HYGIENIC BY DESIGN
ANDERSON-NEGELE

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PPR Application Guide for PMO Appendix I Section II

Anderson-Negele's Paperless Process Recorder (PPR) with Legendary™ software is intended to be used in Safety Thermal Limit Recording and Safety Flow Limit Recording PMO applications. The blue text of this document explains how a regulatory agency or other tester can perform the testing outlined in Appendix I Section II of the 2023 PMO (requirements shown in black text). The bullet points below the blue text information indicate where additional information on this topic can be found.

APPENDIX I. PASTEURIZATION EQUIPMENT AND CONTROLS – TESTS

II. TEST PROCEDURES Pasteurization equipment Tests listed and referenced below shall be performed by the Regulatory Agency; or in the case of HACCP listed milk plants, qualified industry personnel, acceptable to the Regulatory Agency, as cited in Item 16p.(D) of this Ordinance; or on an emergency basis, an industry temporary testing and sealing program, authorized by the Regulatory Agency, as cited in Item 16p.(D) of this Ordinance. The results of the Tests shall be recorded on appropriate forms and filed, as the Regulatory Agency shall direct. (Refer to Appendix M. of this Ordinance.) Regulatory seals shall be installed where required at the commissioning of a new pasteurization system. If the public health control(s) is within a computer system used to manage the functions of the public health control device(s) that operate the pasteurization system, the computer shall be in compliance with Appendix H., VI. of this Ordinance before the access to the computer program is sealed. Whenever a regulatory seal has been broken, the pasteurization equipment shall be re-sealed after the appropriate testing has been conducted by the Regulatory Agency or qualified industry personnel in compliance with Item 16p.(D) of this Ordinance and are found to be in compliance with the applicable Test procedure(s).

TEST 1. INDICATING THERMOMETERS – TEMPERATURE ACCURACY

This test is not applicable to the PPR as the pasteurizer indicating thermometer is not integrated into the PPR.

TEST 2. TEMPERATURE RECORDING AND RECORDER-CONTROLLER THERMOMETERS TEMPERATURE ACCURACY

This test can be performed while the PPR is in Run or Program mode.

The current measurement of the recorder-controller thermometer called STLR can be viewed in Input 1 Section on the top left corner of the PPR home screen. If required, the STLR RTDs (input 1 and Input 2) can be calibrated using the two point calibration procedure in the PPR manual.

- PPR Operating Manual Section 4.3.2: Home Screen
- PPR Operating Manual Section 6.1: Input Calibration

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TEST 3. TEMPERATURE RECORDING AND RECORDER-CONTROLLER THERMOMETERS – TIME ACCURACY

This test can be performed while the PPR is in Run or Program mode.

PPR uses the System Time when writing data which ensures all data is stored in a time-based format. This test can be conducted by referencing the PPR System Time which is displayed in the top right corner of the home screen.
To perform this test with PPR follow the steps below;

1. Go to the PPR Home Screen
2. At the point when you are ready to begin the test reference the system time in the top right corner of the PPR Home Screen.
3. Make note of the system time and Start a timer
4. Compare the PPR system time to the timer 30 minutes later

- PPR Operating Manual Section 4.3.2: Home Screen
- PPR Operating Manual Section 5.2: Date & Time

Test 4. TEMPERATURE RECORDING AND RECORDER-CONTROLLER THERMOMETERS - CHECKED AGAINST INDICATING THERMOMETER

This test can be performed while the PPR is in Run or Program mode.

The indicating thermometer temperature reading can be entered on the STLR recorded trendline with the standard “Add Notes” annotation workflow.

- PPR Operating Manual Section 4.4.3.2: Adding Annotations from View Chart Screen

Here is a condensed version of the “Add Notes” Workflow:

1. From Home screen, Press View Chart
2. If needed select Edit View to focus specific time period to add annotation. Otherwise, select zoom x & y to refine the area being viewed to which you would like to add an annotation.
3. Use the cursor position to select the point on the chart to add an annotation to. Press X axis position to select the point and hold finger to touch screen for 5 seconds to add an annotation to that point in time on the record(s).
4. Enter valid user access credentials
5. Enter the desired annotation into the New/Selected Annotation field using the QWERTY keyboard, then press *Submit*.

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Figure 1: Step 1 – View Chart button

Figure 2: Steps 5 of Condensed workflow

TEST 5. FDD - PROPER ASSEMBLY AND FUNCTION

Tests 5.1 – 5.5 & Test 5.7 – Test 5.9 are not applicable to the PPR.

5.6 RESPONSE TIME

This test can be performed while the PPR is in Run or Program mode.

PPR uses the STLR Relay Output as a control signal to the PLC or other device, this relay is normally inactive (off), then becomes active (on) when STLR conditions are met as described in PPR Operating Manual Section 2.1.7. The status of the STLR Relay output can be seen in the input 1 section of the PPR home screen.

- PPR Operating Manual Section 2.1.7: STLR Recording and Control
- PPR Operating Manual Section 4.3.2: Home Screen

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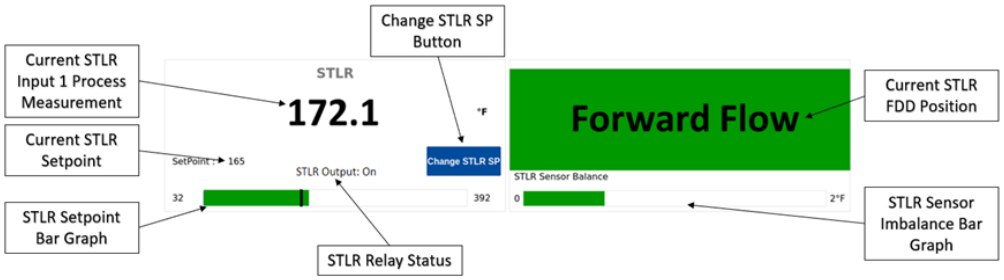

Figure 3: Example of STLR Home Screen

Test 5.7 – Test 5.9

No PPR functions are directly required for this test

TEST 6. BATCH (VAT) PASTEURIZER LEAK-PROTECTOR OUTLET VALVE

No PPR functions are directly required for this test

TEST 7. INDICATING THERMOMETERS LOCATED WITHIN HTST PASTEURIZATION SYSTEMS – THERMOMETRIC RESPONSE

This test is not applicable to the PPR product as the pasteurizer Indicating thermometer is not integrated into the PPR.

TEST 8. TEMPERATURE RECORDER-CONTROLLER THERMOMETERS – THERMOMETRIC RESPONSE

This test can only be performed while the PPR is in the Run mode.

The current measurement of the recorder-controller thermometer called (STLR) can be viewed in Input 1 Section on the top left corner of the PPR home screen. The input dampening parameter on PPR is not user configurable on STLR inputs to ensure the thermometric response meets this requirement.
The status of the FDD can be seen in the Input 2 section of the PPR home screen, See Figure *3* above for more details on the home screen layout. The Current STLR Setpoint that is displayed on the PPR home screen represents the Cut-Out temperature setpoint. The Cut-In temperature setpoint is equal to the STLR setpoint + STLR SP Deadband.

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To perform this test with PPR follow the steps below;

5. Go to the PPR Home Screen
6. As temperature increases view the STLR Measurement as displayed on the Home Screen
7. Start a stopwatch when the STLR measured value reaches 4°C (12°F) below the cut-in temperature
8. Monitor the current STLR FDD Position as displayed on the PPR home screen
9. Stop the stopwatch when the FDD Position indication changes from Diverted Flow to Forward Flow on the Home Screen

- PPR Operating Manual Section 2.1.7: STLR Recording and Control
- PPR Operating Manual Section 4.3.2: Home Screen
- PPR Operating Manual Section 5.4.3: STLR/SFLR Setpoints

TEST 9. REGENERATOR PRESSURE CONTROLS

Tests 9.1 – 9.2 are not applicable to the PPR, as PPR has no control of pressure switches or differential pressure controller.

TEST 9.3 ADDITIONAL HTST PASTEURIZATION SYSTEM TESTS FOR BOOSTER PUMPS – INTERWIRING

This test can only be performed while the PPR is in the Run mode.

PPR uses the STLR Relay Output as a control signal to indicate when STLR conditions are met. Customer inter-wiring conditions will vary, Figure 4 below shows an example of how PPR can be wired to ensure proper booster pump control meet the conditions in this test. Terminals 5 and 7 are typically used to ensure proper booster pump control.

- PPR Operating Manual Section 2.1.7: STLR Recording and Control
- PPR Operating Manual Section 4.3.2: Home Screen

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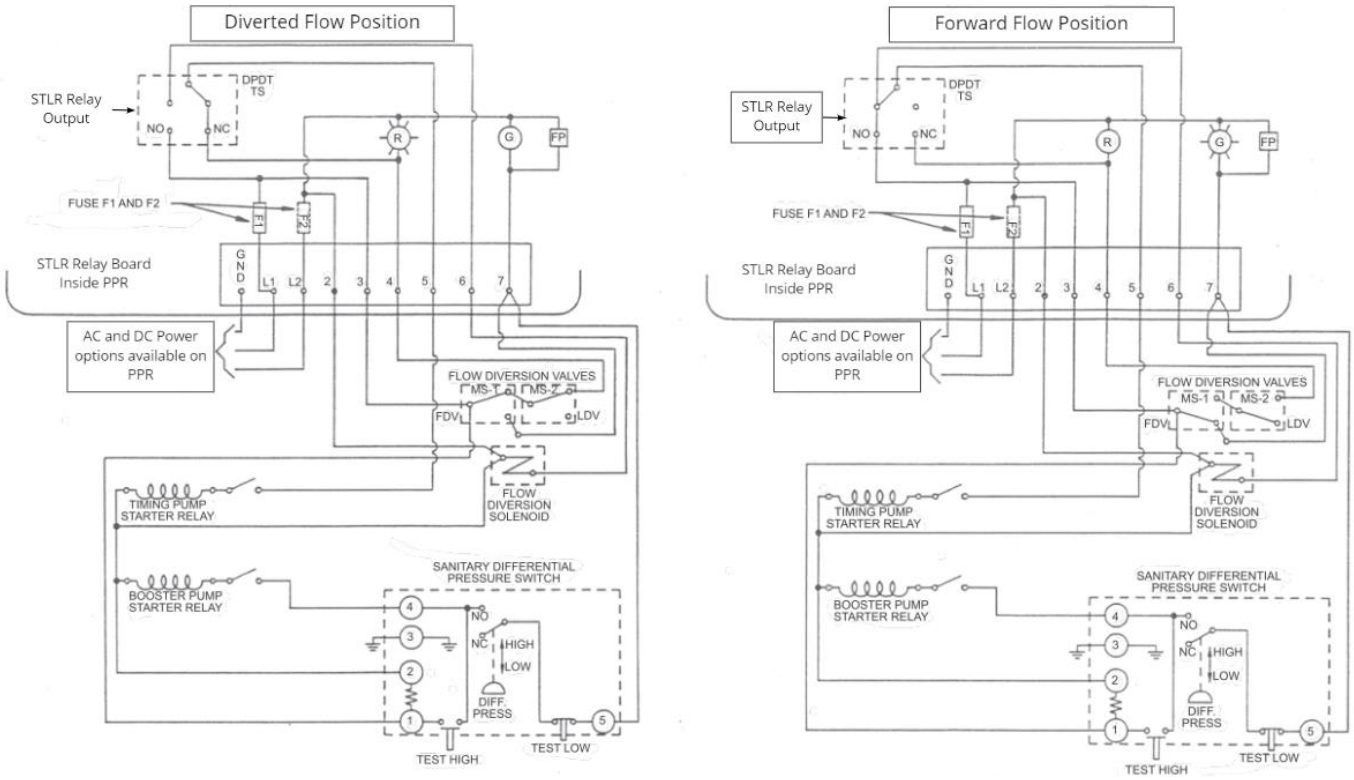

Figure 4: STLR Relay Board System Wiring

TEST 9.3.2 BOOSTER PUMPS - INTERWIRED WITH THE TIMING PUMP

This test can only be performed while the PPR is in the Run mode.

PPR uses the STLR Relay Output as a control signal to indicate when STLR conditions are met. Customer inter-wiring conditions will vary, Figure 4 above shows an example of how PPR can be wired to ensure proper booster pump and timing pump control meet the conditions in this test. Terminals 3, 5 and 7 are typically used to ensure proper booster pump control.

- PPR Operating Manual Section 2.1.7: STLR Recording and Control
- PPR Operating Manual Section 4.3.2: Home Screen

TEST 10 MILK OR MILK PRODUCT FLOW CONTROLS AND THE MILK OR MILK PRODUCT TEMPERATURE AT CUT-IN AND CUT-OUT

These tests can only be performed while the PPR is in the Run mode.

The current measurement of the recorder-controller thermometer called STLR can be viewed in the Input 1 Section on the top left corner of the PPR home screen. If required to add Cut-in/Cut-out annotations to the PPR record, follow the Add Notes annotation procedure described in Test 4 of this document.

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- PPR Operating Manual Section 4.3.2: Home Screen
- PPR Operating Manual Section 4.4.3.2: Adding Annotations from View Chart Screen

Test 11. CONTINUOUS-FLOW PASTEURIZATION SYSTEM HOLDING TUBES –PASTEURIZATION HOLDING TIME

SFLR recorder-controller information needed to complete Test 11 is shown in Figure 5 below.

11.1 HTST PASTEURIZATION SYSTEMS

To perform this test the FDD must remain in the forward flow position. Thus, this test can only be performed while the PPR is in the Run mode. For reference during the test, the current STLR temperature and the FDD position are displayed in the Input 1 and 2 positions of the PPR home screen respectively.

- PPR Operating Manual Section 2.1.7: STLR Recording and Control

11.2A CONTINUOUS-FLOW PASTEURIZATION SYSTEMS UTILIZING A MAGNETIC FLOW METER BASED TIMING SYSTEM PASTEURIZATION HOLDING TIME

To perform this test the FDD must be allowed to go into the forward flow position. Thus, this test can only be performed while the PPR is in the Run mode. For reference during the test, the current STLR temperature and the FDD position are displayed in the Input 1 and 2 positions of the PPR home screen respectively. The current SFLR flow rate, low flow alarm setpoint and high flow alarm setpoint are all displayed in the Input 3 section of the PPR home screen.

- PPR Operating Manual Section 2.1.7: STLR Recording and Control
- PPR Operating Manual Section 2.1.8: SFLR Recording and Control

Tests 11.2B- 11.2F
11.2B CONTINUOUS-FLOW PASTEURIZATION SYSTEMS UTILIZING A MAGNETIC FLOW METER BASED TIMING SYSTEM – HOLDING TUBES AND HIGH FLOW ALARM (and)
11.2C CONTINUOUS-FLOW PASTEURIZATION SYSTEMS UTILIZING A MAGNETIC FLOW METER BASED TIMING SYSTEM – HOLDING TUBES AND LOW FLOW/LOSS-OF-SIGNAL ALARM
11.2D CONTINUOUS-FLOW PASTEURIZATION SYSTEMS UTILIZING A MAGNETIC FLOW METER BASED TIMING SYSTEM – HOLDING TUBES AND FLOW RATE CUT-IN AND CUT-OUT
11.2E CONTINUOUS-FLOW PASTEURIZATION SYSTEMS UTILIZING A MAGNETIC FLOW METER BASED TIMING SYSTEM – HOLDING TUBES AND TIME DELAY
11.2F CONTINUOUS-FLOW PASTEURIZATION SYSTEMS UTILIZING A MAGNETIC FLOW METER BASED TIMING SYSTEM - HIGH FLOW ALARM RESPONSE TIME

To perform this test the FDD must be allowed to go into the forward flow position. Thus, this test can only be performed while the PPR is in the Run mode. For reference during the test, the current STLR temperature and the FDD position are displayed in the Input 1 and 2 positions of

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the PPR home screen respectively. The current SFLR flow rate, low flow alarm setpoint and high flow alarm setpoint are all displayed in the Input 3 section of the PPR home screen. If changing the SFLR Alarm Setpoints is required during this test, the PPR must be changed to Program Mode.

The SFLR Alarm Bar Graph displayed in the Input 3 section of the PPR home screen will display as green when the measured flow rate is between the alarm setpoints or Red if it is outside the alarm setpoints. When the SFLR Input is recorded on the PPR Record, the Red/Green status of SFLR Alarm Bar Graph is automatically recorded as the SFLR Event Pen. The SFLR Event Pen trend can also be seen on the View Chart screen of PPR.

- PPR Operating Manual Section 2.1.5: Run/Program Mode and Sealing Covers

Figure 5: Example of SFLR Home Screen

Test 11.3 – Test 11.5

No PPR functions are directly required for this test

TEST 12. THERMAL-LIMIT-CONTROLLER FOR CONTROL – SEQUENCE LOGIC

These tests can only be performed while the PPR is in the Run mode.
PPR uses the STLR Relay Output as a control signal to the PLC or other device, this relay is active when STLR conditions are met. To achieve the requirements of this test the Legal PLC or other device must have additional logic to prevent forward flow until product-contact surfaces downstream from the holding tube have been sanitized.

- PPR Operating Manual Section 2.1.7: STLR Recording and Control
- PPR Operating Manual Section 4.3.2: Home Screen

TEST 13. SETTING OF CONTROL SWITCHES FOR MILK AND/OR MILK PRODUCT PRESSURE IN THE HOLDING TUBE

No PPR functions are directly required for this test

TEST 14. SETTING THE CONTROL FOR THE DIFFERENTIAL PRESSURE CONTROLLER ACROSS THE STEAM INJECTOR

No PPR functions are directly required for this test

TEST 15. ELECTRO-MAGNETIC INTERFERENCE FROM HAND-HELD COMMUNICATION DEVICES

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This test is applicable, though no special instruction is required to perform this test on PPR.