Driver Number must be greater than zero.		BACK NUMBER WINDOW NEXT	Go to Index 1 Go to Index 3 Go to Index 4
3 Driver Number	When the driver touches the number window the virtual keypad is displayed. The driver can enter or scan their driver number		ENTER	Go to Index 2
4 Load or Manifest Number	The driver will be prompted to enter or scan a load tracking number or a manifest number. Press on the number window to display the virtual keypad		NUMBER WINDOW	Go to Index 5
5 Load or Manifest Number	The driver will enter or scan a load tracking number or a manifest number		NEXT	Go to Index 6

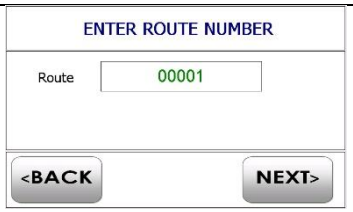
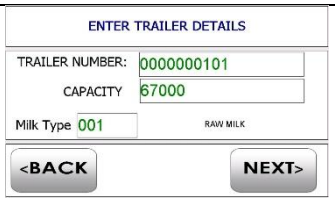
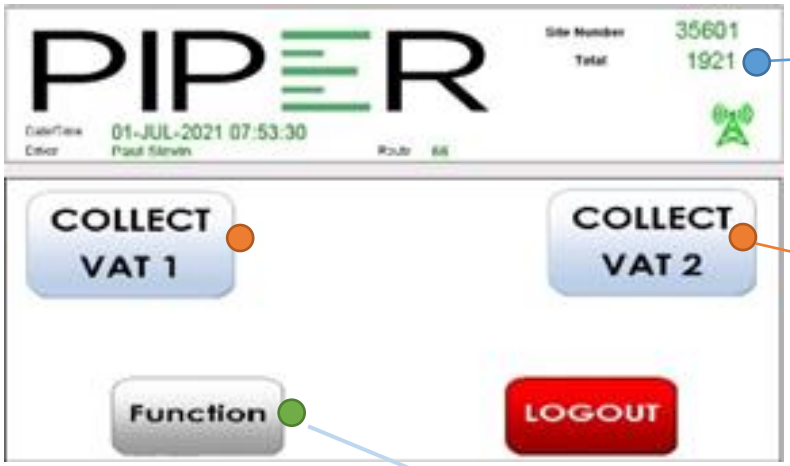
6 Route Number	The last entered route number is prompted, the driver can then either choose to accept by pressing next or touch the route number panel to enter a new number. Route Number must be greater than zero.		BACK NEXT	Go to index 5 Go to index 7
7 Trailer Number	The operator will be prompted to enter the trailer number to be loaded. If the trailer number and capacity details are saved in the Piper FloStream, it will automatically populate the trailer capacity. Otherwise it will display the default trailer capacity.		BACK NEXT	Go to index 6 Go to index 8
8 Logged-On	System is now logged on			

Table 2 *Log-On Menu Flow*

7.0 IN TRIP MENU

9.1 Idle Screen



Total Loaded Weight

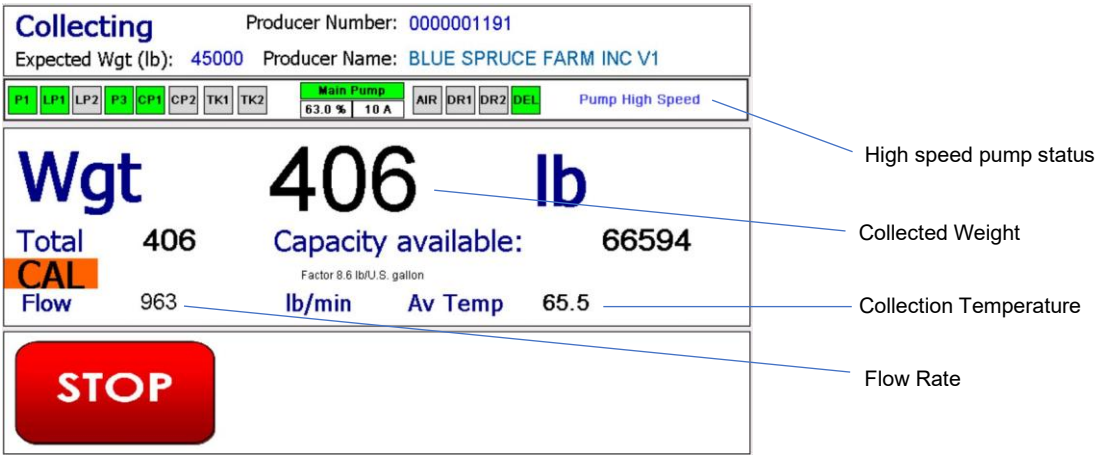
COLLECT button starts the collection process

In Trip – The Function Menu allows the operator access to

- Reprint Tickets and Reports.
- Display Trailer Totals
- View Active System Alarms

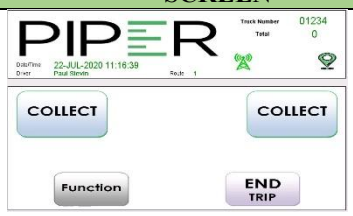
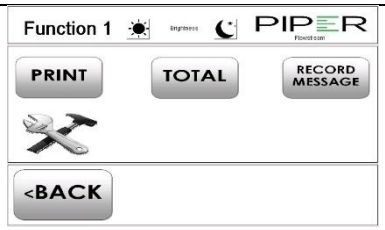
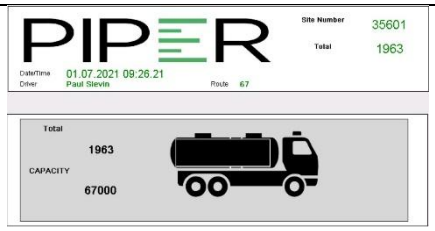
View a Diagnostics Screen (read only)

9.2 COLLECTION SCREEN



P1: Liquid Probe inlet to Pump
LP1: VAT1 Low Level Liquid Probe (if fitted). Used to slow the pump down.
LP2: VAT2 Low Level Liquid Probe (if fitted). Used to slow the pump down.
P3: Liquid Probe connected to the flow transmitter. Must be green on the display to allow the flow transmitter to measure
CIP1: CIP signal. ON for the duration of the CIP
CIP2: CIP cycle signal. ON during the cycle and OFF during drain down
TK1: VAT1 automatic signal (if fitted)
TK2: VAT2 automatic signal (if fitted)
Main Pump: Green indicates the pump is running
63.0%: Indicates the pump range (speed) status (0 – 100%)
10A: Indicates the VFD current load
DR1: Drain valve downstream of the pump
DR2: Drain valve upstream of the pump
DEL: Delivery valve signal

9.3 IN TRIP Functions

INDEX	FUNCTION	SCREEN	TOUCH	ACTION
1 Idle Screen			FUNCTION	Go to Index 2
2 Function Menu	Allows the operator to: • View trailer capacity and loaded weight • Print currect collections and load manifest • View active system alarms • View system diagnostics • Record a message		BACK TOTAL PRINT RECORD MESSAGE TOOL BOX	Go to index 1 Go to Index 3 Go to Index 4 Go to Index 5 Go to Index 6
3 Total	Shows the total weight loaded and the capacity of the trailer		N/A	Reverts to Index 1 after 4 seconds.
4 Print	Collection Ticket: Reprints previous producer ticket Delivery: Reprints the previous delivery ticket C.I.P. Ticket: Reprints the previous C.I.P. ticket for both VATs Current Trip: Prints the current load / manifest ticket		EXIT	Go to Index 1

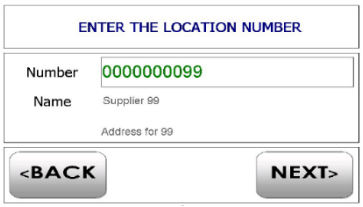
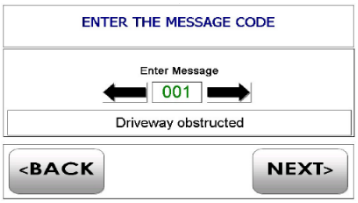
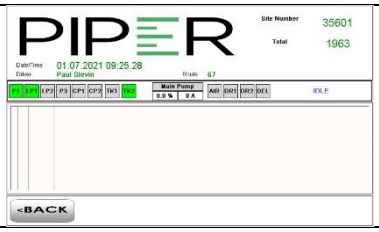
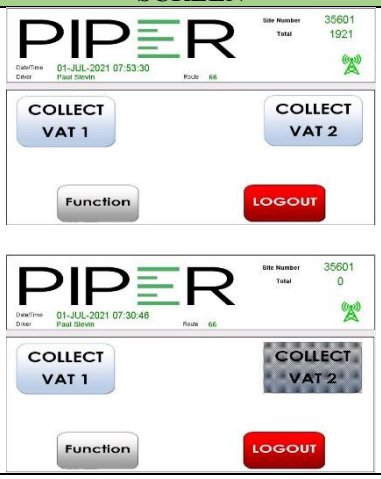
INDEX	FUNCTION	SCREEN	TOUCH	ACTION
5 Record Message	Here the operator can record a note related to a particular collection from a pre-defined list of messages from a downloaded file. The operator first enters the Client (producer) Number		BACK NEXT	Go to Index 2 Go to Index 5A
5A Record Message	The operator can select from a pre-defined list of messages. These messages are determined by the entries in the "Message.csv" file on the SD card.		BACK NEXT	Go to Index 2 Go to Index 2
6 Alarms	Any/All active alarms are displayed for the operator. Examples of active alarms are: • CAN bus fault • Sampler 1 fault • CR0403 fault		BACK	Go to Index 2

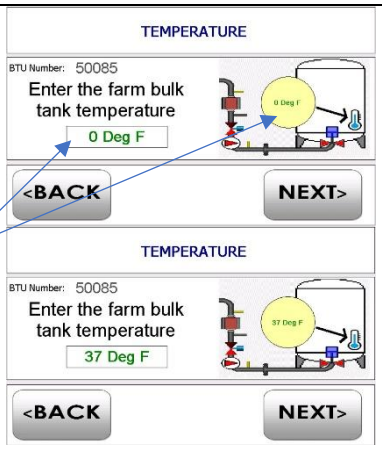
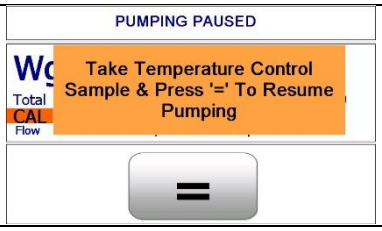
Table 3 *(In trip function Menu flow)*

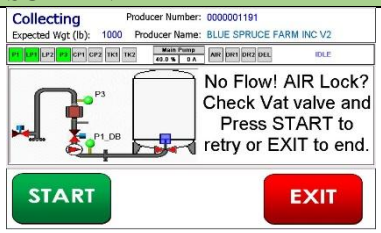
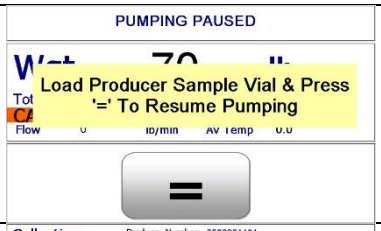
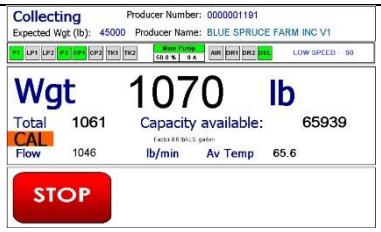
8.0 COLLECTION

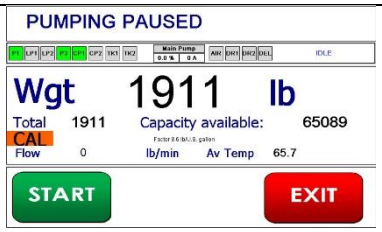
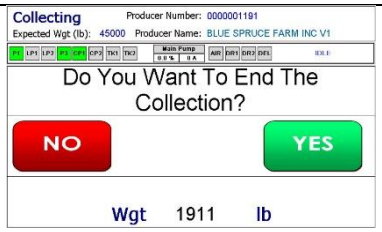
Note: Prior to commencing the collection the operator should perform the usual checks:

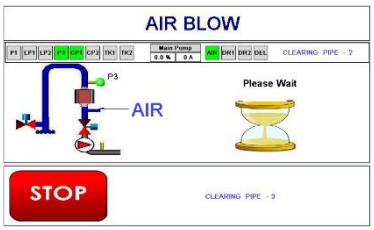
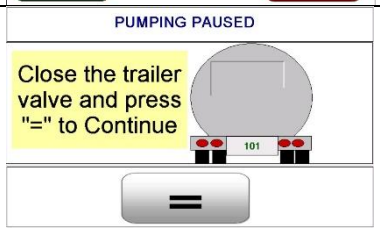
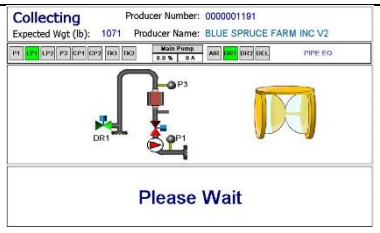
1. Milk Odor
2. Milk Visual
3. Milk Temperature in accordance with Appendix B of the PMO
4. Turns on the farm bulk tank's agitator if not already running
5. Confirms that the farm bulk tank's outlet valve is clean and sanitized if required in accordance with Appendix B of the PMO
6. The farm pickup hose is not resting on the ground

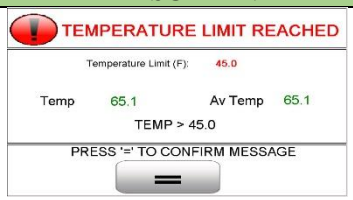
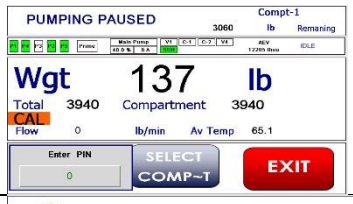
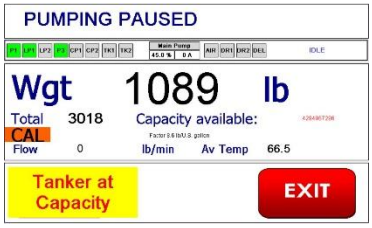
INDEX	FUNCTION	SCREEN	TOUCH	ACTION
1 Collect	If the VAT select sensor (proximity, wand, switch, etc..) is not fitted then the operator must select which VAT is to be collected If the VAT select sensor (proximity, wand, switch, etc..) is fitted then the VAT not connected will be greyed out. The operator must confirm the VAT to be collected		COLLECT VAT 1	Go to index 2
2 Confirm Expected Milk Weight	The operator must confirm the expected pickup weight from the VAT. On the first collection the Piper FloStream will prompt the overall capacity of the VAT		NEXT BACK	Go to index 3 Go to index 1

3 Sample Scan / Manual Entry	If enabled this menu allows the operator to scan or manually enter a sample number for this collection. Press the number panel to enable the virtual keypad to scan or enter the sample number		BACK NEXT	Go to index 2 Go to index 4
4 Bulk Tank Temperature	The operator must enter the farm bulk tank temperature which is recorded using their pocket thermometer. The operator can enter the temperature by pressing on active areas to display the virtual keypad When the operator has entered the temperature press NEXT to proceed		BACK NEXT	Go to index 3 Go to index 5
5 Confirm Collection Start	The operator can confirm that all the collection details are correct prior to starting the collection		START EXIT	Go to index 6 Go to index 1
6 TC Sample	On the first VAT only the system will prompt the operator to take a TC sample. This will be done per Appendix B of the PMO		=	Go to index 7

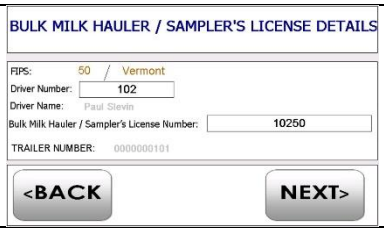
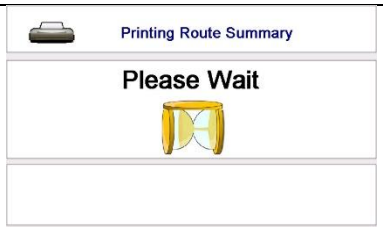
INDEX	FUNCTION	SCREEN	TOUCH	ACTION
7 Waiting for flow	At the start of the collection the Piper FloStream waits the probe at the inlet of the pump to go wet before starting the pump. After a set time if no flow is recorded the Piper FloStream will automatically pause the collection process and display the “No Flow / Air Lock” message. The operator should check that the farm tank outlet is open		START EXIT	Go to index 8 Go to index ?
8 Load Producer Sample Vial	After the flush weight has been measured through the flow transmitter the system will automatically pause the collection process and display the “Load Producer Sample Vial” message. (**see section 13 for SOP**)		=	Go to index 9
9 Collection in Progress	After a predefined weight has been recorded by the flow transmitter the system will ramp to high speed. The collection process can be paused at any time by pressing STOP		STOP	Go to index 7
10 Collection End	The Piper FloStream will ramp the pump down from high to low speed when either event is triggered: 1. The VAT probe (if fitted) goes dry 2. If the weight recorded is close to the expected weight		STOP	Go to index 8

11 Collection Paused	When the flow rate drops below 100 lb / min the pump will stop and prompt the operator to resume the collection or exit		START EXIT	Go to index 9 Go to index 12
12 Collection End Confirm	The operator will be prompted to confirm that they want to end the collection If the operator elects to end the collection they should remove the sample vial, needle & tube assembly (**see section 14 for SOP**)		NO YES	Go to index 11 Go to index 13
13a Clear Hose 13b Clear Hose Confirm	The system will prompt the operator to diconnet the hose from the bulk tank outlet and lift it into a vertical position. After the timer has elapsed or the driver presses START the pump will start on low speed. When the probe at the pump inlet goes dry the pump will stop and prompt the operator to START the clear hose routine again or EXIT to proceed.	 	EXIT START EXIT	Go to index 13b Go to index 13a Go to index 14a

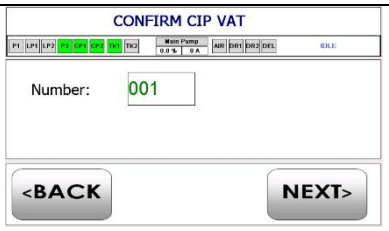
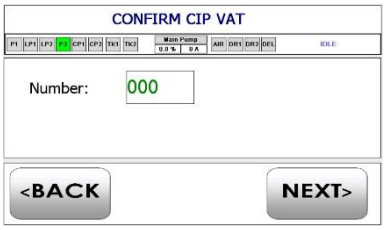
INDEX	FUNCTION	SCREEN	TOUCH	ACTION
14a Clear Delivery Hose (Air Blow)	The system will prompt the operator with the Air Blow Countdown After the timer has elapsed or the operator presses START the Piper FloStream will commence the air blow to clear the delivery hose		START EXIT	Go to Index 14b Go to Index 14c
14b	The Piper FloStream will air blow the milk from the delivery hose to the trailer. This processed will end after the air blow timer has elapsed or the operator presses STOP		STOP or Timer Elapsed	Go to Index 14c
14c	The operator has the option to restart the air blow again		START EXIT	Go to Index 14a Go to Index 15
15 Close Trailer Valve	After the air blow routine the operator will be prompted to close the trailer valve and confirm the message prompt on the HMI to continue		=	Go to Index 16
16 Pressure Equalization	After the air blow routine has been completed the Piper FloStream will equalize the pressure in the sysem by opening drain valve 1 (downstream of the pump) After the timer has elapsed the collection process is complete		Timer Elapsed	Go to Index 1

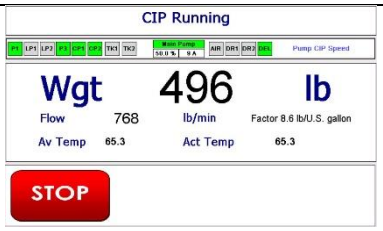
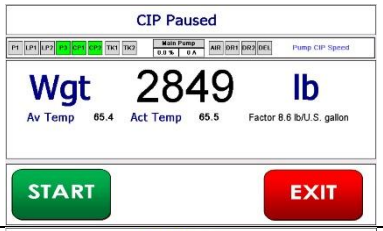
INDEX	FUNCTION	SCREEN	TOUCH	ACTION
17 Over Temperature Limit Reached	The system has the capability to record the temperature of the milk throughout the collection. If the temperature of the milk exceeds a predefined limit the system automatically pauses the collection and prompts the operator.		=	Go to index 11
17a	If the over temperature pin code function is enabled the system will prompt the driver to enter a pin code to unlock the system. Touch the 0 on the Enter Pin screen to display the virtual keypad. The pin code has to be generated from the Piper Portal (www.pipersystems.com)			
18 Trailer Capacity	The trailer capacity is pre-set or set by the operator when logging the trailer details on the system. The system will automatically stop the pump when the trailer capacity has been reached.		=	Go to Index 18a
18a	The operator will only have the option to press EXIT		EXIT	Go to Index 13a

9.0 END LOAD

INDEX	FUNCTION	SCREEN	TOUCH	ACTION
1 End Load	Press LOGOUT to end the load		LOGOUT	Go to Index 2
2 Sampler's License Details	The operator will confirm the sampler's license details .		NEXT BACK	Go to Index 3 Go to Index 1
3 Delivery Location	The operator can manually enter or scan the delivery location number		NEXT BACK	Go to Index 4 Go to Index 2
4 Printing the Load Manifest	The Piper FloStream will automatically print a load manifest			Go to Index 5
5 Home Screen	After the load manifest has been printed the Piper FloStream will revert to the Home Screen			

10.0 C.I.P

INDEX	FUNCTION	SCREEN	TOUCH	ACTION
1 Home Screen	When the CIP signals are switched on the system will automatically switch to CIP. There are two CIP signals: CIP1 (ON constantly during the CIP) CIP2 (ON during each cycle and OFF during cycle drain down) The operator must connect the hose from the inlet of the pump to the VAT being CIP'd. The VAT outlet valve must be open The operator must connect the delivery hose to the VAT spray ball inlet line		CIP Signals On	Go to Index 2
2 Confirm VAT	If the VAT select sensor (proximity, wand, switch, etc..) is fitted then the Piper FloStream will prompt which VAT is connected. The operator must confirm this by pressing NEXT If the VAT select sensor (proximity, wand, switch, etc..) is ***not*** fitted then the operator must enter which VAT is to be CIP'd.	 	NEXT	Go to Index 3
3 Ensure tank is empty	The system will prompt the operator to check that the VAT is empty prior to starting the CIP		START EXIT	Go to Index 4 Go to Index 1
4 CIP Running Waiting for P1	The Piper FloStream waits for the probe (P1) at the pump inlet (including the dry to wet debounce time) to go wet before starting the CIP sequence.		P1 probe goes WET STOP	Go to Index 5a Go to Index 5b

5a CIP Running	During CIP the operator can pause the CIP by pressing STOP		STOP	Go to Index 5b
5b CIP Paused			START EXIT	Go to Index 5a Go to Index 1
6a CIP2 Signal OFF (Open DR1)	At the end of the cycle the CIP2 signal will go OFF. The Piper FloStream will automatically slow the pump down and open the drain port (DR1) downstream of the pump.		CIP2 Signal ON	Go to Index 4
6b CIP2 Signal OFF (Open DR2)	When the probe (P1) at the inlet of the pump goes dry the Piper FloStream will stop the pump and open the drain port upstream of the pump		CIP1 Signal OFF	Go to Index 1

11.0 TAKING A SAMPLE

1. Refer to sampling SOP
2. The operator will observe the automatic sampler and vial during the sampling process

12.0 CHANGING THE SEPTUM

1. Prior to inserting new septum: Remove blue dust cover. Loosen and remove the nut and make sure the exhausted septum is removed.
2. Sanitize the inside of the stainless-steel fitting with alcohol or approved sanitizer.
3. Insert the new septum into the stainless-steel port. Remember to only touch the outside of the rim of the Septum. Place the nut over the septum. Hand tighten and then tighten no more than 1/8 turn with a wrench.
4. Swab the outer surface of septum with sanitizer. Insert needle into septum. This allows aseptic samples to be drawn a single time from each channel without risk of cross-contamination. Replace the blue dust cover.
5. For further training materials such as videos, SOP's, schematics and installation drawings please visit: www.qualitru.com/training-center
6. Please note: The nut may need to be re-tightened periodically due to vibration and cleaning cycles.

13.0 SAMPLE TEMPERATURE

Means used to maintain the sample at the required temperature during the sample collection period.

When determined by the Regulatory Agency to be necessary, Adequate insulation and/or refrigeration of the sample vial carrier shall be provided to maintain the proper temperature of the samples (between 0.0 – 4.4 degrees Celsius [32 – 40F]) during the sample collection period.