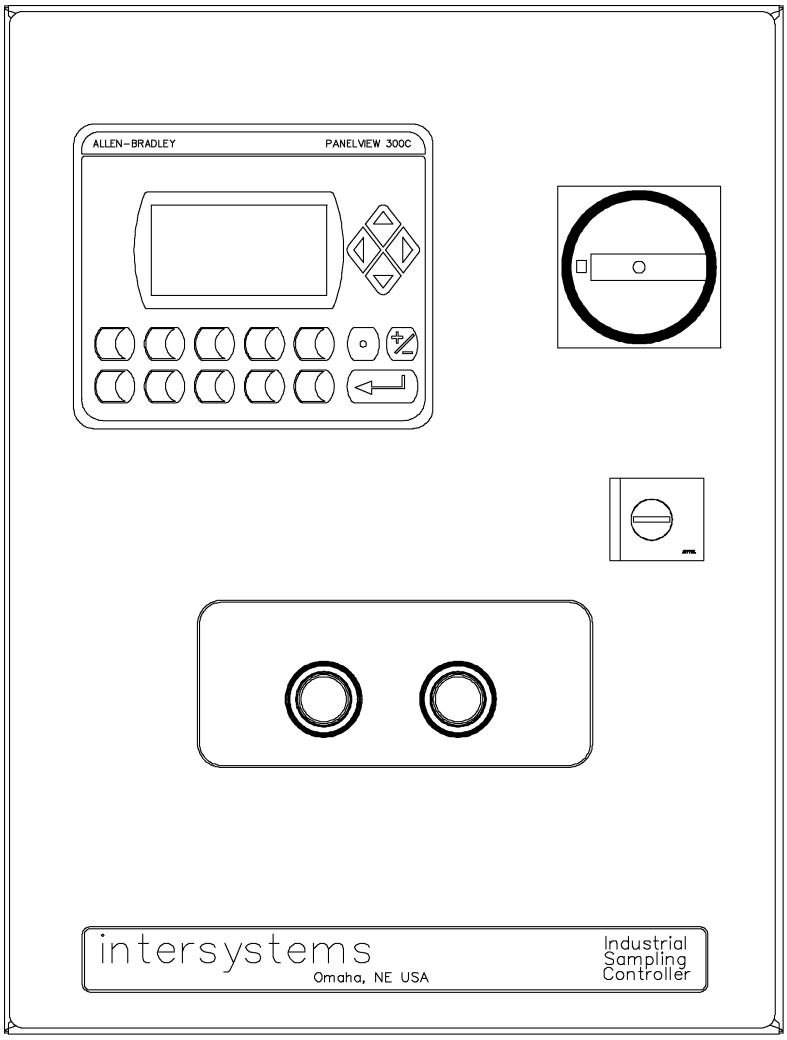


PLC Controller

Installation and Operation Manual

PNEG-2170

Version: 1.0

Date: 12-07-17

PNEG-2170

All information, illustrations, photos, and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Contents

Table of Contents

This manual covers the installation and operation for the PLC Controller. This manual provides guidelines for installing the product. You must retain a qualified contractor to provide on-site expertise. INTERSYSTEMS IS NOT RESPONSIBLE FOR THE INSTALLATION OF THIS PRODUCT.

InterSystems reserves the right to improve its product whenever possible and practical to do so. We reserve the right to change, improve and modify products at any time without obligation to make changes, improvements and modifications on equipment sold previously.

General Safety Statements

1. The PLC Controller is designed and manufactured with operator safety in mind. However, residual hazards remain due to the nature of material handling, and specific material hazards. Use extreme caution at all times.
2. Modifications to equipment may cause extremely dangerous situations that could result in damage to the equipment as well as serious injury or death. Never modify the equipment.
3. Intersystems recommends that you contact the local power company to have a representative survey the installation to ensure wiring is compatible with their system and adequate power is supplied to the unit.
4. Consult Intersystems before making any changes to the sampler or its operating environment. Careless changes could result in death or serious injury to people and reduce the performance and service life of the equipment.
5. Never perform any service on this equipment or any powered equipment until all power has been shut off and locked out so that it cannot be restored without the consent and knowledge of the person who interrupted power. Power includes electrical, fluid, mechanical or pneumatic energy.
6. Never perform any service on this equipment without utilizing the required PPE (Personal Protective Equipment). Refer to the MSDS (s) (Material Safety Data Sheet (s)), on all products to which this equipment is in contact to determine what PPE is required.

This equipment is to be obtained only on the voltage designated on the certified electrical drawings. Fire or explosion may result, which can cause death, serious injury and extensive damage to equipment. Do not connect to voltages other than designated.

Compressed air can cause severe injury. Shut off and lock out compressed air source to the sampler and bleed off any and all present compressed air within the sampler pneumatics before attempting any service on this sampler.

Scope

The certified drawings list the non-standard components that have been incorporated into the equipment. InterSystems, Inc. normally stocks non-fabricated parts and non-custom OEM parts. Replacement parts for any other components, including fabricated parts and custom OEM components can be supplied upon request.

Ordering Parts

Direct parts orders or requests for technical assistance to your sales representative or to:

InterSystems, Inc.
9575 No 109th Ave
Omaha, NE 68142
Phone: (402) 330-1500
FAX: (402) 330-3350

Please have available the MODEL NUMBER, SERIAL NUMBER and CUSTOMER ORDER NUMBER of the equipment in question as well as the location where the sampler is INSTALLED.

Replacement Parts

The InterSystems, Inc. sampler is a quality built piece of machinery. As with any machine, parts do wear out and fail. It is InterSystem's recommendation that a small supply of spare parts be kept on hand to cover any minor breakdowns. A separate priced spare parts list will be sent identifying the suggested spare parts. It is also necessary to check the certified drawings, which will list any special or custom components utilized on this equipment.

System Description

The PLC control is an Allen Bradley Micologix 10 point processor interfaced with a PanelView 300 operator display designed to control one sampler at a time. The control can handle the addition of a collection cabinet at installation or at a later date without replacing or upgrading the control. The controller was design with the intent to be user friendly using a minimum number of key strokes.

Sampler start-up, setting and operator interaction are easily navigated through the menu screens on the PanelView screen. Once the control is set-up and the desired timer values entered, the control can be set to run in automatic or manual operation. When in automatic mode, the control will upon initial power up wait 30 seconds before beginning the automatic sequence. This is designed to allow the operator time to decide if they want automatic or manual operation. If the control has been ON and the remote enable signal is use the 30 second delay is not used. When the control is in automatic, the delay between samples timer will start to time down, upon reaching 0 the control will begin the desired sampling sequence. When the control is set for manual operation, the delay between samples timer is ignored and upon press the “F1” key, the sampler will begin the sampling sequence.

Optional Features

The certified drawings indicate which, if any, optional features are included with a sampler control. Some of the more frequently specified optional features are briefly described in the following list.

1. Controller arranged to initiate a sampling cycle based on quantity or volume of material passing through conveying line rather than upon elapsed time periods.
2. Explosion Proof Controller. There are several major differences in an explosion-proof control as compared to a standard control. An explosion proof control will typically have the following features.

   The explosion proof sampler control is available in two enclosure classifications.

   a. The NEMA 9 control with the rating of:

      Class 2, Groups E, F and G, Division 1 and 2

   b. The NEMA 7 control with the rating of:

      Class 1, Groups C and D, Division 1 and 2

      Class 2, Groups E, F and G, Division 1 and 2

3. Enclosure components of special materials, such as 304 stainless steel.

Safety Guidelines

Safety guidelines are general-to-specific safety rules that must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Save these safety guidelines for future reference.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in SERIOUS INJURY or DEATH.

This equipment must be installed in accordance with the current installation codes and applicable regulations, which must be carefully followed in all cases. Authorities having jurisdiction must be consulted before installations are made.

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.

Personnel operating or working around equipment must read this manual. This manual must be delivered with equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

ST-0001-3

Cautionary Symbol Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.

DANGER This symbol indicates an imminently hazardous situation which, if not avoided, **will result in serious injury or death.**

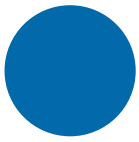
WARNING This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**

CAUTION This symbol indicates a potentially hazardous situation which, if not avoided, **can result in minor or moderate injury.**

NOTICE This symbol is used to address practices not related to personal injury.

This symbol indicates a general hazard.

This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

ST-0005-2

Safety Cautions

Use Personal Protective Equipment

- Use appropriate personal protective equipment:

Eye Protection

Respiratory Protection

Foot Protection

Hearing Protection

Head Protection

Fall Protection

Hand Protection

- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

Follow Safety Instructions

- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.

ST-0002-1

Maintain Equipment and Work Area

- Understand service procedures before doing work. Keep area clean and dry.
- Never service equipment while it is operating. Keep hands, feet, and clothing away from moving parts
- Keep your equipment in proper working condition. Replace worn or broken parts immediately.

ST-0003-1

Stay Clear of Hoisted Equipment

- Always use proper lifting or hoisting equipment when assembling or disassembling equipment.
- Do not walk or stand under hoisted equipment.
- Always use sturdy and stable supports when needed for installation. Not following these safety precautions creates the risk of falling equipment, which could crush personnel and cause serious injury or death.

ST-0047-1

Sharp Edge Hazard

- This product has sharp edges, which can cause serious injury.
- To avoid injury, handle sharp edges with caution and always use proper protective clothing and equipment

ST-0036-2

Install and Operate Electrical Equipment Properly

- Electrical controls must be installed by a qualified electrician and must meet the standards set by applicable local codes (National Electrical Code for the US, Canadian Electric Code, or EN60204 along with applicable European Directives for Europe).
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.
- Make sure all equipment is properly grounded.

ST-0027-4

Stay Clear of Moving Parts

- Stay clear - machine can start without warning.
- Entanglement in gate will cause serious injury.
- Keep all shields and covers in place at all times.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.

ST-0070-1

Stay Clear of Rotating Parts

- Do not service equipment while it is in operation.
- Entanglement in rotating parts or exposed belts will cause serious injury or death.
- Keep all shields and covers in place at all times.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.

ST-0072-1

Flying Material and High Pressure Air Hazard

- Flying material and/or high pressure air can cause severe eye injury or blindness.
- Wear safety glasses around operating equipment.

ST-0071-1

Safety Sign-Off Sheet

Below is a sign-off sheet that can be used to verify that all personnel have read and understood the safety instructions. This sign-off sheet is provided for your convenience and personal record keeping.

Date	*Employee Name*	*Supervisor Name*

ST-0007

Receiving Inspection

Carefully inspect the sampler control for damage as soon as it is received. Also, verify that the quantity of parts or packages actually received corresponds to the quantity shown on the packing slip. Report any damage or shortage to the delivering carrier as soon as possible. InterSystem's responsibility for the equipment ended with acceptance by the delivering carrier. Refer to the bill of lading.

Pre-Installation Preparation

NOTE: *Before starting the sampling system installation, study this manual, the certified drawing(s) furnished with the system and other applicable documents (including, but not limited to OSHA regulations, the National Electrical Code and all other applicable federal, state and local codes and regulations).*

Controller Location

1. Use vibration isolation pads when mounting the control enclosure or mount the controller in a vibration free location.
2. Unless ordered for severe duty, locate controller so it is protected from water and dust.
3. Unless an explosion-proof rated controller was specifically ordered, DO NOT locate the controller in a hazardous area.
4. Most applications require that the sampler be in easy view of the controller.

System Wiring

Refer to the certified electrical drawing(s) for specific wiring requirements. The 19-position barrier terminal strip located inside the bottom right corner of the control enclosure is the connection point for ALL external circuitry.

The controller was completely assembled and tested with the sampler before it left the factory. The electrical installation must comply with OSHA Regulations, the National Electrical Code and all other applicable federal, state and local codes and regulations.

If wiring between the controller and the sampler unit is run through rigid conduit, use a short length of flexible conduit to connect wiring to the sampler. This will isolate the rigid conduit from any vibration originating in the product conveying line and sampler.

Controller Electrical Power Requirements

110/120 VAC 50/60 Hz, Single Phase, 20 Amp Maximum Service.
Optional - 220/240 VAC 50/60 Hz, Single Phase, 10 Amp Service.

Refer to the certified electrical drawing(s) for specific wiring requirements. InterSystems strongly recommends that electrical service to the sampling system be an isolated line. Voltage fluctuations and line noise can affect the controller, thus causing the sampler to malfunction.

Control Components and their Functions

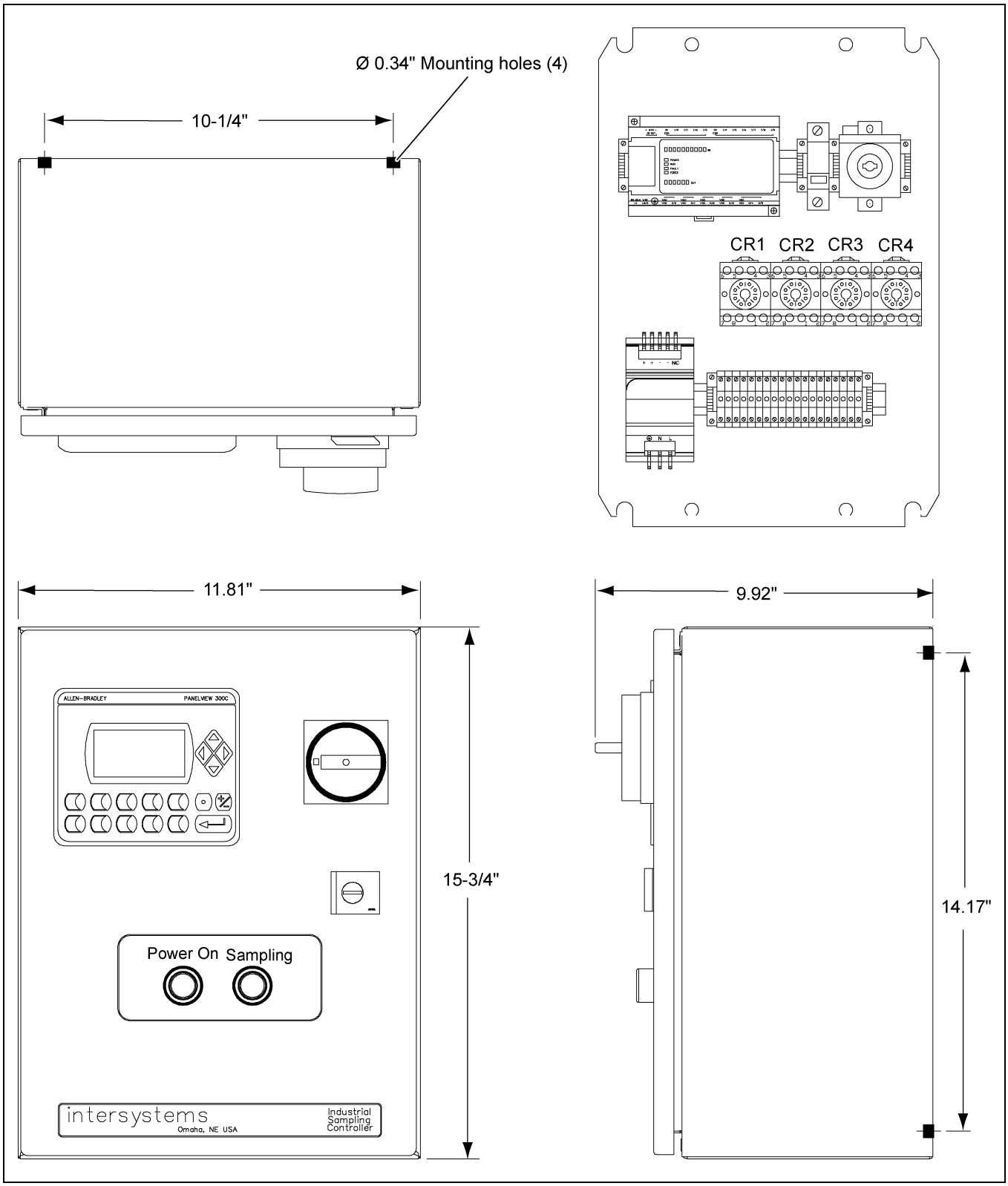


Figure 5A *Standard Nema 4 Control Panel Detail*

Refer to the certified electrical drawing(s) for dimensions on control panels with optional features.

Power OFF/ON Switch S-1

The Power OFF/ON switch controls all electrical power to the controller and the sampler unit.

This machine starts without warning. Moving parts can cause severe injury. Clear area prior to controller start-up.

Power Pilot Light

This light is illuminated as long as power is available to the controller and the POWER switch (S-1) is set to ON.

Sampling Pilot Light

This light will illuminate when a sampling cycle has been initiated and will stay lit until CR-1 has been turned OFF for controller series 550800. On control series 550803 the sampling lights are associated with the traverse direction of the pelican. The light will stay illuminated until the solenoid has been de-engerized.

PanelView 300 Operator Interface

The operator interface is the source of all input necessary to operate the control. The operator PanelView is setup using linked menus to step through the operation of the control. The following flow chart depicts the layout of the operator menus. (See chart *on Page 17*.)

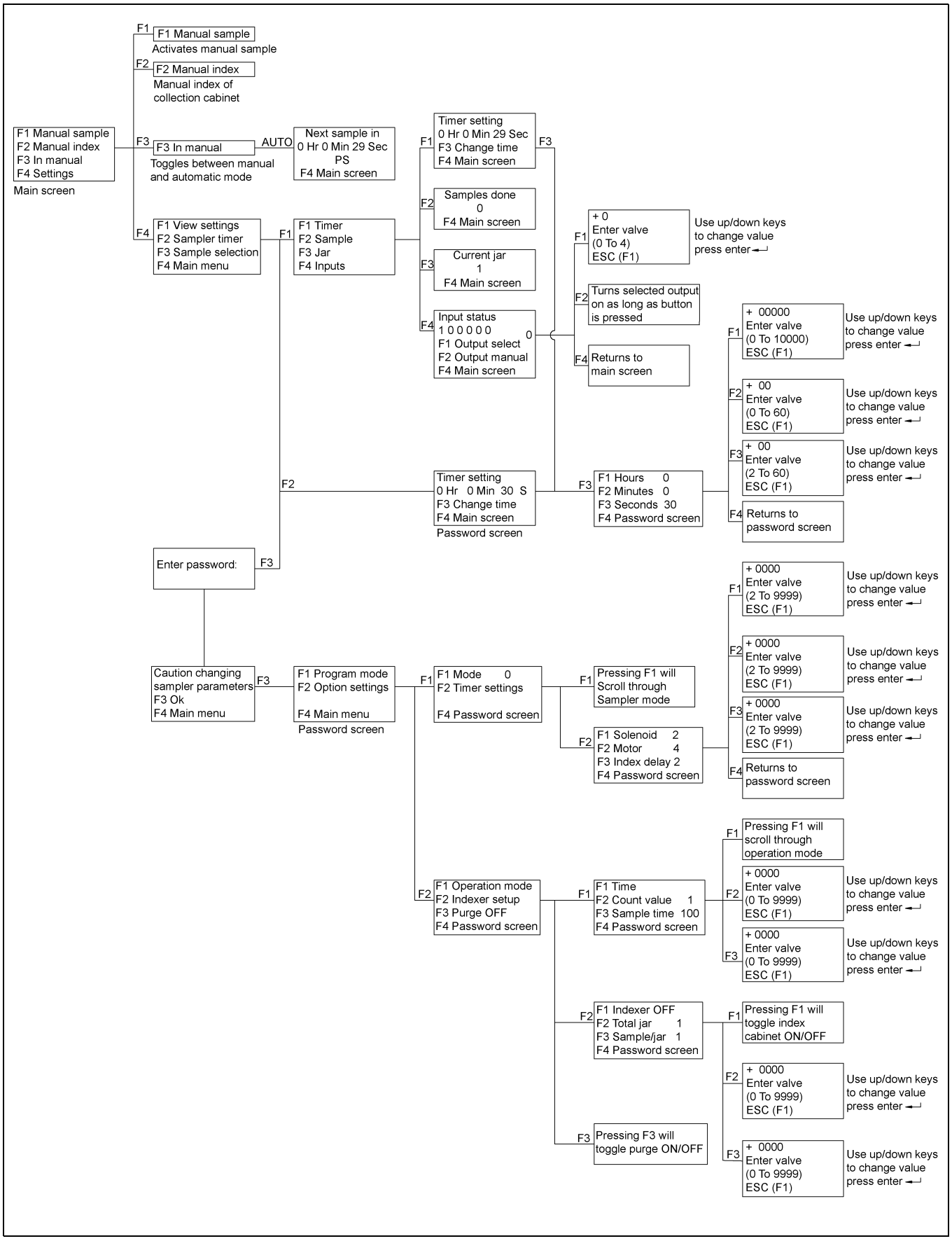


Figure 5B *Operator PanelView Flow Chart*

Description of Operator Screens

Function keys	F1, F2, F3 and F4	Used to select desired control function or parameters.
Up/Down arrow keys		Used to enter numeric numbers by incrementing digits.
Left/right arrow keys		Used to change numeric number position.
		Enter key
F1 MANUAL SAMPLE F2 MANUAL INDEX F3 IN MANUAL F4 SETTINGS	F1 MANUAL SAMPLE	Used to initial a manual sample cycle when in manual mode.
	F2 MANUAL INDEX	Used to initial a manual index of sample cabinet in manual mode when a cabinet is connected to the control.
	F3 IN MANUAL	F3 toggles between manual mode and automatic mode.
	F4 SETTINGS	Allows user to select other control options.
F1 VIEW SETTINGS F2 SAMPLER TIMER F3 SAMPLE SELECTION F4 MAIN SCREEN	F1 VIEW SETTINGS	Used to view sample duration timer. F1 TIME BETWEEN SAMPLES F2 SAMPLES DONE F3 CURRENT JAR F4 INPUT STATUS and TURN OUTPUT ON
	F2 SAMPLE TIMER	Password required for changing time between samples.
	F3 SAMPLE SELECTION	Allows operator to select program mode and option settings.
F1 PROGRAM MODE F2 OPTION SETTINGS F4 MAIN SCREEN	F1 PROGRAM MODE	Changes between the different sampler programs in the controller. F1 toggles through sampler programs. F2 sets timer values for that specific sampler.
	F2 OPTION SETTINGS	Allows operator to change mode of operation, turn ON and set-up index cabinet and turn on sample purge.
F1 OPERATION MODE F2 INDEXER SETUP F3 PURGE OFF F4 PASSWORD SCREEN	F1 OPERATION MODE	Changes control operation from timer based to counter and timer/counter. Also contains the Timer Settings to allow for the adjustment of the specific sampler timer values.
	F2 INDEXER SETUP	Used to turn the indexer ON or OFF, enter the total number of jars per cabinet and enter the number of samples per jar.
	F3 PURGE OFF	Turns sample purge ON/OFF.

Terminal Strip

This 19-position barrier terminal strip is located inside along the bottom right corner of the control enclosure. It serves as the controller's interface and connection point for all external circuits and for the components mounted in the enclosure. Refer to the certified electrical drawing(s).

Power Transformer

The control is equipped with a transformer which converts 120/240 volt incoming power to 24 VDC for the operation of the PLC, PanelView, display lights, input signals and operation of the control relays. Refer to the certified electrical drawing(s). The transformer is internally protected against overloads.

This control is to be operated only on the voltage designated on the certified electrical drawing. Fire or explosion may result, which can cause death, serious injury and extensive damage to equipment.

Control Relays

The control is equipped with four control relays, which are driven by the PLC output signals. Each relay has a mechanical flag indicator showing the relay is energized. The relay coil is operated using 24 VDC while the relay contacts are wired for 120/240 volts. Refer to the certified electrical drawing(s).

Main Fuse F1

This fuse is located along the top edge of the control next to the base of the ON/OFF switch. The fuse rating will change depending on the type of sampler being used. This fuse protects the controller and sampler components against overloads and short circuits.

For 120/240 VAC, 1 PH operation use ONLY a Buss Type FNM, 250 Volt Slo-Blo fuse or equal.

Microview PLC

The PLC for the control is a 10 point Allen Bradley Microview controller. The PLC operates on 24 VDC and is pre-wired to the proper terminal strip inputs and outputs. The processor program is protected to prevent any alterations to the existing program. This control is design only to run InterSystems equipment.

Operation Modes

The PLC control can operate under three different operation modes: Timer, Counter, Counter/Counter, Timer/Counter. Operation mode determines when the sampler starts a sample cycle when in the automatic mode. The controls are factory set in the Timer operation mode.

Counter Mode

When in the COUNTER mode the sampler is looking for pulses from external equipment (i.e. bagging line). When the sampler reaches the desired counts a sample cycle will be initiated. To set the control to operate in COUNTER mode:

1. Turn power ON.
2. Press **F4** key for *Settings.*
3. Press **F3** for *Sample Selection*.
4. If prompted for the User enter **1** followed by enter key ↵ .
5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ↵ .
6. *Caution Changing Sampler Parameters* press F3 for OK.
7. Press **F2** for *Option Settings.*
8. Press **F1** for *Operation Mode.*
9. Press **F1** to toggle through to counter.
10. Press **F2** to change the number of counts between samples.
11. Enter desired value using the Up/Down arrow keys on the right side to adjust number values and the Right/Left arrow keys on the left side to change position. Then press the Enter key ↵ .
12. Press **F4** to return to *Main Screen.*

To initiate the input pulse the factory installed REMOTE ENABLE jumper needs to be removed. In its place, install a normally open contact. The normally open contact should be a dry contact rated for 120 VAC 0.5 Amps. This contact needs to be driven by the customer's process (i.e. bagging line). When the contact closes the sampler PLC will register a count. They will count up until the desired count value is reached. When the count value is reached the sampling cycle will begin.

Signal Start-Multiple Cycle Mode

When in the Signal Start-Multiple Cycle mode the sampler is looking for a pulse from external equipment (i.e. bagging line). When the enable signal is initiated the sampler will cycle for a pre-determined number of cycles. To set the control to operate in Signal Start-Multiple Cycle mode:

1. Turn power ON.
2. Press **F4** key for *Settings.*
3. Press **F3** for *Sample Selection.*
4. If prompted for the *User* enter **1** followed by enter key ↵ .

5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ↵ .
6. *Caution Changing Sampler Parameters* press **F3** for OK.
7. Press **F2** for *Option Settings*.
8. Press **F1** for *Operation Mode*.
9. Press **F1** to toggle through to Enable/X samples.
10. Press **F2** to change the number of sample counts required.
11. Enter desired value using the Up/Down arrow keys on the right side to adjust number values and the Right/Left arrow keys on the left side to change position. Then press the Enter key ↵ .
12. Press **F3** to change the time between samples (in seconds).
13. Enter desired value using the Up/Down arrow keys on the right side to adjust number values and the Right/Left arrow keys on the left side to change position. Then press the Enter key ↵ .
14. Press **F4** to return to *Main*.

To initiate the input pulse, remove the factory installed REMOTE ENABLE jumper. In its place, install a normally open dry contact rated for 120 VAC 0.5 Amps that is driven by the customer's process (i.e: bagging line). When the contact closes the sampler PLC will start the sampling cycle. When the sample cycles are complete, the control will require another input pulse to start the cycle over.

Timer Mode

When in the Timer mode the sampler will time down in hours, minutes or seconds. When the timer reaches 0 the sampling cycle will begin. To set the control to operate in TIMER mode:

1. Turn power ON.
2. Press **F4** key for *Settings*.
3. Press **F3** for *Sample Selection*.
4. If prompted for the *User* enter **1** followed by enter key ↵ .
5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ↵ .
6. *Caution Changing Sampler Parameters* press **F3** for OK.
7. Press **F2** for *Option Settings*.
8. Press **F1** for *Operation Mode.*
9. Press **F1** to toggle through to Timer.
10. Press **F4** to return to *Main Screen*.

When in automatic mode, the REMOTE ENABLE jumper needs to be installed. **NOTE:** *When in manual mode, the sampler will only take one sample per incident.*

Changing the sampling frequency between sampler cycles is accomplished by following the instructions below. This time value can be set for the maximum time of 9999 hours, 59 minutes and 59 seconds. To change the program mode follow the instructions below:

1. Turn power ON.
2. Press **F4** key for *Settings.*
3. Press **F2** for *Sample Timer.*
4. Press **F3** for *Change Time.*
5. Press **F1** for *Hours.*
6. Press **F2** for *Minutes.*
7. Press **F3** for *Seconds.*
8. Using the Up/Down and Right/Left arrow keys to set the correct Time. Once the correct time value has been entered, press the enter key ↵ .
9. Press **F4** to return to *Previous Screen.*
10. Press **F4** for *Main Screen.*

Timer/Counter Mode

When in the Timer/Counter mode the sampler will time down in hours, minutes or seconds. When the timer reaches 0 the sampling cycle will take the number of samples entered into the counter. To set the control to operate in TIMER/COUNTER mode:

1. Turn power ON.
2. Press **F4** key for *Settings*.
3. Press **F3** for *Sample Selection*.
4. If prompted for the *User* enter **1** followed by enter key ↵ .
5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ↵ .
6. *Caution Changing Sampler Parameters* press **F3** for OK.
7. Press **F2** for *Option Settings*.
8. Press **F1** for *Operation Mode*.
9. Press **F1** to toggle through to Time/X samples.
10. Press **F2** to change the number of sample counts required.
11. Enter desired value using the Up/Down arrow keys on the right side to adjust number values and the Right/Left arrow keys on the left side to change position. Then press the Enter key ↵ .
12. Press **F3** to change the time between samples (in seconds).
13. Enter desired value using the Up/Down arrow keys on the right side to adjust number values and the Right/Left arrow keys on the left side to change position. Then press the Enter key ↵ .
14. Press **F4** to return to *Main*.

Changing the sampling frequency between sampler cycles is accomplished by following the instructions below. This time value can be set for the maximum time of 999 hours, 59 minutes and 59 seconds. To change the program mode follow the instructions below:

1. Turn power ON.
2. Press **F4** key for *Settings.*
3. Press **F2** for *Sample Timer.*
4. Press **F3** for *Change Time.*
5. Press **F1** for *Hours.*
6. Press **F2** for *Minutes.*
7. Press **F3** for *Seconds.*
8. Using the Up/Down and Right/Left arrow keys to set the correct Time. Once the correct time value has been entered, press the enter key ↵ .
9. Press **F4** to return to *Previous Screen.*
10. Press **F4** for *Main Screen.*

When in automatic mode, the REMOTE ENABLE jumper needs to be installed. **NOTE:** *When in manual mode, the sampler will only take one sampler per incident.*

Sampler Operation Description

The PS style sampler when operated in the timing mode and Automatic operates as follows. When the illuminated display reads all zeroes (000), the timer has “timed out” and initiates a sampling cycle. The sample probe extends and delays to collect a sample until T1 times out, the probe then retracts and actuates the limit switch LS-1. After the limit switch close and a delay of 1/2 second (to allow the bevel gears to mesh) the auger motor is energized for the time setting of T2. After timer T2 times out, the motor will stop and the timer display resets to the preset value and another timing interval is initiated. If the controller is shut off or the mode switched from AUTO to MANUAL, the timing cycle is terminated. When power is restored or the AUTO mode is again selected, the display is reset to the preset value and another cycle begins. **NOTE:** *A new timing cycle can be initiated ONLY after the sampling cycle has completed.*

PS, PS-XP and HD-PP Sampler Operating Components

The PS, PS-XP and HD-PP style samplers have three main operating components: solenoid valve to extend the sample probe, limit switch to ensure proper gear mesh and the auger motor. Refer to the certified drawing(s).

PS Sampler Main Fuse (Refer to Certified Drawing)

For 110/120 VAC, 1 PH operation use ONLY a Buss Type FNM 5 Amp, 250 volt Slo-Blo fuse or equal.
For 220/240 VAC, 1 PH operation use ONLY a Buss Type FNM 3 Amp, 250 volt Slo-Blo fuse or equal.

PS-XP Sampler Main Fuse (Refer to Certified Drawing)

For 110/120 VAC, 1 PH operation use ONLY a Buss Type FNM 15 Amp, 250 volt Slo-Blo fuse or equal.
For 220/240 VAC, 1 PH operation use ONLY a Buss Type FNM 8 Amp, 250 volt Slo-Blo fuse or equal.

HD-PP Sampler Main Fuse (Refer to Certified Drawing)

For 110/120 VAC, 1 PH operation use ONLY a Buss Type FNM 15 Amp, 250 volt Slo-Blo fuse or equal.
For 220/240 VAC, 1 PH operation use ONLY a Buss Type FNM 8 Amp, 250 volt Slo-Blo fuse or equal.

PS, PS-XP and HD-PP Sampler Program Mode

The PS, PS-XP and HD-PP style sampler must be set to run on Program Mode 0 only. To change the program mode follow the instructions below:

1. Turn power ON.
2. Press **F4** key for *Settings*.
3. Press **F3** for *Sample Selection*.
4. If prompted for the *User* enter **1** followed by enter key ↵ .
5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ↵ .
6. *Caution Changing Sampler Parameters* press **F3** for OK.
7. Press **F1** for *Program Mode*.

8. Press **F1** for Mode (the current sampler mode should be showing). To change sampler mode, press **F1** until a **0** is showing on this line.
9. Press **F2** to change the sampler timer settings. (Extend timer and auger run timer.) The current value should be showing on the right side of this line. See *PS and PS-XP* and *HD-PP* chart for correct timer settings.
10. Press **F1** to change the *Solenoid* time in seconds.
11. Using the Up/Down and Right/Left arrow keys to set the correct solenoid time. See *PS and PS-XP* and *HD-PP* chart for the correct timer setting. Once the correct time value has been entered, press the enter key ↵.
12. Press **F2** to change the *Auger* run time in seconds. The current value should be showing on the right side of this line. See *PS and PS-XP* and *HD-PP* chart for correct timer setting.
13. Using the Up/Down and Right/Left arrow keys to set the correct auger time. See *PS and PS-XP* and *HD-PP* chart for the correct timer setting. Once the correct time value has been entered, press the enter key ↵.
14. Press **F4** to return to *Password Screen.*
15. Press **F4** to return to *Main Screen.*

PS, PS-XP and HD-PP Sampler Timer Settings

The PS, PS-XP and HD-PP style sampler has two timer setting which must be set for proper operation. The two timers are solenoid extend time (T1) and auger motor run timer (T2). See *PS and PS-XP* and *HD-PP* chart for recommended settings.

PS and PS-XP

Sampler Size	PS-4	PS-6	PS-8	PS-10	PS-12	PS-14	PS-16
Solenoid Time (Seconds) T1	2	3	3	3	4	4	4
Motor Time (Seconds) T2	8	8	10	12	14	14	16

HD-PP

Sampler Size	HD-PP-6	HD-PP-8	HD-PP-10	HD-PP-12	HD-PP-14	HD-PP-16
Solenoid Time (Seconds) T1	3	3	4	4	5	5
Motor Time (Seconds) T2	8	10	12	14	14	16

NOTE: *Solenoid valve time is to be adjusted so that the sample tube extends into the product stream **only** long enough to allow a representative sample to be collected. Extending the sample tube into the product stream for **excessively** long periods of time can result in unnecessary sample tube wear and can result in clogging of product flowing through the conveying line.*

NOTE: *Motor run time is to be adjusted to allow the auger to clean out the sample tube at the end of each cycle. Minimum run time will depend on the characteristics of the material being sampled and may well require re-adjustment if the product being sampled changes.*

Sampler Operation Description

The PT style sampler when operated in the timing mode and Automatic operates as follows. When the AUTO mode is selected, the timer begins timing down. When the illuminated display reads all zeroes (000), the timer has “timed out” and initiates a sampling cycle. The sample probe extends and delays to collect a sample until T1 times out, the probe then retracts. The timer display resets to the preset value and another timing interval is initiated. If the controller is shut off or the mode switched from AUTO to MANUAL, the timing cycle is terminated. When power is restored or the AUTO mode is again selected, the display is reset to the preset value and another cycle begins. **NOTE:** *A new timing cycle can be initiated ONLY after the sampling cycle has completed.*

PT, PTG, LF, GS, GP and PDP Sampler Operating Components

The PT, PTG, LF, GS, GP style sampler has one main operating component, the solenoid valve to extend the sample probe. Refer to the certified drawing(s).

PT, PTG, LF, GS, GP and PDP Sampler Main Fuse (Refer to Certified Drawing)

For 110/120 VAC, 1 PH operation use ONLY a Buss Type FNM 2 Amp, 250 volt Slo-Blo fuse or equal.
For 220/240 VAC, 1 PH operation use ONLY a Buss Type FNM 1 Amp, 250 volt Slo-Blo fuse or equal.

PT, PTG, LF, GS, GP and PDP Sampler Program Mode

The PT, PTG, LF, GS, GP style sampler must be set to run on Program Mode 1 only. To change the program mode follow the instructions below:

1. Turn power ON.
2. Press **F4** key for *Settings*.
3. Press **F3** for *Sample Selection.*
4. If prompted for the *User* enter **1** followed by enter key ↵.
5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ↵.
6. *Caution Changing Sampler Parameters* press **F3** for OK.
7. Press **F1** for *Program Mode*.
8. Press **F1** for Mode (the current sampler mode should be showing). To change sampler mode, press **F1** until a **1** is showing on this line.
9. Press **F2** to change the sampler timer setting. (Extend timer.) The current value should be showing on the right side of this line. See chart *on Page 27* for correct timer settings.
10. Press **F1** to change the *Solenoid* time in seconds.
11. Using the Up/Down and Right/Left arrow keys to set the correct solenoid time. See chart *on Page 27* for the correct timer setting. Once the correct time value has been entered, press the enter key ↵.

12. Press **F4** to return to *Password Screen*.
13. Press **F4** to return to *Main Screen*.

PT, PTG, LF, GS, GP and PDP Sampler Timer Settings

The PT, PTG, LF, GS, GP style sampler has one timer setting which must be set for proper operation. The timer setting is for the solenoid extend time (T1). *See Chart* for recommended settings.

Sampler Size	PDP	PT	PTG	LF	GP	GS
Solenoid Time (Seconds) T1	3	3	3	3	3	3

NOTE: *Solenoid valve time is to be adjusted so that the sample tube extends into the product stream **only** long enough to allow a representative sample to be collected and the desired sample size. Extending the sample tube into the product stream for **excessively** long periods of time can result in unnecessary sample tube wear and can result in clogging of product flowing through the conveying line and excessive sample size.*

Sampler Operation Description

The GSS style sampler when operated in the timing mode and Automatic operates as follows. When the AUTO mode is selected, the timer begins timing down. When the illuminated display reads all zeroes (000), the timer has “timed out” and initiates a sampling cycle. The sample cycle begins when an electric motor operating through a right angle gear reducer rotates the drive housing input shaft. Timer T1 is set for the total time the motor will run. The clutch solenoid energizes at the same time allowing the auger tube in the product line to rotate through one revolution to collect a sample. Timer T-2 is set long enough to complete on revolution of the auger tube. As the auger tube rotates the sample auger also is turning and continues to auger material out of the auger tube for a period of time after the auger tube stops rotating and T1 times out. The timer display resets to the preset value and another timing interval is initiated. If the controller is shut off or the mode switched from AUTO to MANUAL, the timing cycle is terminated. When power is restored or the AUTO mode is again selected, the display is reset to the preset value and another cycle begins. **NOTE:** *A new timing cycle can be initiated ONLY after the sampling cycle has completed.*

GSS and GSS-U Sampler Operating Components

The GSS and GSS-U style sampler has three main operating components: the clutch solenoid to rotate the auger tube, the sampler motor to rotate the sample auger and auger tube and a limit switch to stop the tube rotation. Refer to the certified drawing(s).

GSS and GSS-U Sampler Main Fuse (Refer to Certified Drawing)

For 110/120 VAC, 1 PH operation use ONLY a Buss Type FNM 10 Amp, 250 volt Slo-Blo fuse or equal.
For 220/240 VAC, 1 PH operation use ONLY a Buss Type FNM 5 Amp, 250 volt Slo-Blo fuse or equal.

GSS and GSS-U Sampler Program Mode

The GSS and GSS-U style sampler must be set to run on Program Mode 2 only. To change the program mode follow the instructions below:

1. Turn power ON.
2. Press **F4** key for *Settings*.
3. Press **F3** for *Sample Selection*.
4. If prompted for the *User* enter **1** followed by enter key ↵ .
5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ↵ .
6. *Caution Changing Sampler Parameters,* press **F3** for OK.
7. Press **F1** for *Program Mode*.
8. Press **F1** for Mode (the current sampler mode should be showing). To change sampler mode, press **F1** until a **2** is showing on this line.
9. Press **F2** to change the sampler timer setting. (Solenoid timer and Motor run timer.) The current value should be showing on the right side of this line. *See Chart on Page 29* for correct timer settings.
10. Press **F1** to change the *Solenoid* time in seconds.

11. Using the Up/Down and Right/Left arrow keys to set the correct solenoid time. *See Chart* for the correct timer setting. Once the correct time value has been entered, press the enter key ↵ .
12. Press **F2** to change the *Motor* run time in seconds. The current value should be showing on the right side of this line. *See Chart* for correct timer setting.
13. Using the Up/Down and Right/Left arrow keys to set the correct auger time. *See Chart* for the correct timer setting. Once the correct time value has been entered, press the enter key ↵ .
14. Press **F4** to return to *Password Screen.*
15. Press **F4** to return to *Main Screen*.

GSS and GSS-U Sampler Timer Settings

The GSS and GSS-U style sampler has two timer setting which must be set for proper operation. The timer setting is for the solenoid clutch time (T1) and the motor time (T2). *See Chart* for recommended settings.

Sampler Size	Clutch Solenoid (T1)	Motor Time (T2)
GSS and GGS-U Settings	4	25

NOTE: *Clutch solenoid time is to be adjusted so that the auger tube makes one revolution. When this timer times out the solenoid will stay energized until the limit switch is activated. The activation of the limit switch will de-engergize the clutch solenoid stopping the auger tube. If additional revolutions are desired, add 6 seconds to the clutch solenoid and motor timer settings for each additional revolution.*

Sampler Operation Description

The RS style sampler when operated in the timing mode and Automatic operates as follows. When the AUTO mode is selected, the timer begins timing down. When the illuminated display reads all zeroes (000), the timer has “timed out” and initiates a sampling cycle. An internal none adjustable timer starts the sample cycle until the sampler limit switch contacts are closed. The sample cutter will make one complete revolution to collect a sample until the limit switch contacts open, stopping the cycle. The timer display resets to the preset value and another timing interval is initiated. If the controller is shut off or the mode switched from AUTO to MANUAL, the timing cycle is terminated. When power is restored or the AUTO mode is again selected, the display is reset to the preset value and another cycle begins. **NOTE:** *A new timing cycle can be initiated ONLY after the sampling cycle has completed.*

GT, GRES and RS Sampler Operating Components

The GT, GRES and RS consist of three components. A limit switch to stop the sampler, a motor for turning the cutter and a brake for accurate positioning of the cutter. The GT, GRES and RS style sampler only have one timer value which is not changeable in the PLC. This timer is to hold the starter contacts in until the limit switch has come off of the cam. When this timer has timed out the control will then look for the next limit switch opening. Refer to the certified drawing(s).

GT, GRES and RS Sampler Main Fuse (Refer to Certified Drawings)

For 110/120 VAC, 1 PH operation use ONLY a Buss Type FNM 3 Amp, 250 Volt Slo-Blo fuse or equal.
For 220/240 VAC, 1 PH operation use ONLY a Buss Type FNM 2 Amp, 250 Volt Slo-Blo fuse or equal.

GT, GRES and RS Sampler Program Mode

The GT, GRES, RS style sampler must be set to run on Program Mode 3 only. To change the program mode follow the instructions below:

1. Turn power ON.
2. Press **F4** key for *Settings*.
3. Press **F3** for *Sample Selection*.
4. If prompted for the User enter **1** followed by enter key ↵.
5. *Enter Password* screen will appear. Using the UP/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ↵.
6. *Caution Changing Sampler Parameters* press **F3** for OK.
7. Press **F1** for *Program Mode*.
8. Press **F1** for Mode (the current sampler mode should be showing). To change sampler mode press **F1** until a **3** is showing on this line.
9. Press **F2** to change the sampler timer setting. (Extend timer.) The current value should be showing on the right side of this line. See chart for correct timer settings.
10. Press **F1** to change the the *Off Limit Switch Timer* in milliseconds.
11. Using the Up/Down and Right/Left arrow keys to set the correct solenoid time. See chart for the correct timer setting. Once the correct time value has been entered, press the enter key ↵.
12. Press **F4** to return to *Password Screen.*
13. Press **F4** to return to *Main Screen.*

Sampler Operation Description

The PRT style sampler when operated in the timing mode and Automatic operates as follows. When the AUTO mode is selected, the timer begins timing down. When the illuminated display reads all zeroes (000), the timer has “timed out” and initiates a sampling cycle. The sample cycle begins by actuating a double solenoid valve (V1A) to extend a pair of double acting cylinders moving the probe into the product stream. When fully extended LS-1 is closed. Next another set of double solenoid valves (V-2A) then rotate a rotary actuator and probe clockwise (view from actuator end) through a 270° arc, exposing the sample probe opening to the product stream. When fully rotated LS-4 closes, the first valve set (V-1B) energizes to retract the double acting cylinders and probe from the product stream, isolating the sample and sample probe cavity from the product stream. Once fully retracted LS-2 closes and the second valve set (V2B) energizes to rotate the rotary actuator counterclockwise through the 270° arc to discharge the collected sample. When fully rotated LS-3 closes. If the controller is shut off or the mode switched from AUTO to MANUAL, the timing cycle is terminated. When power is restored or the AUTO mode is again selected, the display is reset to the preset value and another cycle begins. **NOTE:** *A new timing cycle can be initiated ONLY after the sampling cycle has completed.*

Sampler is programmed that if the probe does not make the retract cycle it will extend out and dump material. Then rotate to collect more sample and try to retract. If the sampler does not successfully complete the retract 3 times sampler will fault and will need to be manually reset.

PRT and HD-PRT Sampler Operating Components

The PRT and HD-PRT style sampler has six main operating components. Two Double solenoid valves to extend, retract and rotate the sample probe. The other four components are the extend, retract, sample and dump limit switches. Refer to the certified drawing(s).

PRT and HD-PRT Sampler Main Fuse (Refer to Certified Drawing)

For 110/120 VAC, 1 PH operation use ONLY a Buss Type FNM 4 Amp, 250 Volt Slo-Blo fuse or equal.
For 220/240 VAC, 1 PH operation use ONLY a Buss Type FNM 2 Amp, 250 Volt Slo-Blo fuse or equal.

PRT and HD-PRT Sampler Program Mode and Solenoid Timer

The PRT and HD-PRT style sampler must be set to run on Program Mode 5 only. To change the program mode follow the instructions below:

1. Turn power ON.
2. Press **F4** key for *Settings*.
3. Press **F3** for *Sample Selection*.
4. If prompted for the *User* enter **1** followed by enter key ◄┘.
5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ◄┘.
6. *Caution Changing Sampler Parameters* press **F3** for OK.
7. Press **F1** for *Program Mode*.
8. Press **F1** for Mode (the current sampler mode should be showing). To change sampler mode press **F1** until a **5** is showing on this line.

9. Press **F2** to change the sampler timer settings. (Solenoid timer and Motor run timer). The current value should be showing on the right side of this line. See chart for correct timer settings.
10. Press **F1** to change the *Sample* rotate timer in seconds.
11. Using the Up/Down and Right/Left arrow keys to set the correct solenoid time. See chart for the correct timer setting. Once the correct time value has been entered, press the enter key ↵.
12. Press **F2** to change the *Retract* probe time in seconds. The current value should be showing on the right side of this line. See the following chart for correct timer setting.
13. Using the Up/Down and Right/Left arrow keys to set the correct auger time. See chart for the correct timer setting. Once the correct time value has been entered, press the enter key ↵.
14. Press **F3** to change the *Dump* rotate timer in seconds.
15. Using the Up/Down and Right/Left arrow keys to set the correct solenoid time. See chart for the correct timer setting. Once the correct time value has been entered, press the enter key ↵.
16. Press **F4** to return to *Password Screen.*
17. Press **F4** to return to *Main Screen.*

Sampler Operation Description

The GRA style sampler when operated in the timing mode and Automatic operates as follows. When the AUTO mode is selected, the timer begins timing down. When the illuminated display reads all zeroes (000), the timer has “timed out” and initiates a sampling cycle. The sample pelican traverses from one side to the other. The timer display resets to the preset value and another timing interval is initiated, note the cycle will keep repeating. If the controller is shut off or the mode switched from AUTO to MANUAL, the timing cycle is terminated. When power is restored or the AUTO mode is again selected, the display is reset to the preset value and another cycle begins. **NOTE:** *A new timing cycle can be initiated ONLY after the sampling cycle has completed.*

GRA and GCA Sampler Operating Components

The GRA and GCA style sampler has a distinctive operating sequence, which can not be adjusted. The sampler is operated using a dual solenoid 4-way control valve. Refer to the certified drawing(s).

GRA and GCA Sampler Main Fuse (Refer to Certified Drawing)

For 110/120 VAC, 1 PH operation use ONLY a Buss Type FNM 4 Amp, 250 Volt Slo-Blo fuse or equal.
For 220/240 VAC, 1 PH operation use ONLY a Buss Type FNM 2 Amp, 250 Volt Slo-Blo fuse or equal.

GRA and GCA Sampler Program Mode

The GRA, GCA sampler must be set to run on mode 1 if sampler has limit switches or mode 2 if the sampler does not have limit switches. To change program mode, please follow the instructions below.

1. Turn power ON.
2. Press **F4** key for *Settings*.
3. Press **F3** for *Sample Selection*.
4. If prompted for the *User* enter **1** followed by enter key ↵.
5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ↵.
6. *Caution Changing Sampler Parameters* press F3 for OK.
7. Press **F1** for *Program Mode*.
8. Press **F1** for Mode (the current sampler mode should be showing). To change sampler mode press **F1** until a **1** is showing on this line. Or a **2** if the sampler does not have limit switches.
9. Press **F4** to return to *Password Screen*.
10. Press **F4** to return to *Main Screen*.

The GRA/GCA sampler operational parameters can be changed as outlined below:

1. Check to see sampler is in mode 1 or 2. Refer to above instructions.
2. Press **F2** key for Timer Settings
3. Press **F1** for *Off limit* switch timer. This is the amount of time the sampler needs to complete a single traverse.
4. Press **F2** positive seal is the time allowed to raise the positive seal before the sampler cycles.
5. Press **F3** to delay the index of the sample cabinet after a sample has been taken.

Sampler Operation Description

The GPE style sampler when operated in the timing mode and automatic operates as follows. When the AUTO mode is selected, the timer begins timing down. When the illuminated display reads all zeroes (000), the timer has “timed out” and initiates a sampling cycle. The sample probe extends into the product stream, the probe will extend and stay extended until the extend timer has timed out. Once the extend timer has timed out, the sample probe will retract to home position. The timer display resets to the preset value and another timing interval is initiated, note the cycle will keep repeating. If the controller is shut off or the mode switched from AUTO to MANUAL, the timing cycle is terminated. When power is restored or the AUTO mode is again selected, the display is reset to the preset value and another cycle begins.
NOTE: *A new timing cycle can be initiated ONLY after the sampling cycle has completed.*

GPE Sampler Operating Components

The GPE sampler has a distinctive operating sequence, which can not be adjusted. The sampler is operated using an electric actuator to extend/retract the sample probe. Refer to the certified drawing(s).

GPE Sampler Main Fuse (Refer to Certified Drawing)

For 110/120 VAC, 1 PH operation use ONLY a Buss Type FNM 5 Amp, 250 Volt Slo-Blo fuse or equal.

GPE Sampler Program Mode

The GPE sampler must be set to run on mode 4. To change program mode, please follow the instructions below.

1. Turn power ON.
2. Press **F4** key for *Settings.*
3. Press **F3** for *Sample Selection*.
4. If prompted for the *User* enter **1** followed by enter key ↵.
5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ↵.
6. *Caution Changing Sampler Parameters* press **F3** for OK.
7. Press **F1** for *Program Mode*.
8. Press **F1** for Mode (the current sampler mode should be showing). To change sampler mode press **F1** until a **4** is showing on this line.
9. Press **F4** to return to *Password Screen*.
10. Press **F4** to return to *Main Screen*.

The GPE sampler operational parameters can be changed as outlined below:

1. Check to see sampler is in mode 4. *See above instructions.*
2. Press **F2** key for *Timer Settings*.
3. Press **F1** for *Extend timer*.
4. Using the arrow keys adjust the *Extend* time require value in seconds. Then press the enter ↵.
5. Repeat for the additional timer settings. The retract timer should be set longer than the extend timer. **F3** Purge is to allow purging of the sample probe after the probe retracts.

Setting Controller to Operate Index Cabinet and Setting Up Index Cabinet

The PLC controller has the ability to operate a standard index cabinet with all samplers except the PRT and HD-PRT. If an index cabinet is to be used with a PRT or HD-PRT sampler a special control with more inputs and outputs are required. Due to the different sizes and styles of index cabinets, it is necessary to enter in specific information of how many jars per cabinet and how many samples per jar are required. Refer to the certified drawing(s). To add an index cabinet to the sampler control and enter these values:

1. Turn power ON.
2. Press **F4** key for *Settings*.
3. Press **F3** for *Sample Selection*.
4. If prompted for the *User* enter **1** followed by enter key ◄┘.
5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ◄┘.
6. *Caution Changing Sampler Parameters* press **F3** for OK.
7. Press **F2** for *Option Settings*.
8. Press **F2** for Indexer Setup.
9. Press **F1** to toggle indexer OFF or ON.
10. Press **F2** to change the total number of jars in cabinet. The current value should be showing on the right side of this line.
11. Using the Up/Down and Right/Left arrow keys to set the change the number of jars in the cabinet. Once the correct number of jars has been entered, press the enter key ◄┘.
12. Press **F3** to change the Number of samples per jar. The current value should be showing on the right side of this line.
13. Using the Up/Down and Right/Left arrow keys to set the correct solenoid time. Once the correct number of samples per jar has been entered, press the enter key ◄┘.
14. Press **F4** to return to *Password Screen*.
15. Press **F4** to return to *Main Screen*.

Index Cabinet Delay Before Indexing

The controller can be adjusted to accommodated for different distances between the sampler and index cabinet. Timer T7 is used to delay the index cabinet before it indexes, allowing the sample to travel from the sampler to the index cabinet. This delay is set in seconds the range of delay is 2-9999 seconds. To change this value:

1. Turn power ON.
2. Press **F4** key for *Settings*.
3. Press **F3** for *Sample Selection*.
4. If prompted for the *User* enter **1** followed by enter key ◄┘.

5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ↵.
6. *Caution Changing Sampler Parameters* press **F3** for OK.
7. Press **F1** for *Program Mode.*
8. Press **F2** for *Timer Settings*.
9. Press **F3** for *Index Delay* timer. The current value should be showing on the right side of this line.
10. Using the Up/Down and Right/Left arrow keys to set the change the number of jars in the cabinet. Once the correct number of jars has been entered, press the enter key ↵.
11. Press **F4** to return to *Password Screen.*
12. Press **F4** to return to *Main Screen.*

Sample Purge Option

For the PS, PS-XP, HD-PP, PT, PTG, LF, GS and GP style samplers a sample purge option is available.

1. Turn power ON.
2. Press **F4** key for *Settings*.
3. Press **F3** for *Sample Selection*.
4. If prompted for the *User* enter **1** followed by enter key ↵.
5. *Enter Password* screen will appear. Using the Up/Down arrow keys on the right side to adjust number values and the Left/Right arrow keys on the left side to change position enter **1500** followed by the enter key ↵.
6. *Caution Changing Sampler Parameters* press **F3** for OK.
7. Press **F2** for *Option Settings*.
8. Press **F3** for *Purge Off*. Press **F3** to toggle the purge ON and OFF.
9. Press **F4** to return to *Password Screen*.
10. Press **F4** to return to *Main Screen*.

The sample purge for a PS style sampler is ON for the length of the auger run time T2. On the PT style samplers, the sample purge timer will turn ON when the T1 times out add will stay on for the time set in T2. Timer T2 is set in seconds, use only enough time to purge the system as necessary. To change the time length of the a purge cycle:

1. Turn power ON.
2. Press **MENU** key.
3. Press **2** for settings.
4. Press **2** for change settings.
5. Press **2** for system values.
6. Press **1** for start-up set.
7. Enter in the above time value for **T2** then press the **NEXT** key or the enter key ↵.
8. Press **MENU** key to return to the starting menu.

Remote Enable

Each control is shipped with a jumper wire installed in the remote enable terminal strip (TB 1 and 2). The remote enable signal allows the end user when in automatic to start and stop the sampler in conjunction with the process system (i.e. conveyor, gate, etc). This prevents the sampler from operating when it is not required. If remote enable is not required, the jumper wire must be installed unless the system is set-up for counting. If the controller is set-up for counting the remote enable contacts are used for the input pulse from an outside source. See counter mode *on Page 20* for further information.

Failure to observe all safety rules, written and implied and those suggested by common sense, can result in death, serious injury and/or equipment damage. Lock out power before performing any maintenance.

General Maintenance

A good maintenance program involves thorough general housekeeping and inspection and replace worn or damaged components.

Periodic Inspection

At regularly scheduled intervals, while observing all safety precautions, observe the sampler and control as it operates. Inspect for:

1. Loose or missing hardware
2. Noisy motor or motor/reducer bearings
3. Overheated motor or reducer
4. Adequate lubricant in lubricator
5. Structural damage
6. Rust or corrosion
7. Damaged wiring and conduit, exposed conductors and connections
8. Damaged airlines or pneumatic components
9. Make sure that all guards are in place and that all warning labels are in place and legible. *See Page 9*, GENERAL SAFETY INFORMATION, explains the purpose and intended location of the warning signs. Warning signs are an important part of any safety program, replace any missing signs IMMEDIATELY.

PLC Control Troubleshooting

Symptom	Possible Cause	Corrective Action
Motor fuse blows continuously.	Motor wired improperly.	Correct. Refer to the certified electrical schematic.
	Motor jammed.	Inspect and replace.
	Auger seized up in sampler.	Inspect and replace. Refer to Sampler Manual.
	Sampler wired incorrectly.	Verify wiring. Refer to certified print.
Main power light does not turn ON.	Fuse 1 is bad.	Check fuse. Replace if bad.
	Light burned out.	Check light. Replace if bad.
	Fuse 2 is bad.	Check fuse. Replace if bad.
No input or output lights turn ON.	Sampler wired wrong.	Verify wiring. Refer to certified print.
	Control not in correct mode.	Verify mode and mode setting.
Output light turns ON no sampler function.	Sampler wire wrong.	Verify wiring. Refer to certified print.
	Control relay bad.	Check relay to see if indicator flag shows up on relay when energized. Replace relay if bad.
Control works in MANUAL but not AUTOMATIC	Remote enable not ON.	Check Remote enable signal. Input 0 should be ON. If not check wiring.
	Index cabinet turned ON but not wired to control	Turn index cabinet option OFF. Then cycle power to reset control.
When index cabinet in activated, index cabinet motor does not stop.	Index cabinet limit switch wired wrong.	Verify limit switch wiring. Refer to certified print.
Main power light ON, but LED screen does not light up.	Cable loose between keypad and PLC.	Check both ends of cable to ensure they are properly seated.
LED display shows “WAITING FOR ENABLE”.	The remote enable contact terminals 1 and 2 is not closed.	Install remote enable jumper or verify the customer supplied dry contact is functioning properly.

NOTES

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This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

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