ProcessView® Software – Dedicated to Watlow® F4T/D4T, Legacy F4 and EZ-Zone® PM Controllers

ProcessView Data Acquisition Software for Watlow's F4T, Legacy F4, and EZ-Zone® PM Controller Networks. The Software is dedicated to adding value just with Watlow F4T, Legacy F4, and EZ-Zone PM Controllers, which means there is no programming required and it outperforms other more expensive software packages on the market!

It is designed to work with Windows 7/10/11 operating systems allowing the use of newer PC technology. It supports up to 50 Watlow F4T's, Legacy F4 and or EZ-Zone PM Controllers embedded in Environmental Chambers, Furnaces or Ovens on a local network. Enabling the software's security features provides compliance to 21 CFR Part 11 industries such as Pharmaceutical, Medical and Clinical markets.

ProcessView is a great replacement for legacy Watview® Software!

Hardware and Supported Operating System Requirements:

ProcessView supports Microsoft Windows 7 or 10/11 operating systems and runs the best on a monitor that has a resolution of at least 1366 x 768 (greater resolutions are recommended for optimal viewing).

ProcessView supports both Ethernet and RS-485 networks simultaneously!

Ethernet Modbus TCP/IP Communications: Your PC will need an Ethernet port for communications with Watlow F4T's and Watlow EZ-Zone PM controllers (EZ-Zone PM needs to have Ethernet option).

Modbus RTU RS-485 Communications: Your PC will need an available serial port (USB port) and a RS-485 converter (USB to RS-485 converters are readily available and are very inexpensive) for communications with Watlow F4T's, Legacy F4's and Watlow EZ-Zone PM controllers (EZ-Zone PM and F4T controllers need to have the Modbus RTU option installed in the controller).

Watlow RUI Gateway STD BUS Communications: You can network up to 8 EZ-Zone PM Controllers or F4T's on a RUI Gateway for easy retrofits!

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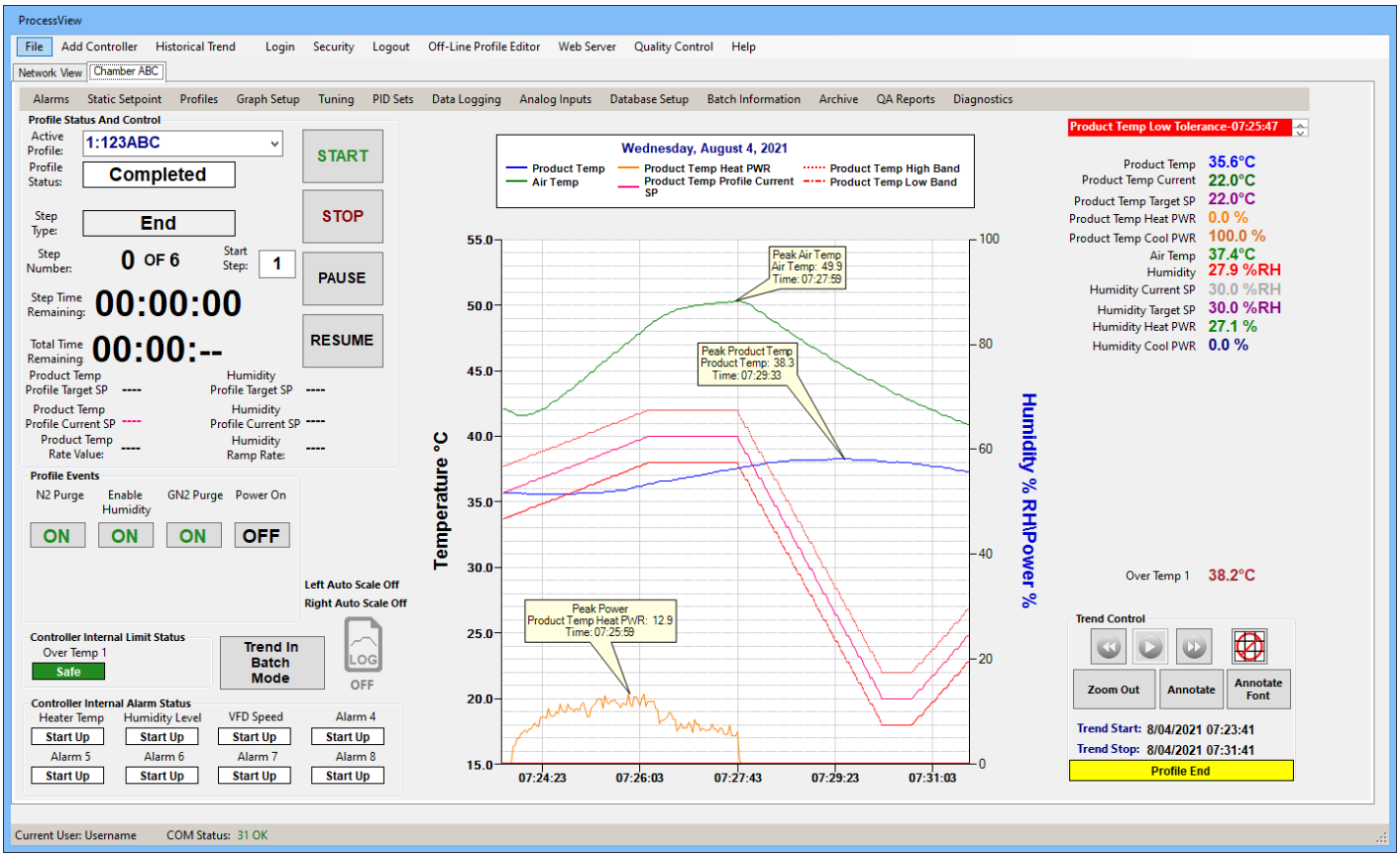
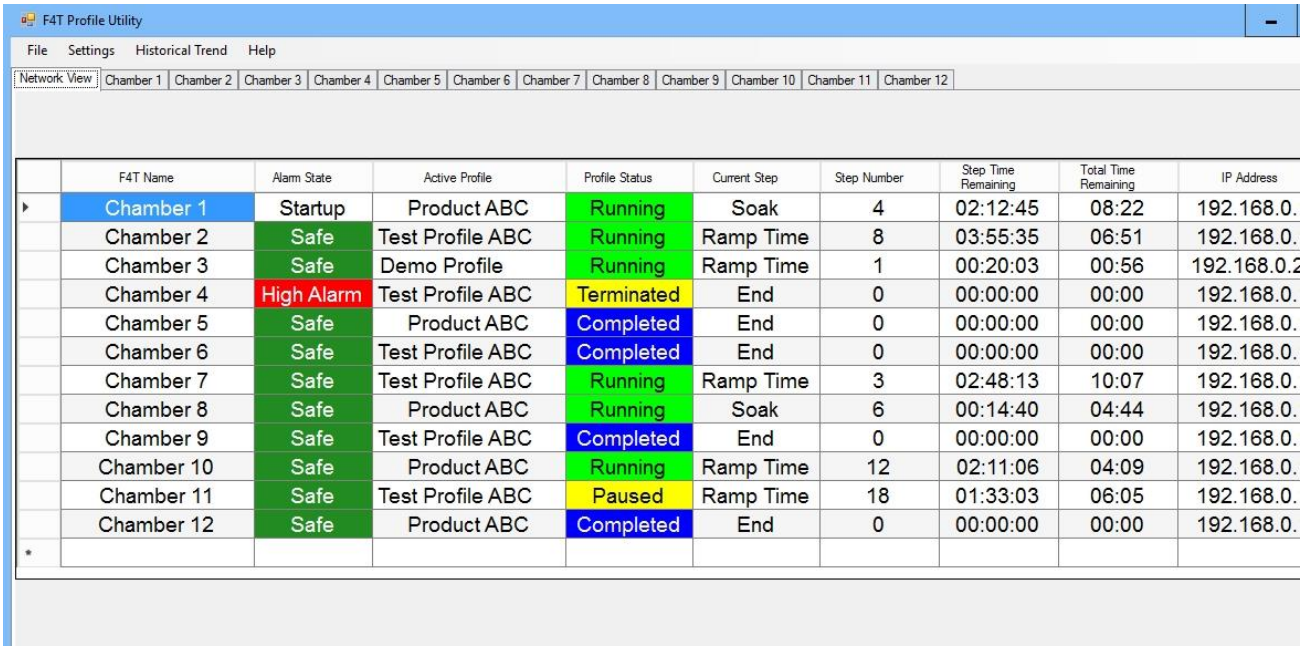


Dedicated Overview Screen: Each Controller/Chamber on the network shows real-time trend, process data, event output status and current Profile status. Profiles can be started, stopped, paused or resumed from this screen. Profile Events can be manually turned on or off if enabled.



F4T Name	Alarm State	Active Profile	Profile Status	Current Step	Step Number	Step Time Remaining	Total Time Remaining	IP Address
Chamber 1	Startup	Product ABC	Running	Soak	4	02:12:45	08:22	192.168.0.
Chamber 2	Safe	Test Profile ABC	Running	Ramp Time	8	03:55:35	06:51	192.168.0.
Chamber 3	Safe	Demo Profile	Running	Ramp Time	1	00:20:03	00:56	192.168.0.2
Chamber 4	High Alarm	Test Profile ABC	Terminated	End	0	00:00:00	00:00	192.168.0.
Chamber 5	Safe	Product ABC	Completed	End	0	00:00:00	00:00	192.168.0.
Chamber 6	Safe	Test Profile ABC	Completed	End	0	00:00:00	00:00	192.168.0.
Chamber 7	Safe	Test Profile ABC	Running	Ramp Time	3	02:48:13	10:07	192.168.0.
Chamber 8	Safe	Product ABC	Running	Soak	6	00:14:40	04:44	192.168.0.
Chamber 9	Safe	Test Profile ABC	Completed	End	0	00:00:00	00:00	192.168.0.
Chamber 10	Safe	Product ABC	Running	Ramp Time	12	02:11:06	04:09	192.168.0.
Chamber 11	Safe	Test Profile ABC	Paused	Ramp Time	18	01:33:03	06:05	192.168.0.
Chamber 12	Safe	Product ABC	Completed	End	0	00:00:00	00:00	192.168.0.

Network Overview Screen: Displays Profile Status for all the Chambers on the network.

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ProcessView Features:

- Up to 50 Watlow F4T, Legacy F4, D4T, and Series PM Controls embedded in a chamber or furnace can be monitored and or controlled on a local Ethernet and or RS-485 Network
- Can be used with PM or F4T controls that are networked with Watlow's STD BUS using an RUI Gateway (TCP/IP Modbus or Modbus RTU) making retrofits easy!
- Remote PC Access provides multiple users the ability to receive and send data remotely using "The Internet of Things" technology
- Provides compliance for 21 CFR Part 11, with advanced password management, electronic signatures, encrypted datafiles and an audit trail.
- All data can be uploaded to a Cloud Database service that enables anyone with secure access to access the data real-time! Data can be saved to an FTP site, remote drive or local drive automatically. Microsoft Azure, Amazon AWS, Microsoft SQL Server, and Microsoft Access are all supported.
- Web Server allows for remote PC/Smart Phone access to read only Profile Status and Process Data!
- Watlow's new F4T Controllers can be added to your existing RS-485 Legacy F4 Controller Network
- Supports Windows 7/10 Operating Systems
- Control and check the status of each F4T, F4 or Series PM loaded profile
- Up to 24 analog inputs and 4 Control PID loops are supported for monitoring or control for each F4T, F4 or Series PM Controller
- 8 digital or analog F4T internal variables can be monitored or controlled from the software
- 2 Limit Controls are supported for each F4T Controller or PM Series Controller
- Configurable Real-Time Trending of user-selected data parameters
- Customizable Quality Assurance Reports can be generated at the end of a profile run which can be used for quality control documentation along with profile run statistics
- CSV or Encrypted formats are supported for Data Logging as well as multiple digital signatures can be added for tamper-proof security
- Data that is being logged can be viewed real time to ensure correct operation
- Bar/QR Scanner is supported, which keeps Operators from making typing mistakes. Loading Profiles or adding Batch/Profile Run information is supported

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- User notes can be added while the data is being logged or after a Profile/Batch has been completed
- Trend Plots can be archived via hard copy printer or PDF files for Quality Control requirements
- Dedicated Tuning Screen aids in Tuning PID Control Loops

- Alarm or End of Profile Notification via Email or GSM Cellular Text Messages allows updated status anywhere in the world
- Profile Status can be accessed via Cellular text messaging from anywhere in the world

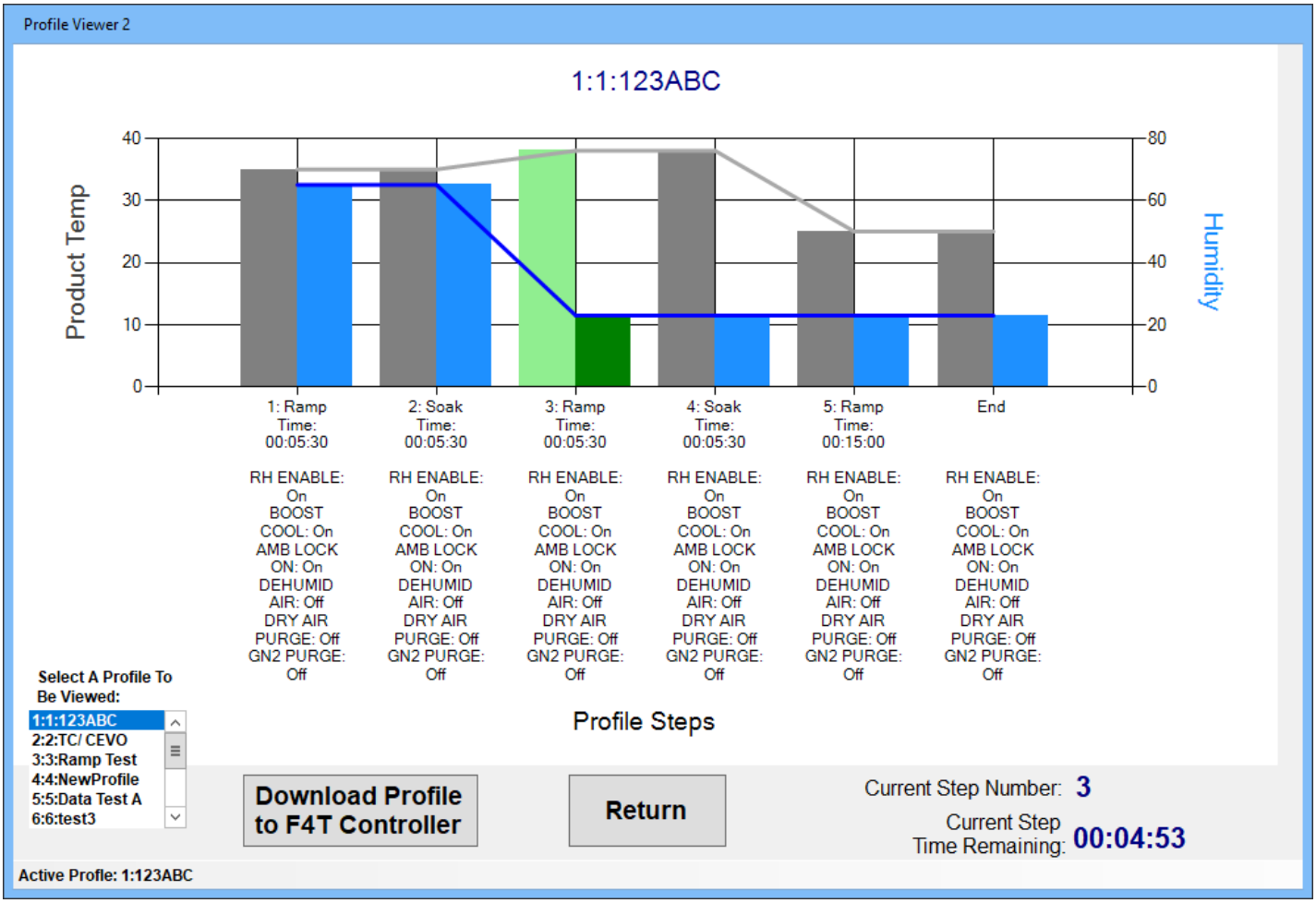
- All Labels are can be customized to make the software more intuitive to the user and simplify the user interface for operators

- F4T internal CSV Data log files can be graphed, viewed and archived for Quality Control requirements (secure encryption of files is supported if required)
- Alarm management is supported by up to 8 process alarms
- Tolerance bands can be displayed on the trend graph for Quality Control requirements

- All Profile Status, Alarm Status and Event Outputs changed by the user are data logged for Quality Control requirements as well as entered in the audit trail

- Up to 24 external process sensors can be added to the system or chamber via a Watlow D4T and can be data logged in the software

- Process Values such as temperature or humidity can be displayed in large fonts for viewing at large distances



Profile Viewer Screen: Displays Selected Profile Graphically with Event Output status and if the profile is running the current step is shaded green and the current step number and timer remaining is shown.

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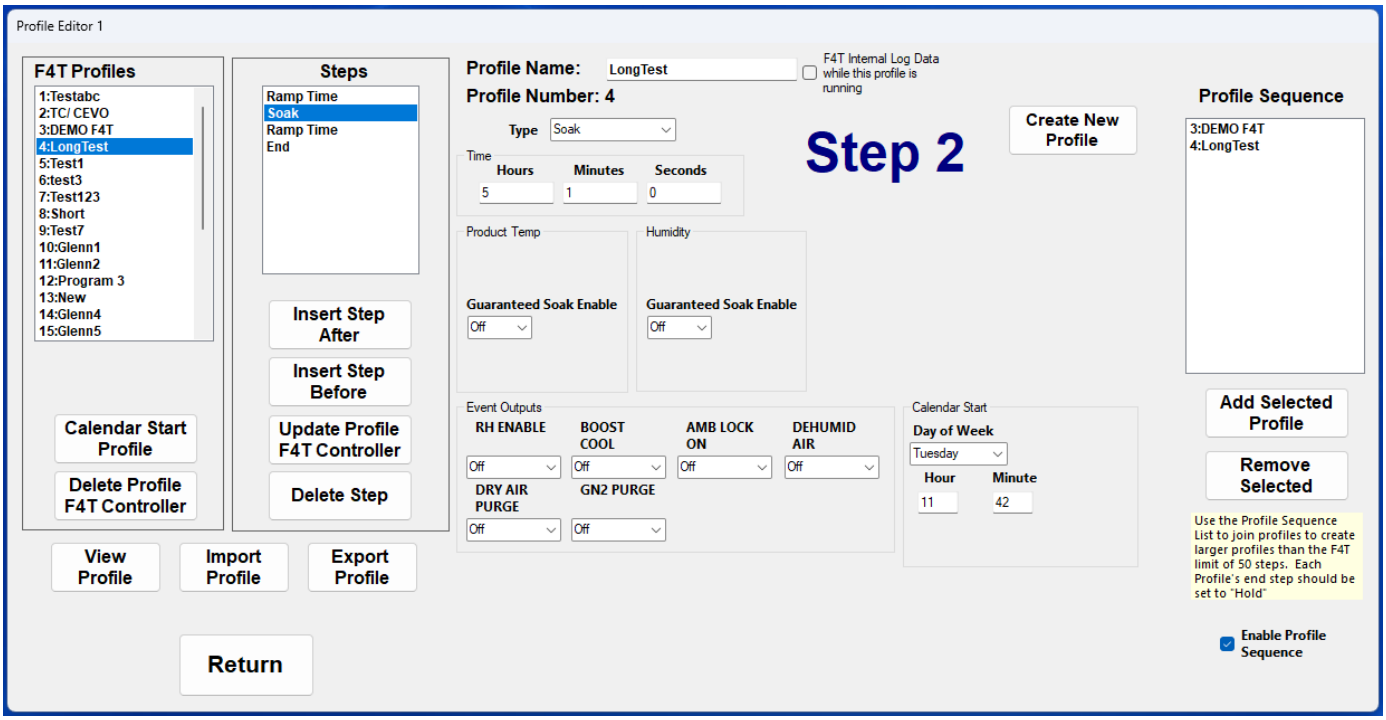
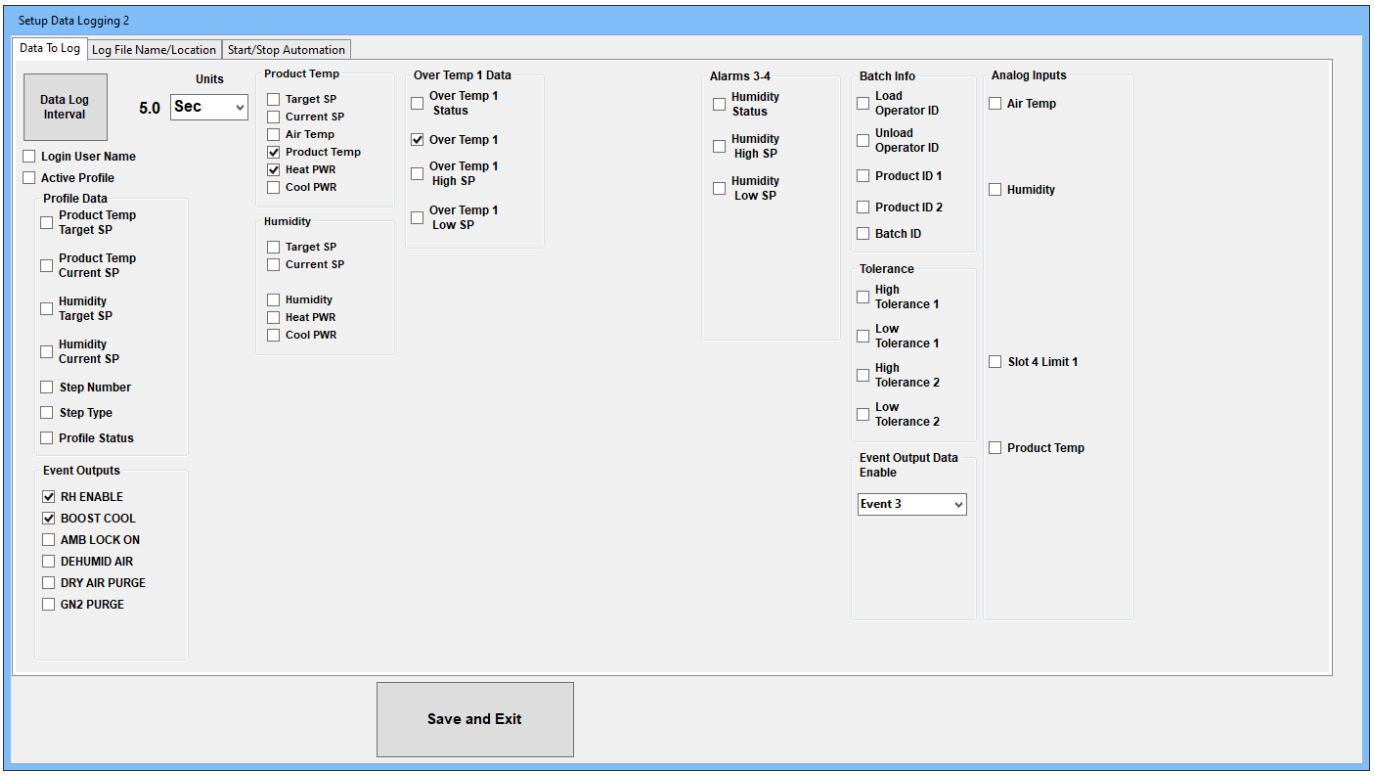
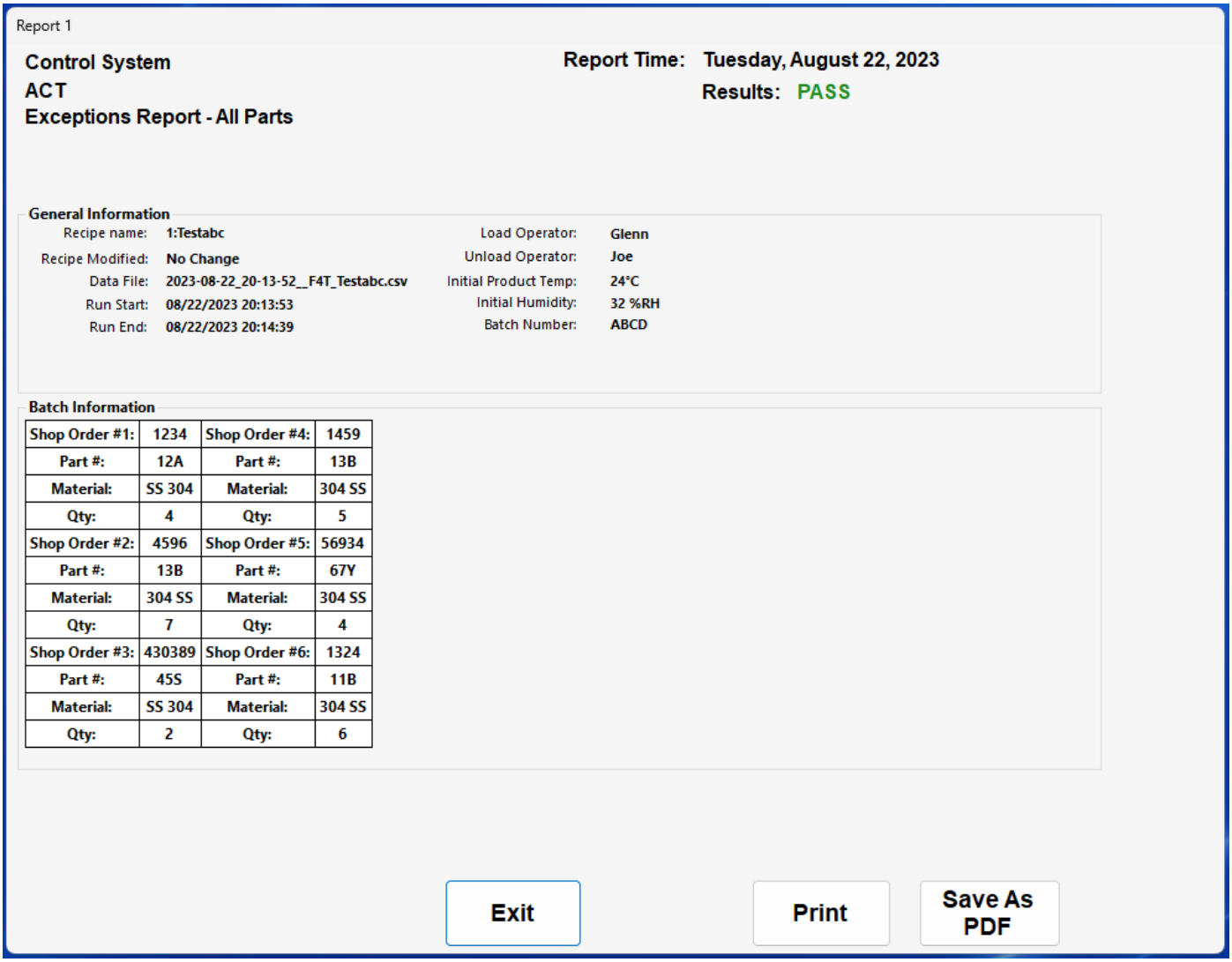


Profile Editor Screen: Profiles can be created, edited On-line or Off-line and stored on the PC for future downloads and archiving.



Data Log Setup Screen: All Process Data and Profile Status parameters can be logged to a CSV Excel file. Data can be logged as Encrypted if required with a password.



Report 1

Control System
ACT
Exceptions Report - All Parts

Report Time: Tuesday, August 22, 2023
Results: PASS

General Information

Recipe name:	1:Testabc	Load Operator:	Glenn
Recipe Modified:	No Change	Unload Operator:	Joe
Data File:	2023-08-22_20-13-52__F4T_Testabc.csv	Initial Product Temp:	24°C
Run Start:	08/22/2023 20:13:53	Initial Humidity:	32 %RH
Run End:	08/22/2023 20:14:39	Batch Number:	ABCD

Batch Information

Shop Order #1:	1234	Shop Order #4:	1459
Part #:	12A	Part #:	13B
Material:	SS 304	Material:	304 SS
Qty:	4	Qty:	5
Shop Order #2:	4596	Shop Order #5:	56934
Part #:	13B	Part #:	67Y
Material:	304 SS	Material:	304 SS
Qty:	7	Qty:	4
Shop Order #3:	430389	Shop Order #6:	1324
Part #:	45S	Part #:	11B
Material:	SS 304	Material:	304 SS
Qty:	2	Qty:	6

Exit | Print | Save As PDF

Quality Assurance Reports: Customizable Quality Assurance Reports can be automatically generated after a profile run. PASS/FAIL criteria can be based on a uninterrupted profile, alarm condition or a tolerance band setup on a particular step or steps in a profile. User input and automatic fields filled in after the report is generated are customizable to your application.

Product Temp Individual Step Statistics

TGT SP = Target Setpoint, Product Temp °C
CUR SP = Current Setpoint, Product Temp °C
PV = Process Value, Product Temp °C
ERR = PV - CUR SP (Process Error)
Tol = Tolerance (Low, High)
Duration = Step Time, minutes
n = number of data points
STD = Standard Deviation

Step	Type	SP	TOL LOW	TOL HIGH	Duration	PV MIN	PV MAX	PV AVG	PV STD	MIN ERR	MAX ERR	AVG ERR	STD ERR	n
1	Ramp Time	35.00	-3.0	3.0	5.50	32.30	34.00	32.95	0.55	-1.00	-0.10	-0.87	0.21	66
2	Soak	35.00	-3.0	3.0	5.42	34.10	35.40	34.96	0.38	-0.90	0.40	-0.04	0.38	66
3	Ramp Time	38.00	-3.0	3.0	5.42	35.30	36.80	35.85	0.44	-1.20	0.30	-0.66	0.45	66
4	Soak	38.00	-3.0	3.0	5.42	36.80	38.10	37.64	0.37	-1.20	0.10	-0.36	0.37	66
5	Ramp Time	25.00	-3.0	3.0	14.83	29.90	38.20	34.45	2.75	0.20	4.90	2.97	1.08	180

Profile Step Statistics: Statistics are calculated after the profile run and can be included in the data log and the Quality Assurance report as shown above.

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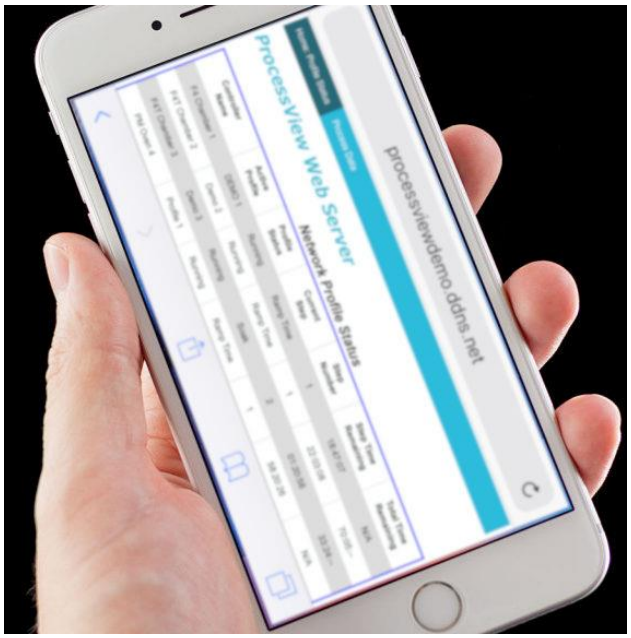


Home: Profile Status | Process Data

ProcessView Web Server

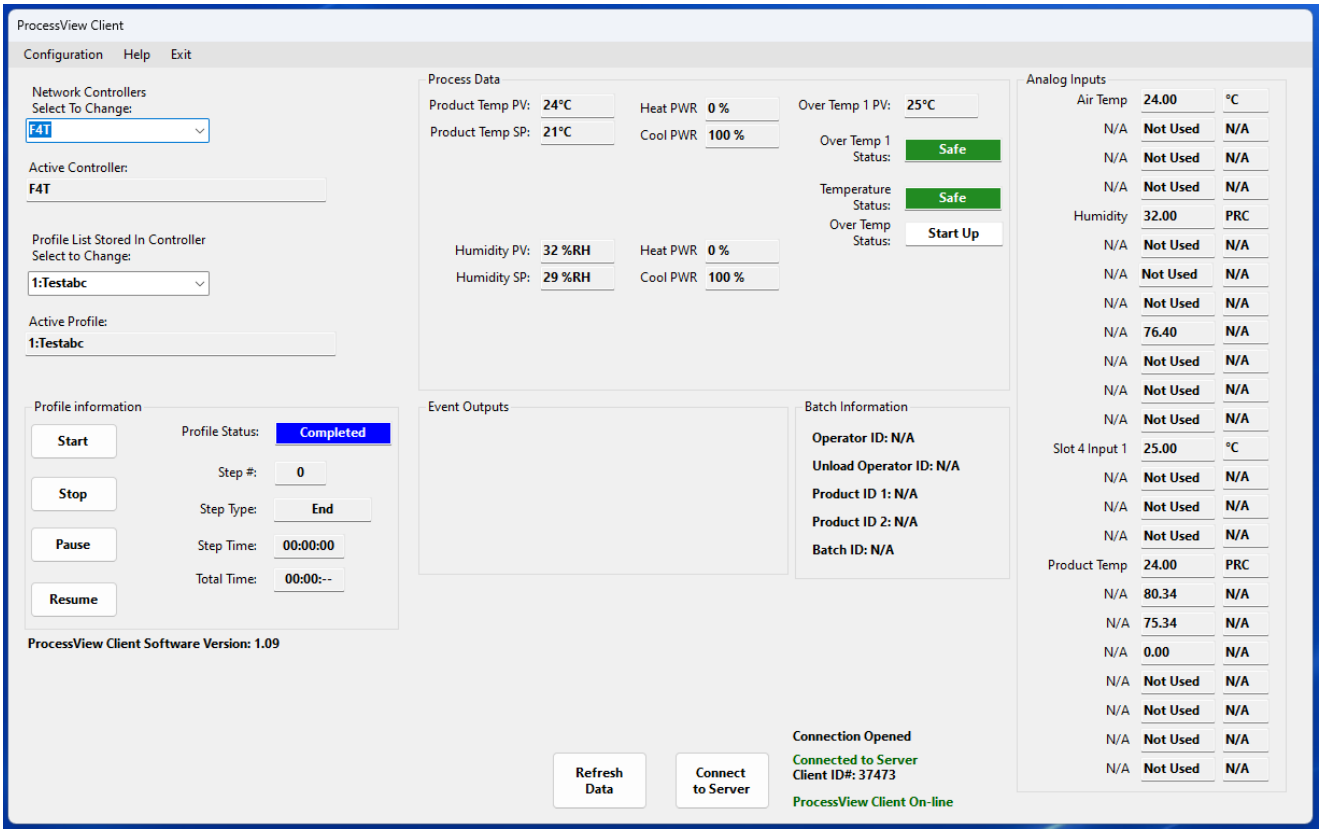
Process Data

Controller Name	Control Loop 1 Current Setpoint	Control Loop 1 Target Setpoint	Control Loop 1 Process Value	Control Loop 2 Current Setpoint	Control Loop 2 Target Setpoint	Control Loop 2 Process Value	Monitor Process Value
F4 Chamber 1	Temperature Current SP=42.5°C	Temperature Profile Target SP=35.0°C	Temperature=42.4°C	Humidity Current SP=32.0% RH	Humidity Profile Target SP=54.0% RH	Humidity=32.0% RH	
F4T Chamber 2	Air Temp Current SP=81.3°C	Air Temp Profile Target SP=89.0°C	Air Temp=0.0°C	Humidity Current SP=73.0% RH	Humidity Profile Target SP=50.0% RH	Humidity=100.0% RH	
F4T Chamber 3	Temperature Current SP=80.0°C	Temperature Profile Target SP=80.0°C	Temperature=63.4°C				
PM Oven 4	Temperature Current SP=92.7°F	Temperature Profile Target SP=100.0°F	Temperature=92.8°F				
F4 Chamber 4	Chamber Temp Current SP=100.0°F	Chamber Temp Profile Target SP=75.0°F	Chamber Temp=100.0°F	Humidity Current SP=75.0% RH	Humidity Profile Target SP=75.0% RH	Humidity=0.0% RH	

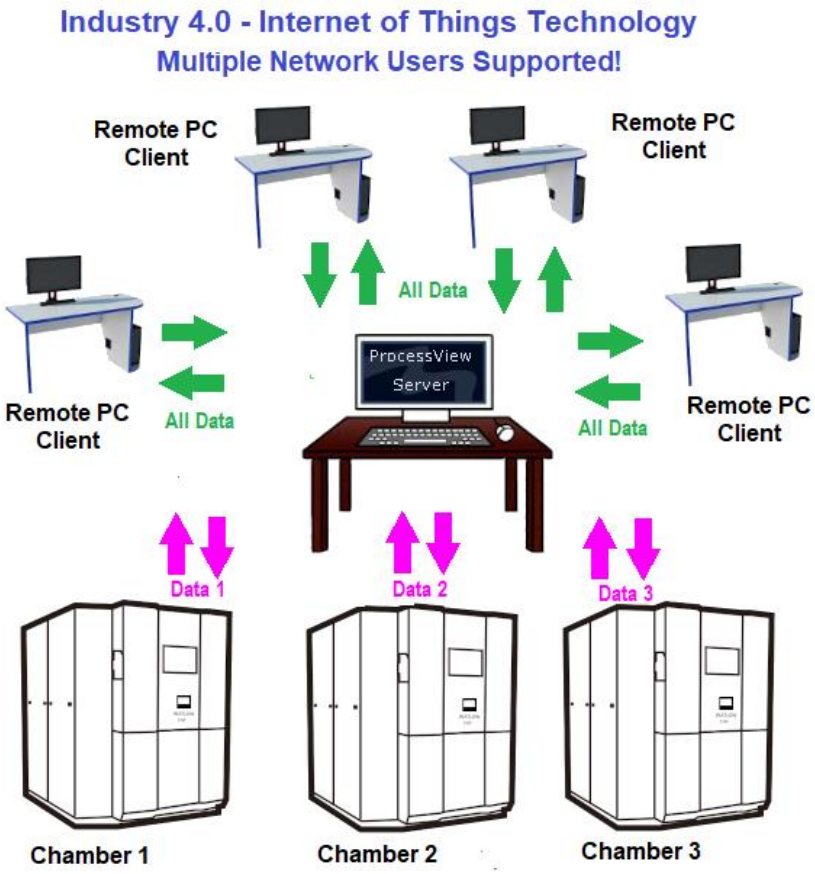
Built in Web Server: Allows remote access to Profile Status and Process Data from a remote PC or smart phone. Web pages are read-only for security reasons and Web Pages can be viewed on an inter-company network or from an external network (world wide web, Internet).

Email Settings Screen: End of Profile and Alarm conditions can be emailed or texted for convenient status updates for your tests being run on the chamber.

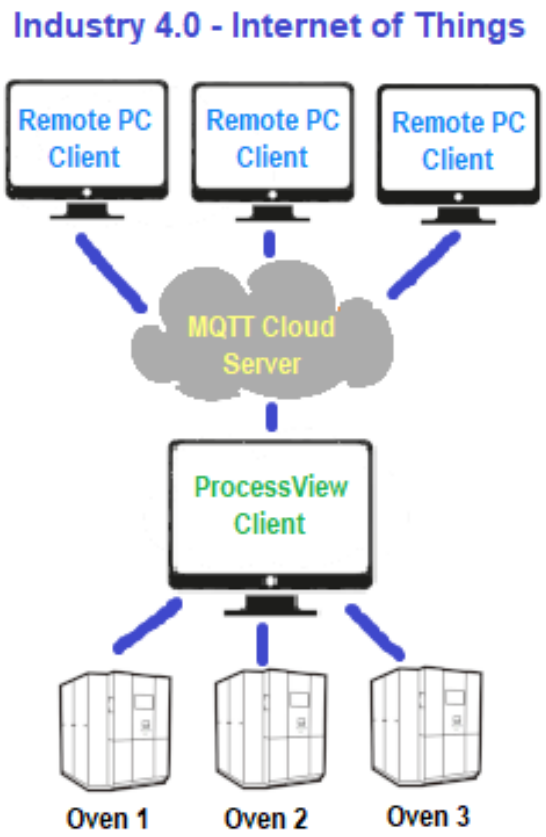
Remote PC Client Software Screen: Remote PC Client Software (separate software) is used to get information remotely. This can be done thru ProcessView Server Software or thru a MQTT Cloud Server service. The screen above shows all the parameters that the Remote PC Client has access to.



Below is a diagram for using the Remote PC Client, ProcessView Server and ProcessView Client for remote users:



If you choose to use an MQTT Cloud Server service (which there are many, IBM, Google, Azure, HiveMQ, etc.) then it makes it easy to get your secure information from your chamber/oven from anywhere in the world over an Internet connection. Below is a diagram for using the Remote PC Client, MQTT Cloud Server Service and ProcessView Client for remote users:



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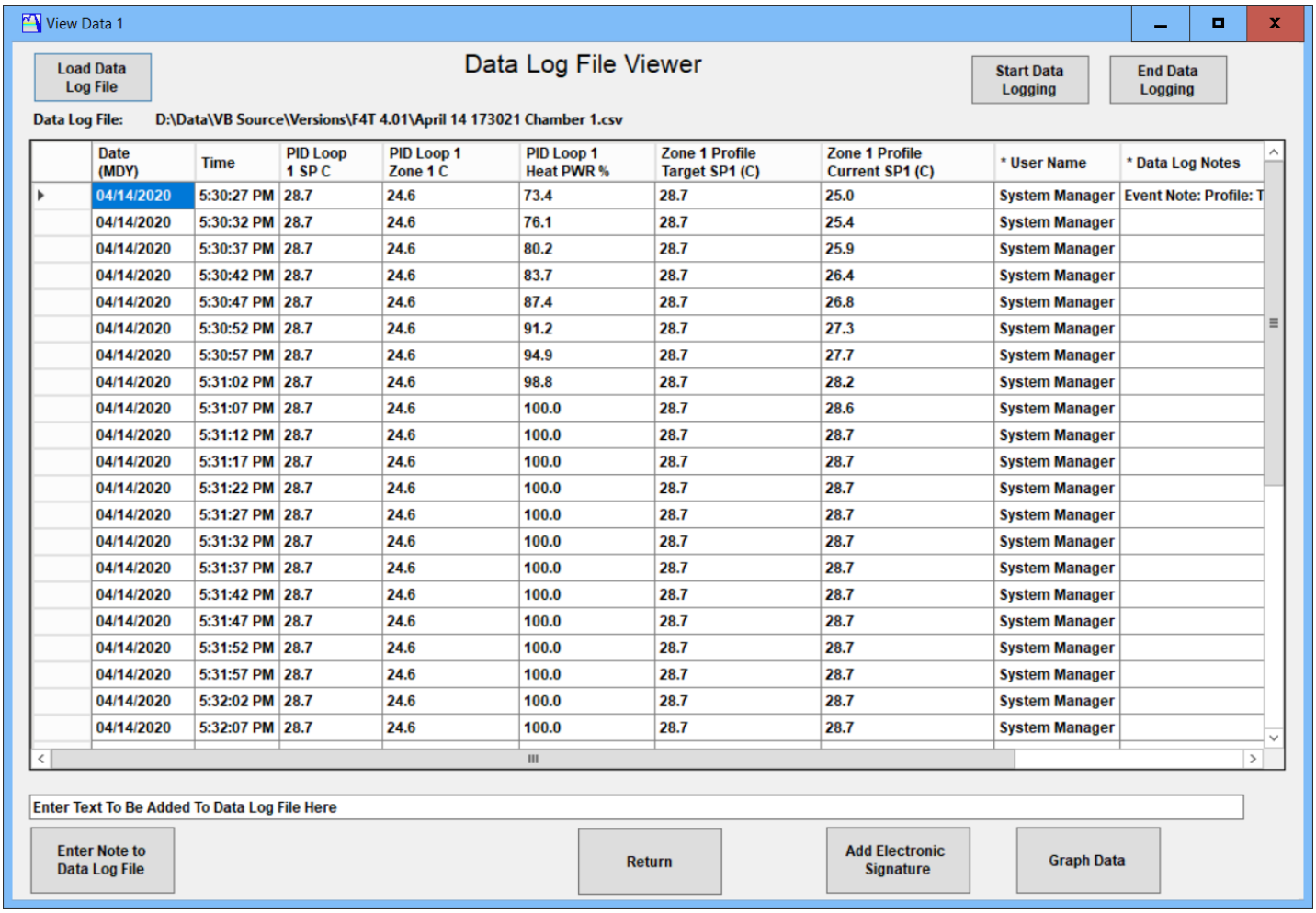
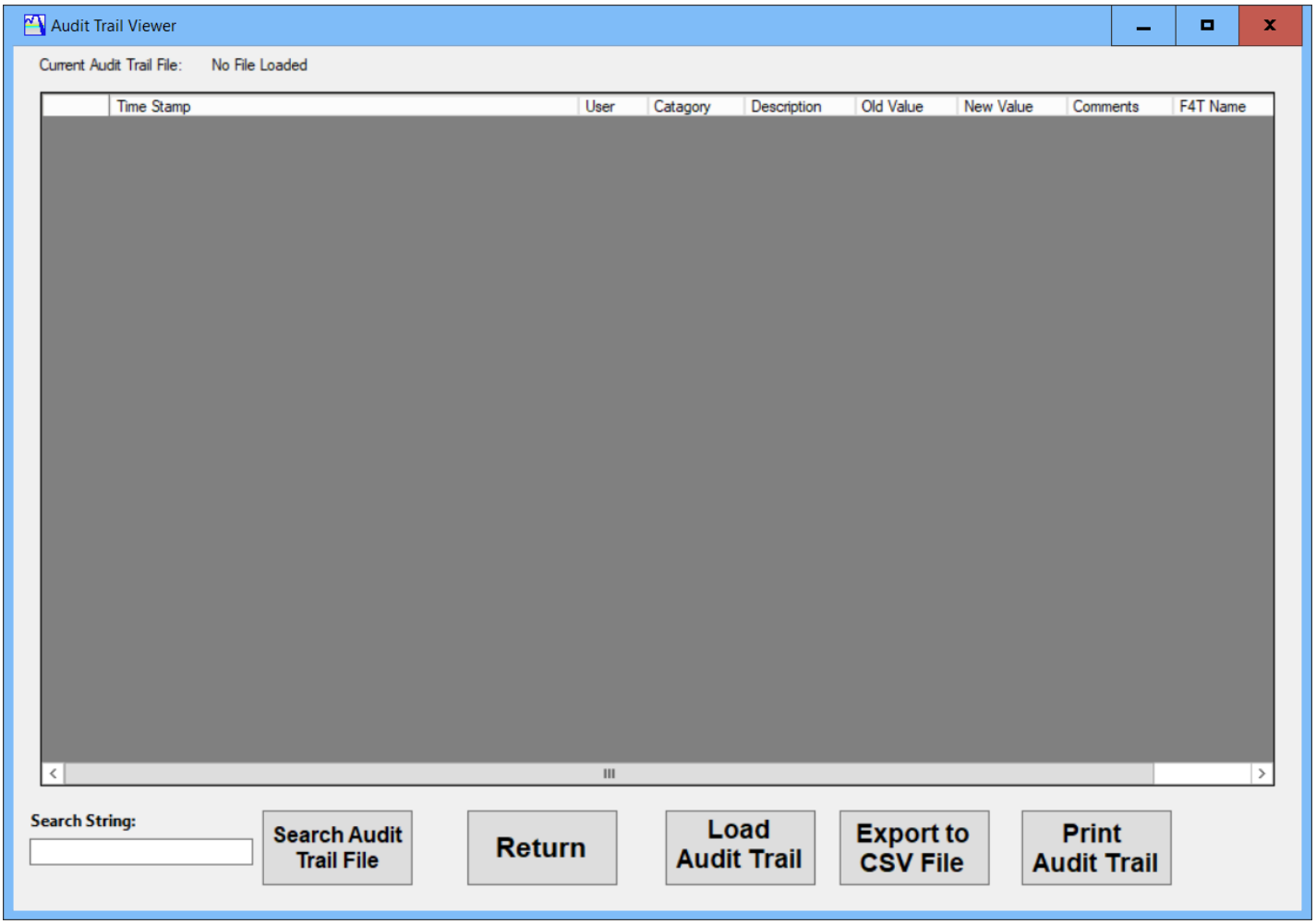
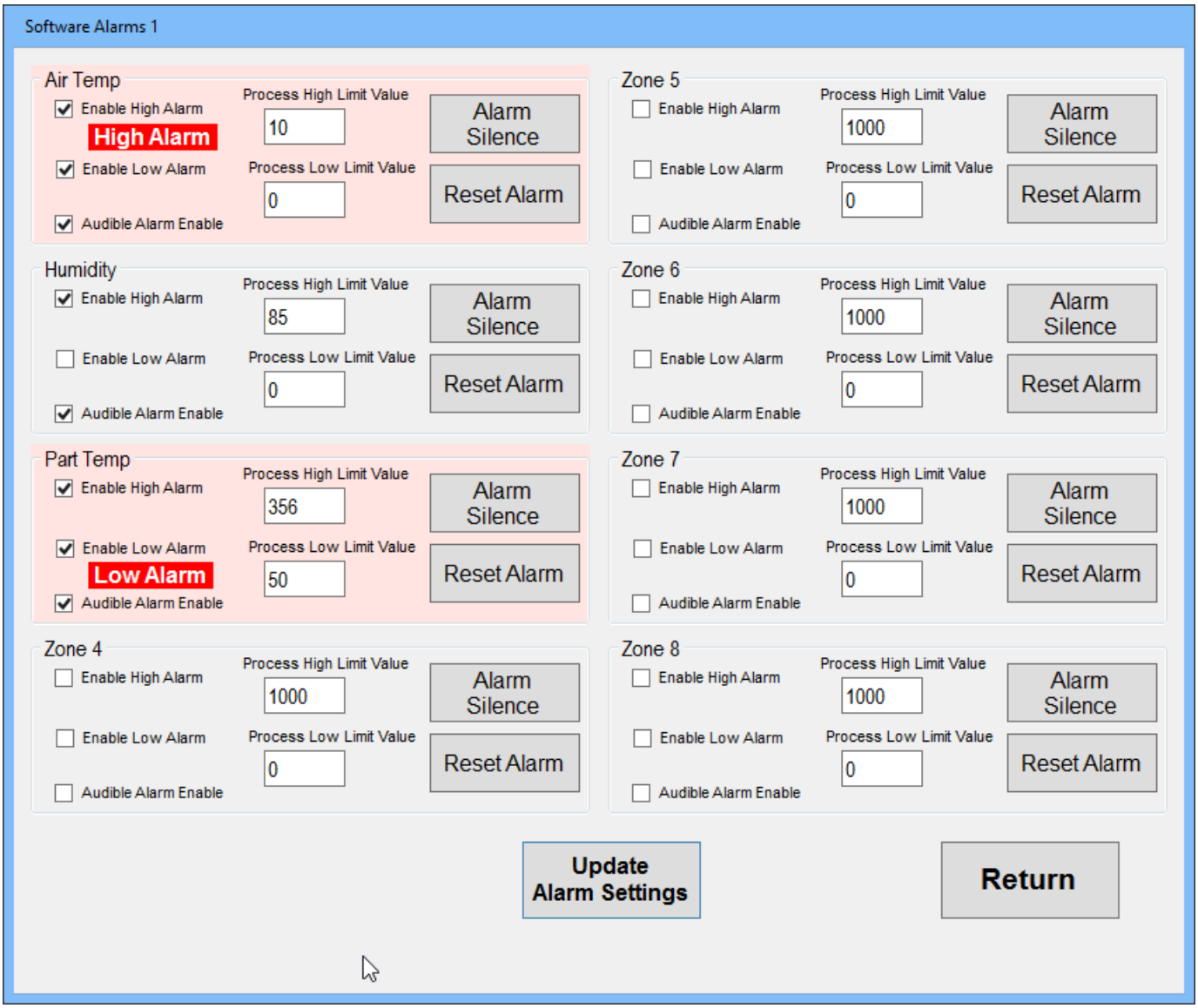


Date (MDY)	Time	PID Loop 1 SP C	PID Loop 1 Zone 1 C	PID Loop 1 Heat PWR %	Zone 1 Profile Target SP1 (C)	Zone 1 Profile Current SP1 (C)	* User Name	* Data Log Notes
04/14/2020	5:30:27 PM	28.7	24.6	73.4	28.7	25.0	System Manager	Event Note: Profile: T
04/14/2020	5:30:32 PM	28.7	24.6	76.1	28.7	25.4	System Manager	
04/14/2020	5:30:37 PM	28.7	24.6	80.2	28.7	25.9	System Manager	
04/14/2020	5:30:42 PM	28.7	24.6	83.7	28.7	26.4	System Manager	
04/14/2020	5:30:47 PM	28.7	24.6	87.4	28.7	26.8	System Manager	
04/14/2020	5:30:52 PM	28.7	24.6	91.2	28.7	27.3	System Manager	
04/14/2020	5:30:57 PM	28.7	24.6	94.9	28.7	27.7	System Manager	
04/14/2020	5:31:02 PM	28.7	24.6	98.8	28.7	28.2	System Manager	
04/14/2020	5:31:07 PM	28.7	24.6	100.0	28.7	28.6	System Manager	
04/14/2020	5:31:12 PM	28.7	24.6	100.0	28.7	28.7	System Manager	
04/14/2020	5:31:17 PM	28.7	24.6	100.0	28.7	28.7	System Manager	
04/14/2020	5:31:22 PM	28.7	24.6	100.0	28.7	28.7	System Manager	
04/14/2020	5:31:27 PM	28.7	24.6	100.0	28.7	28.7	System Manager	
04/14/2020	5:31:32 PM	28.7	24.6	100.0	28.7	28.7	System Manager	
04/14/2020	5:31:37 PM	28.7	24.6	100.0	28.7	28.7	System Manager	
04/14/2020	5:31:42 PM	28.7	24.6	100.0	28.7	28.7	System Manager	
04/14/2020	5:31:47 PM	28.7	24.6	100.0	28.7	28.7	System Manager	
04/14/2020	5:31:52 PM	28.7	24.6	100.0	28.7	28.7	System Manager	
04/14/2020	5:31:57 PM	28.7	24.6	100.0	28.7	28.7	System Manager	
04/14/2020	5:32:02 PM	28.7	24.6	100.0	28.7	28.7	System Manager	
04/14/2020	5:32:07 PM	28.7	24.6	100.0	28.7	28.7	System Manager	

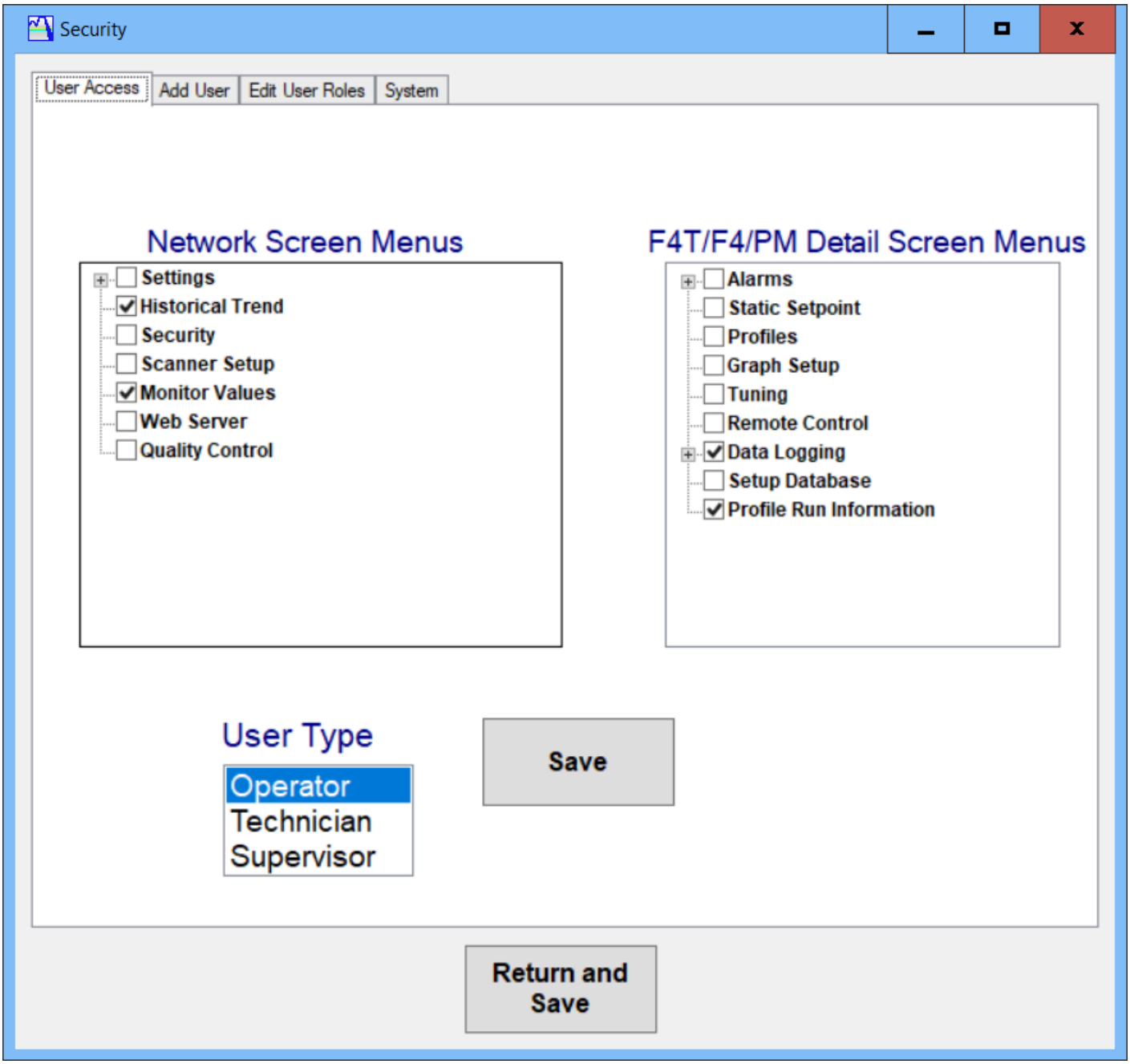
Real-Time Data Log File Viewer Screen: Displays data as it is being logged to the PC file for peace of mind and to make sure the correct data is being logged. Events are also recorded in the Data Log file along with Batch Information and Min/Max process values for each input. Notes can be added by the operator real-time as the profile or batch is running. Multiple electronic signatures can be added to data log files for tamper-proof security.



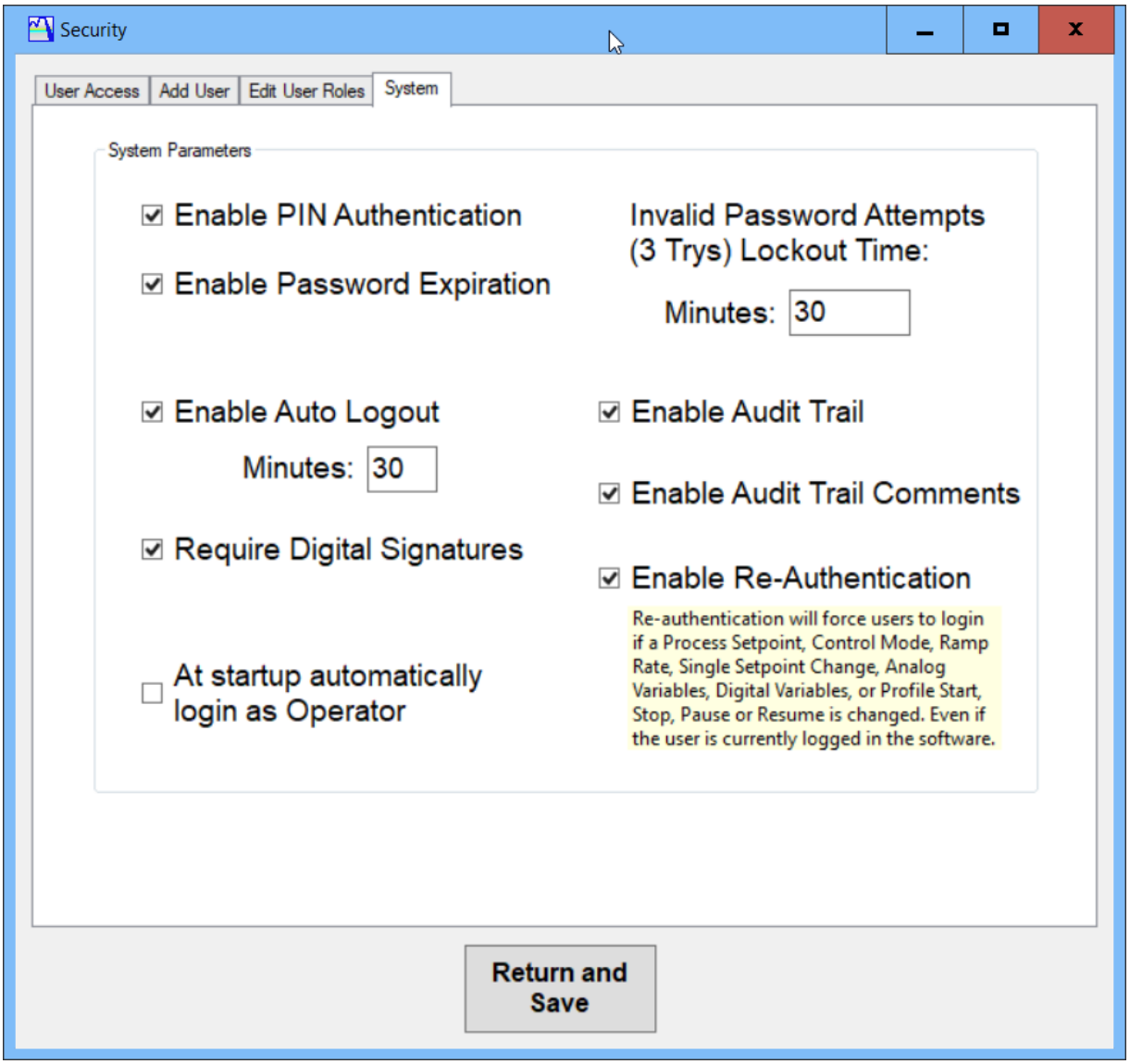
Audit Trail Viewer: All audit trail entries can be viewed with the audit trail viewer screen. Each audit trail entry is time stamped and answer the “How”, “Why”, “Who”, “When” for the change. Audit trails are encrypted and can be printed or exported for auditor inspections in a readable CSV format.



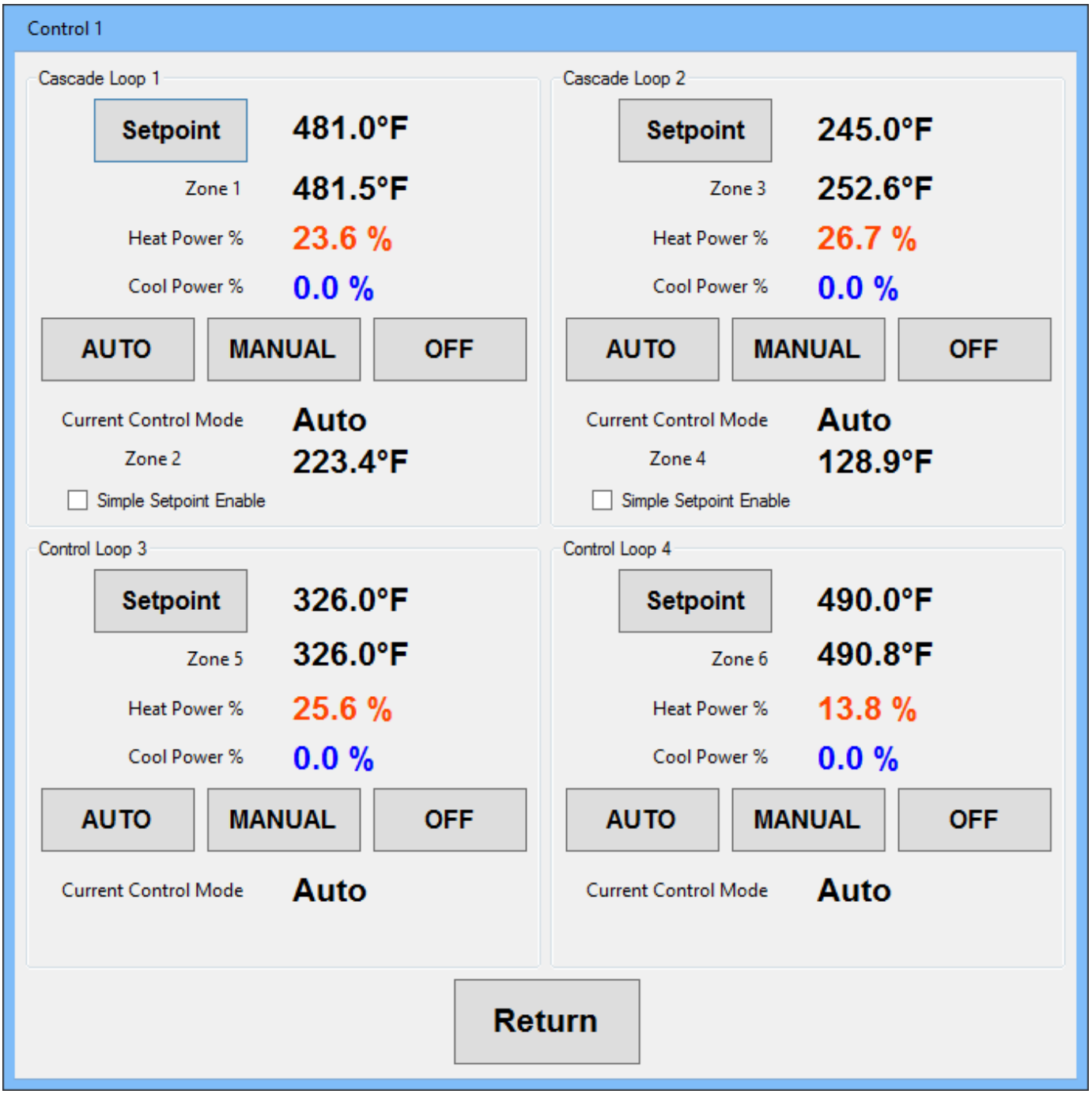
Software Alarm Screen: Each input sensor (temperature, humidity, etc.) can have a Software Alarm associated with it independent of the alarms hard coded in the controller. Both visual and audible notifications can be enabled in the software.



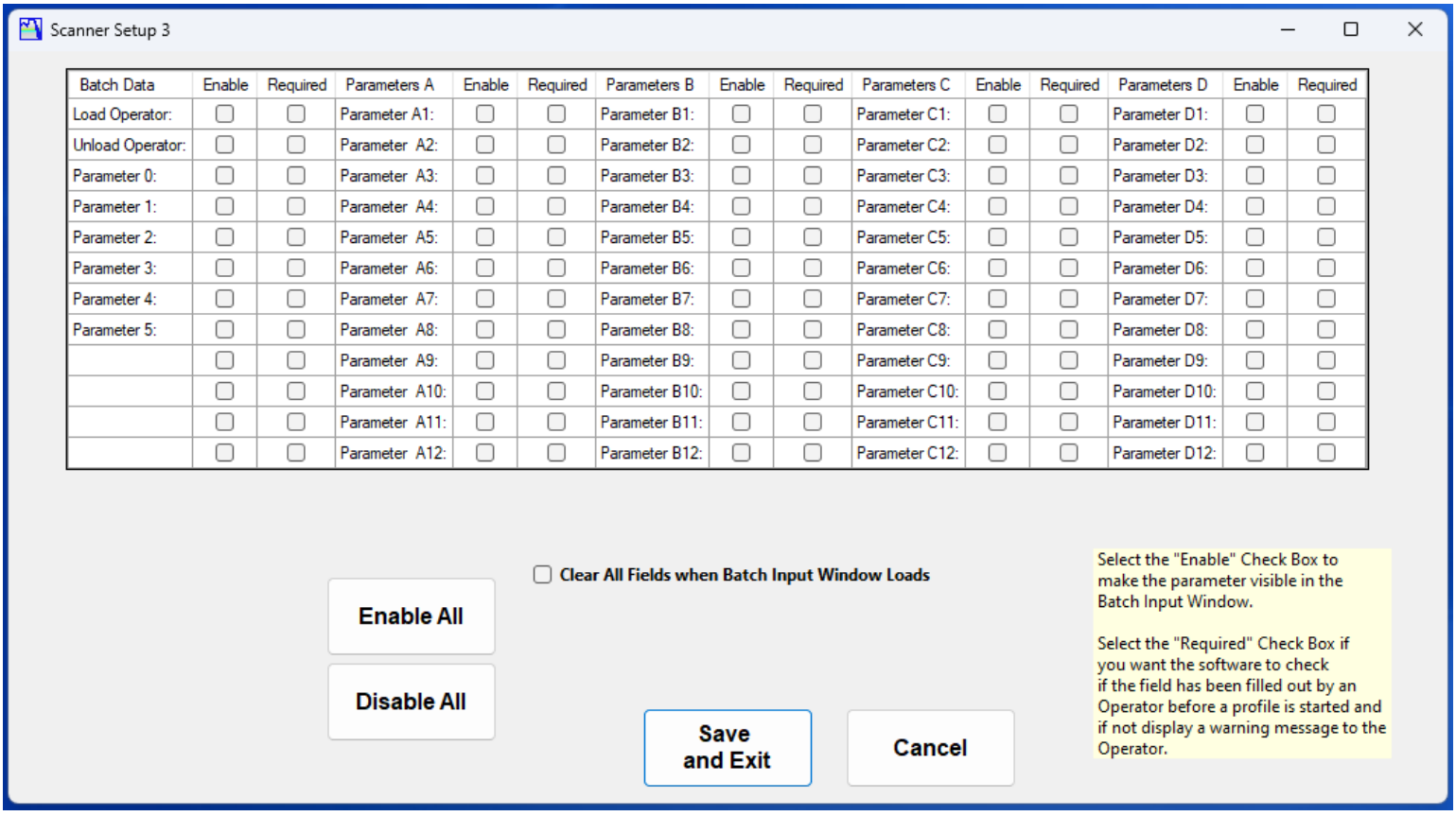
Security Screen: All menus and screens can be password protected with 3 different role levels (Supervisor, Technician and Operator) with unique passwords.



Security Screen – System: The Security System tab allows for advanced user management and enables the use of digital signatures and or audit trails.



Static Setpoint Screen: Control parameters such as control mode (Auto, Manual or Off), Static Setpoints and ramping mode can be adjusted by the user. For Cascade control users can enable Simple Setpoint when not requiring Cascade control usually used for controller to a Part Temperature.



Batch Processing Setup Screen: Bar code scanning can be used to automate batch processes for quality requirements and to eliminated errors running profiles. You can have up to 56 parameters associated with each batch run.

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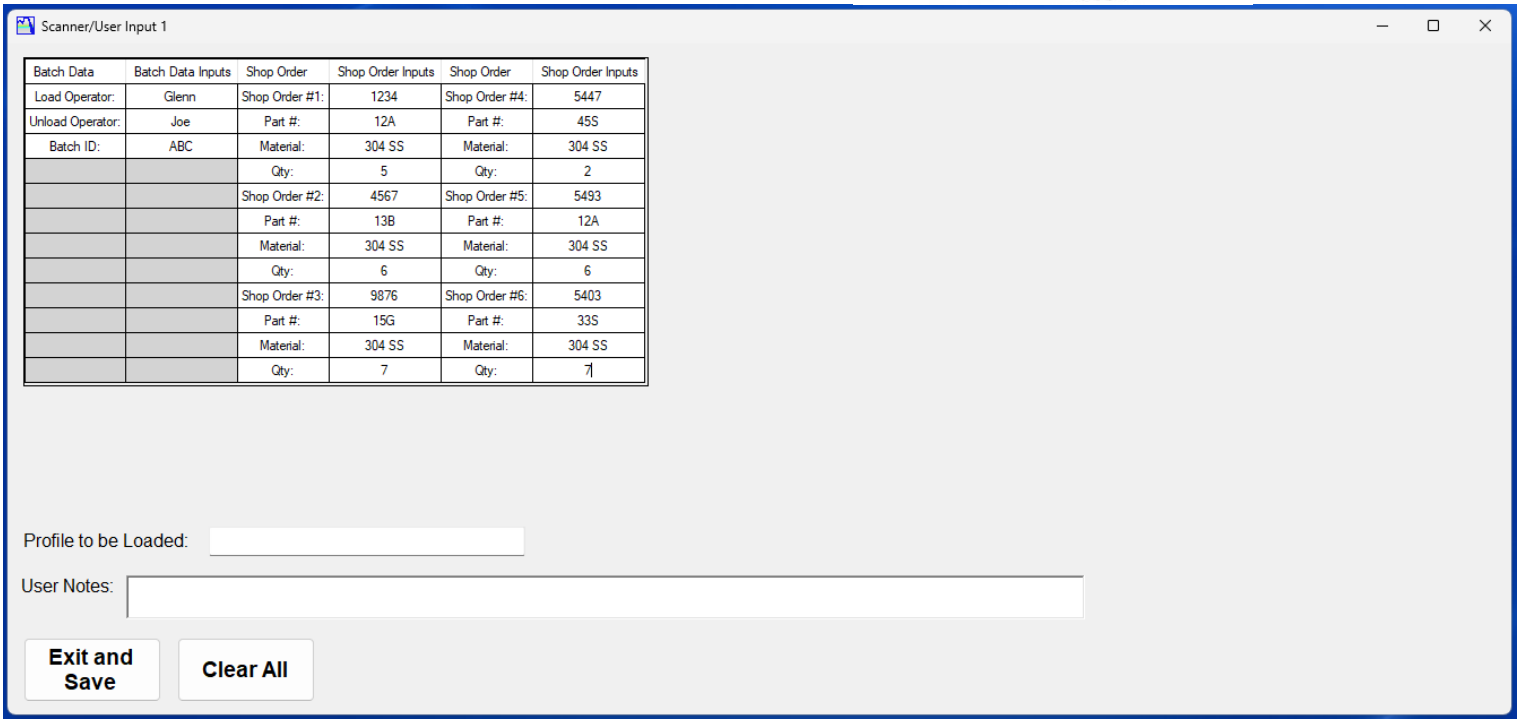

Code Scanner Setup Screen: Operator input for batch processing can be entered with bar codes for quality and product accuracy. Profiles can be loaded based on bar code information as well.

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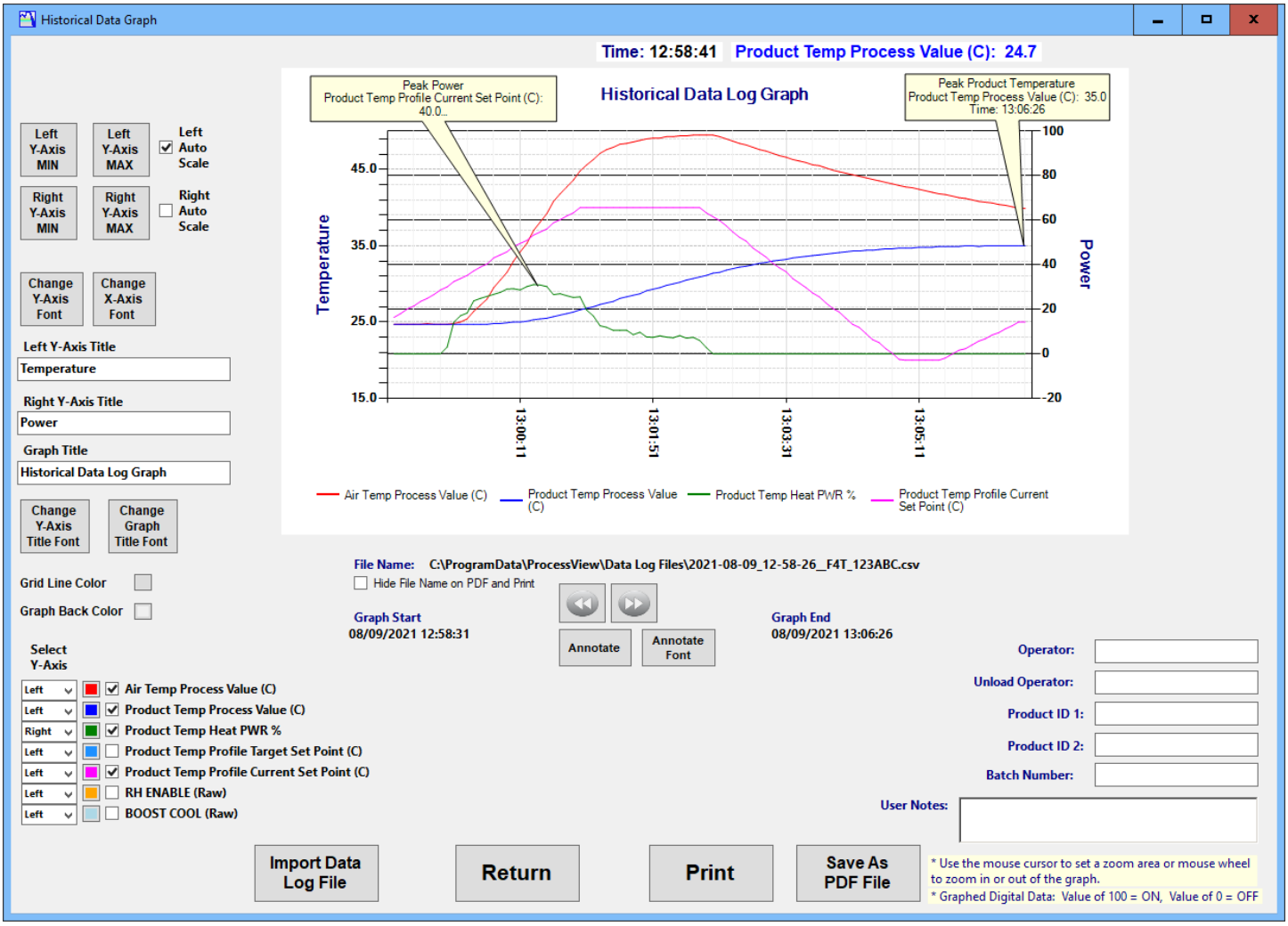

Historical Data Graph Screen: Saved data can be graphed for inspection and archiving purposes and saved as a PDF file or printed for a hard copy along with batch information. Annotation notes can be added on interesting or important data points. Axis Scaling and Batch information can be included in the saved graph.

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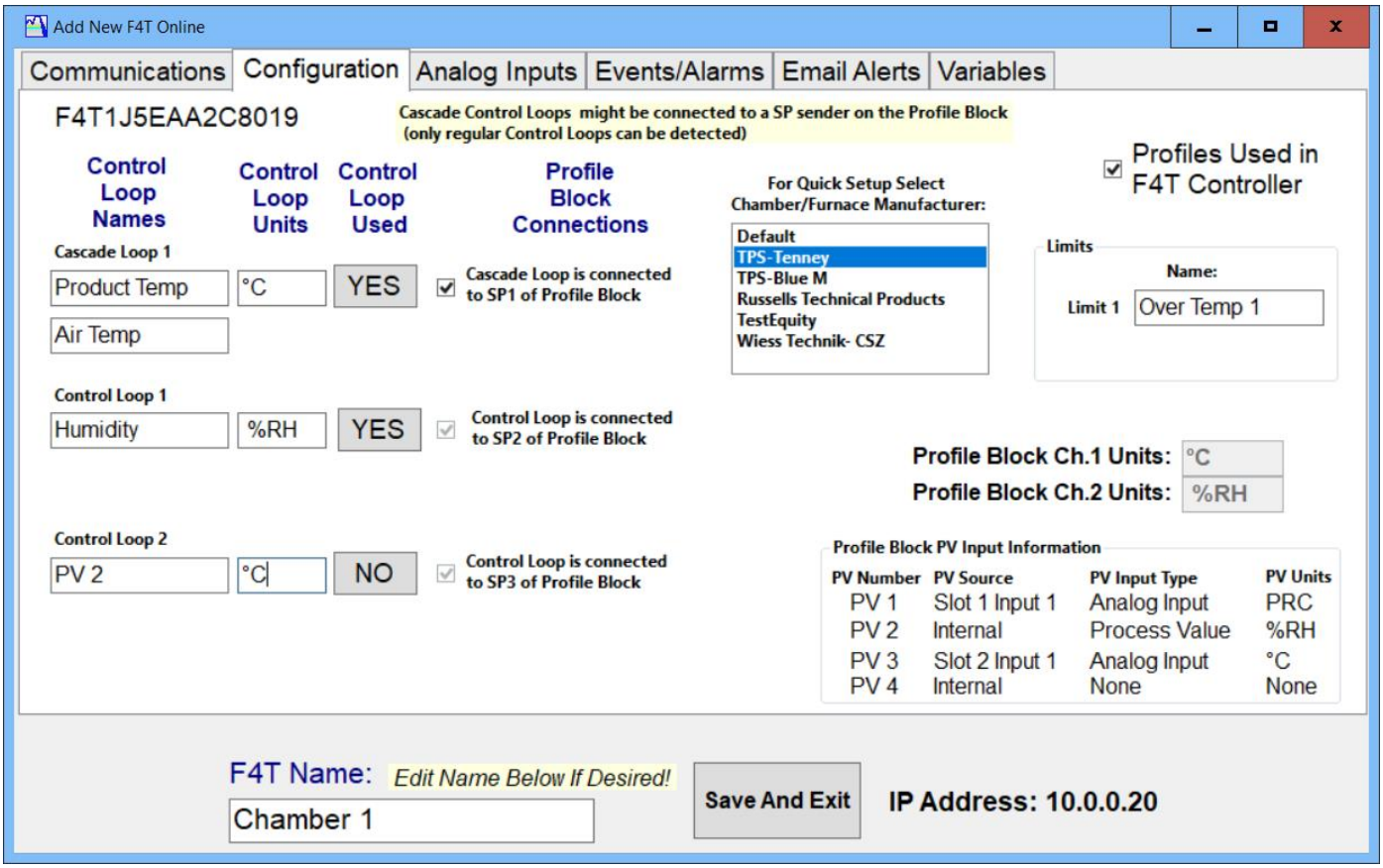

Setup Screen: Predefined manufacturers setups are included making setup very easy! Sensor inputs can be given custom names to make the interface more intuitive to the user. (TPS-Tenny shown selected above). No programming required!

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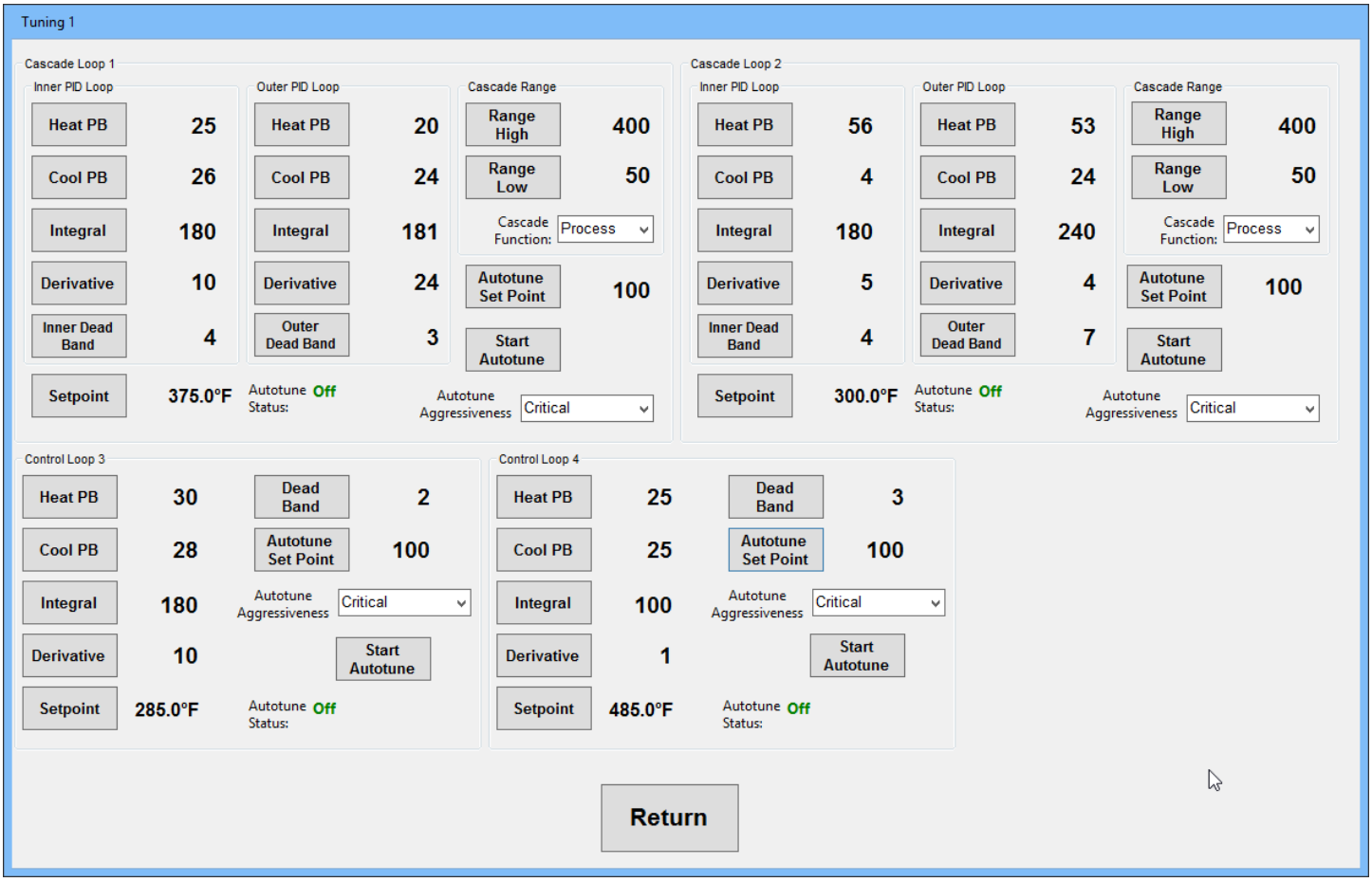

Tuning Screen: Easy tuning can be done from the tuning screen. Use the Auto Tuning function along with the real trend graph to finely tune your process!

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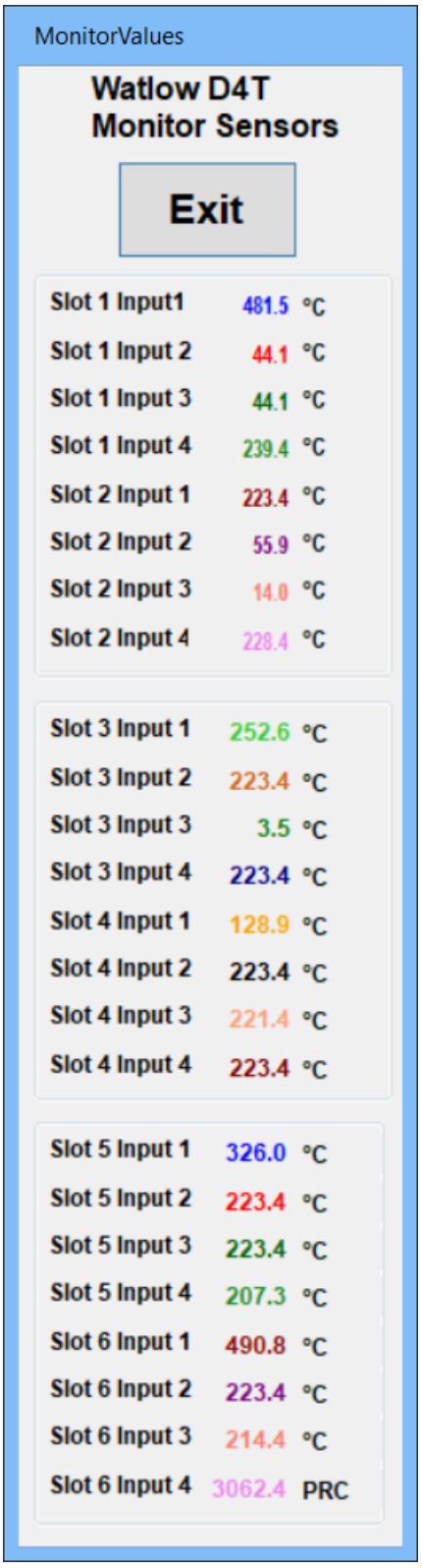
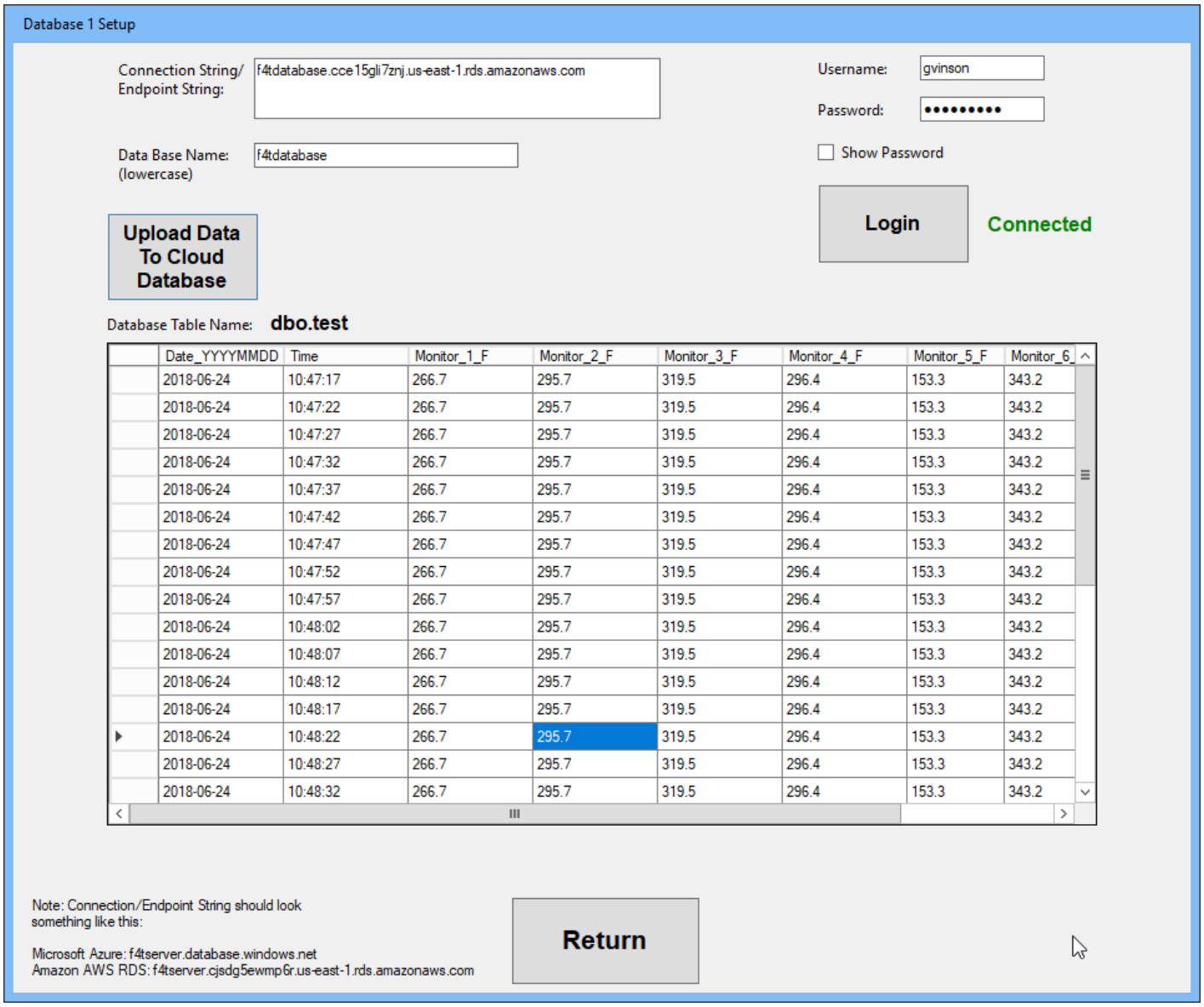
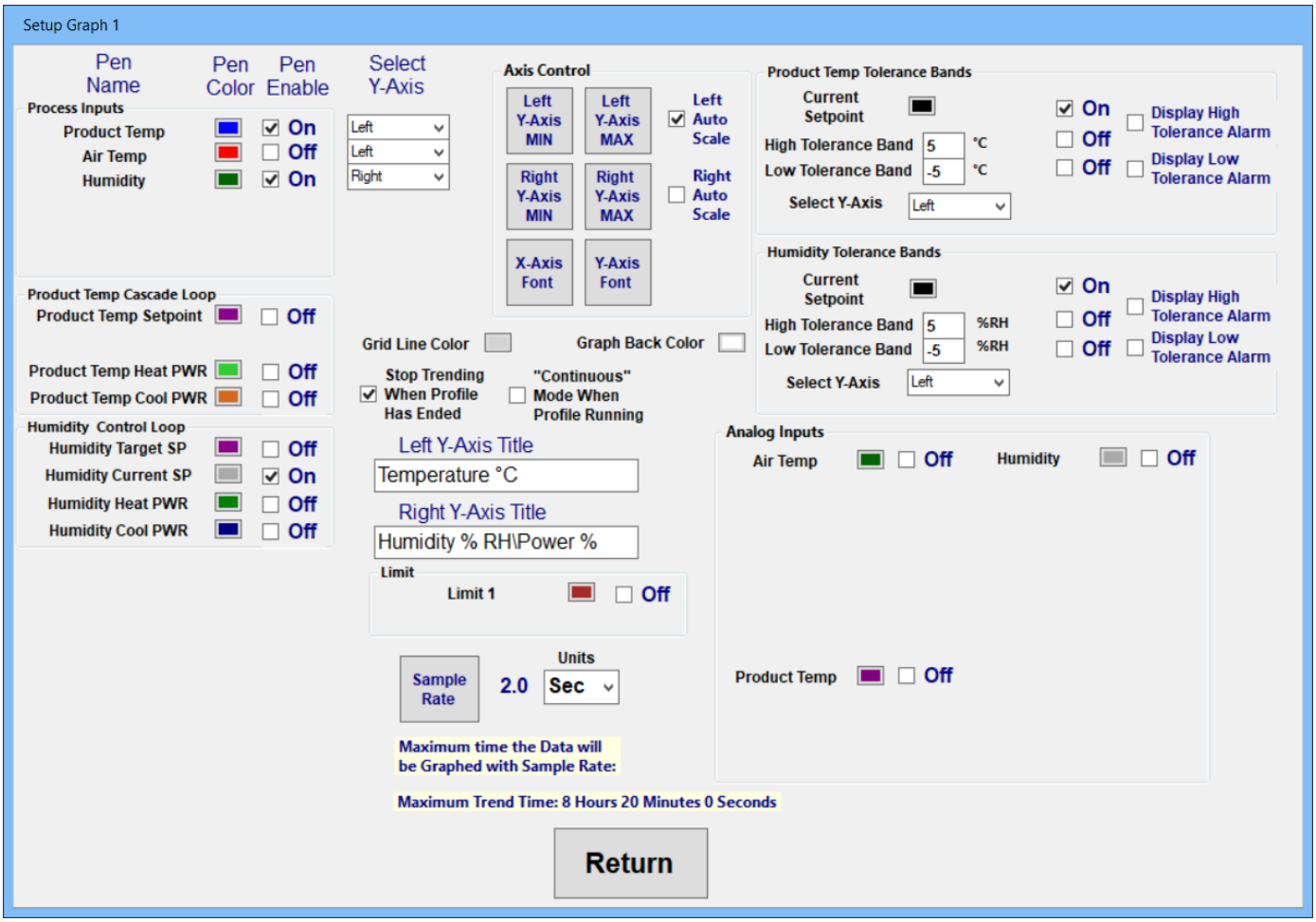


D4T Monitor Screen: 24 external sensors that can be data logged and viewed in the software. ProcessView supports an additional Watlow D4T that can be used to add up to 24 external sensors to a chamber or for a device under test.



Database Setup Screen: All logged parameters can be saved up to a Cloud Service such as Amazon AWS or Microsoft Azure with password security. Data is saved in SQL format for easy integration with Microsoft Access. Data can then be accessed by anyone with Security Credentials on the Cloud Database. Users must have an Amazon AWS or Microsoft Azure Cloud service in order to use this feature. Databases that are supported include Microsoft Azure, Amazon AWS, Microsoft SQL Server and Microsoft Access.



Graph Setup Screen: The Graph Setup screen allows the User to choose what paramters will be trended on the real-time graph. The user can choose the color of the trend as if tolerance bands should be graphed along with the current setpoint.

Process Values such as humidity or temperature can be displayed in customizable font sizes and colors for easy viewing at large distances: