

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).

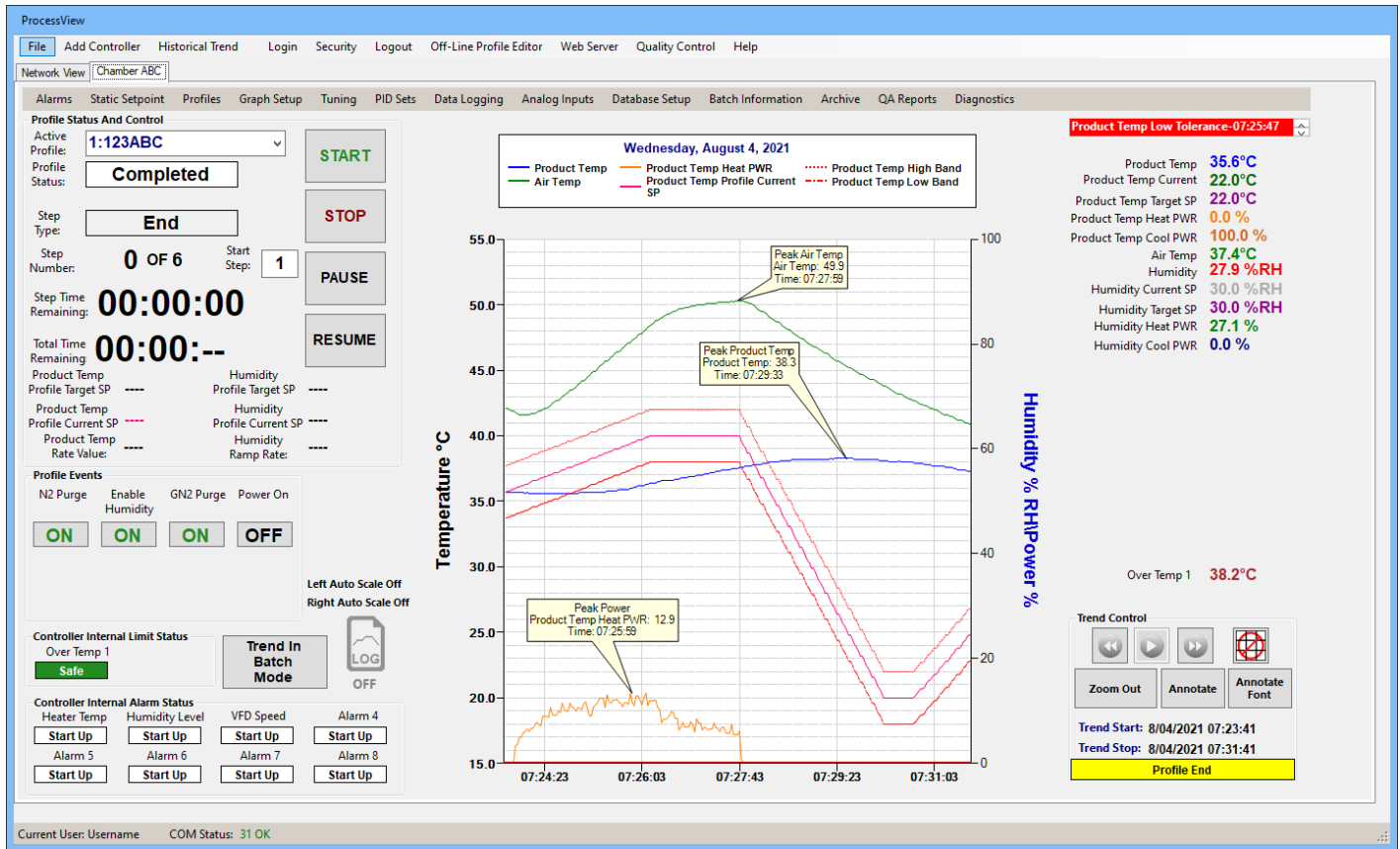
ProcessView supports both Ethernet and RS-485 networks simultaneously!

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!

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



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.

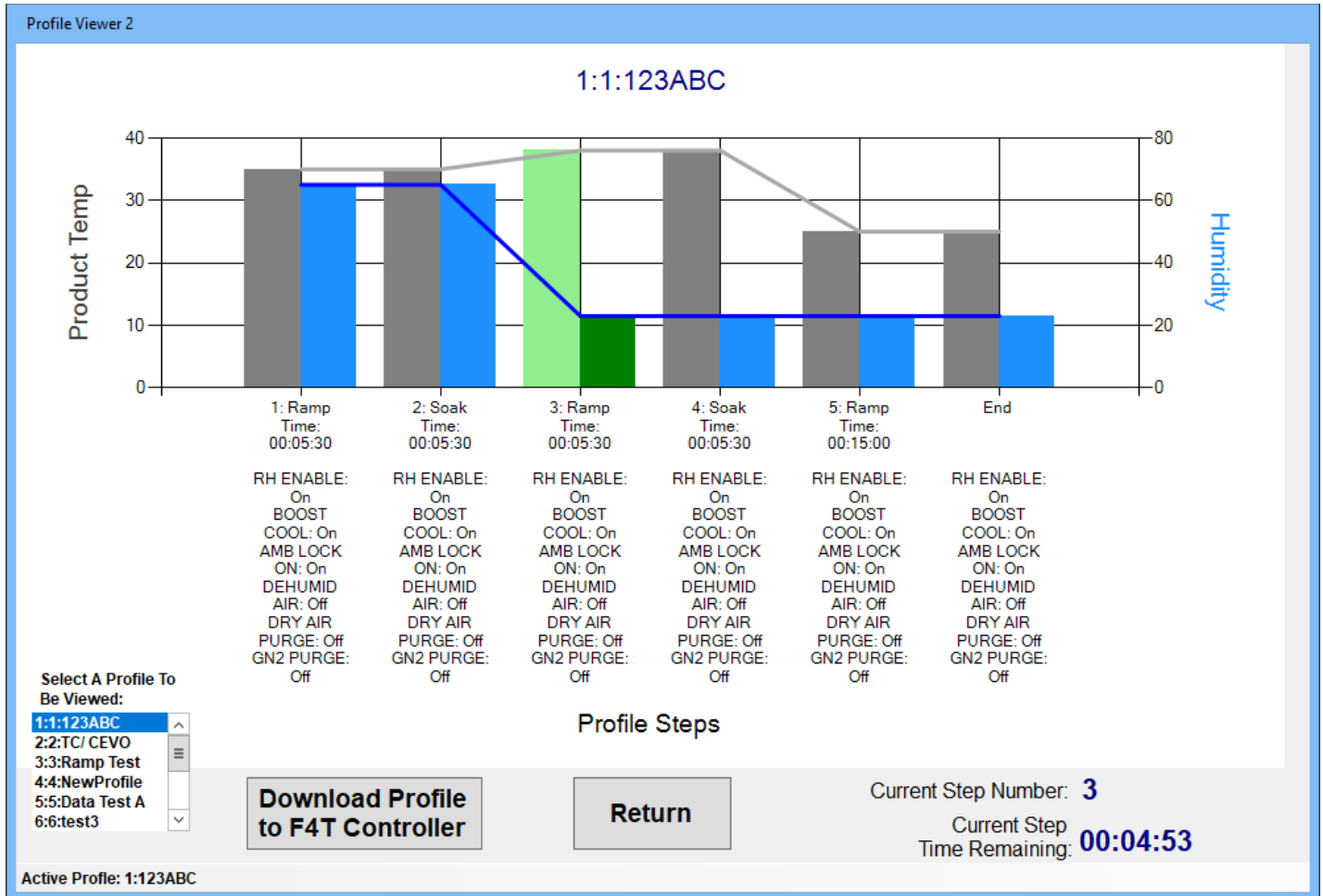
F4T Name	Alarm State	Active Profile	Profile Status	Current Step	Step Number	Step Time Remaining	Total Time Remaining	IP Address
Chamber 1	Startup	Product ABC	Running	Soak	4	02:12:45	08:22	192.168.0.
Chamber 2	Safe	Test Profile ABC	Running	Ramp Time	8	03:55:35	06:51	192.168.0.
Chamber 3	Safe	Demo Profile	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.

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

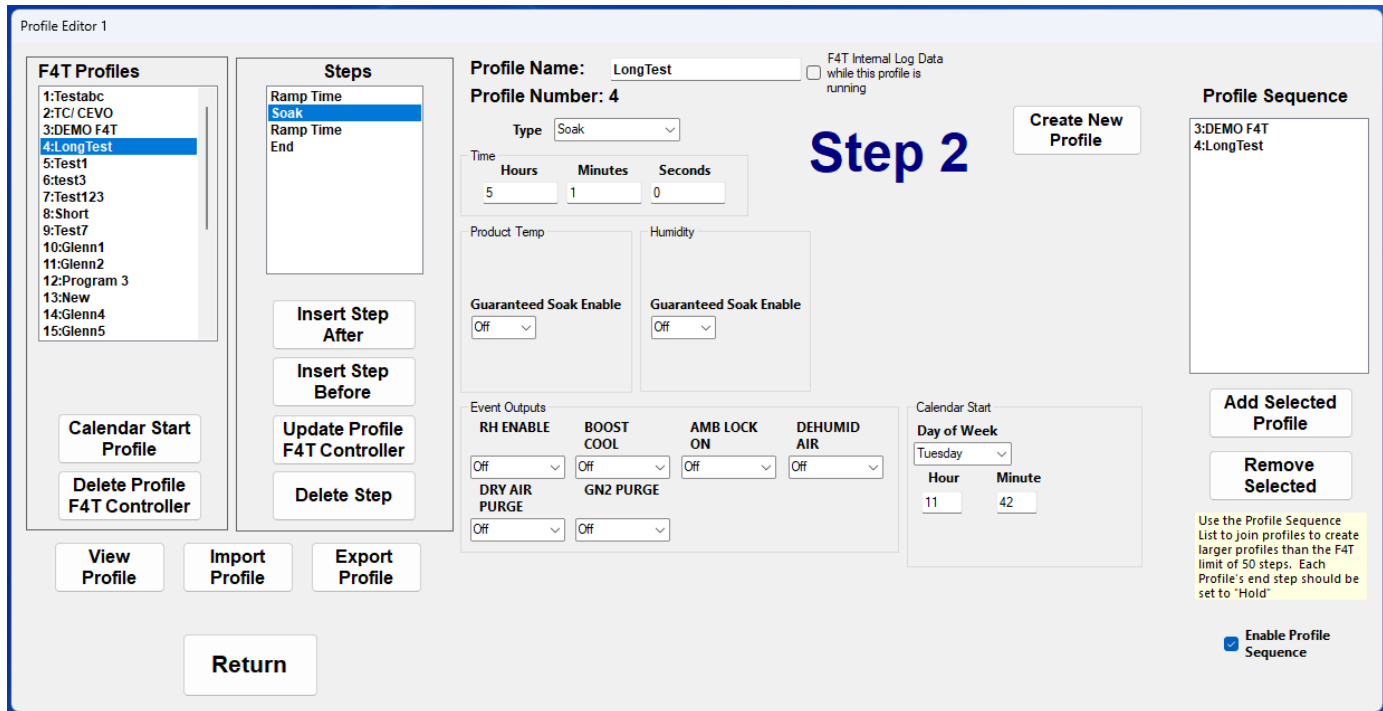
- User notes can be added while the data is being logged or after a Profile/Batch has been completed
- Trend Plots can be archived via hard copy printer or PDF files for Quality Control requirements
- Dedicated Tuning Screen aids in Tuning PID Control Loops
- Multiple Guaranteed Soak Timers can be used for multiple parts in an oven or chamber
- 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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F4T/D4T, Legacy F4 and EZ-Zone® PM Controllers





The screenshot shows the 'Profile Editor 1' window. On the left, there is a list of 'F4T Profiles' with '4:LongTest' selected. Below this list are buttons for 'Calendar Start Profile', 'Delete Profile F4T Controller', 'View Profile', 'Import Profile', and 'Export Profile'. In the center, the 'Steps' list shows 'Ramp Time', 'Soak', 'Ramp Time', and 'End', with 'Soak' selected. Below the steps are buttons for 'Insert Step After', 'Insert Step Before', 'Update Profile F4T Controller', and 'Delete Step'. The main area displays 'Profile Name: LongTest', 'Profile Number: 4', and 'Type: Soak'. It includes a 'Time' section with 'Hours: 5', 'Minutes: 1', and 'Seconds: 0'. There are also sections for 'Product Temp', 'Humidity', and 'Guaranteed Soak Enable' (both set to 'Off'). The 'Event Outputs' section includes 'RH ENABLE', 'BOOST COOL', 'AMB LOCK ON', 'DEHUMID AIR', 'DRY AIR PURGE', and 'GN2 PURGE', all set to 'Off'. A 'Calendar Start' section shows 'Day of Week: Tuesday' and 'Hour: 11', 'Minute: 42'. On the right, the 'Profile Sequence' list contains '3:DEMO F4T' and '4:LongTest'. Below this are buttons for 'Add Selected Profile' and 'Remove Selected'. A note states: 'Use the Profile Sequence List to join profiles to create larger profiles than the F4T limit of 50 steps. Each Profile's end step should be set to 'Hold''. At the bottom right, there is a checked checkbox for 'Enable Profile Sequence' and a 'Return' button at the bottom center.

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

Setup Data Logging 2

Data To Log | Log File Name/Location | Start/Stop Automation

Data Log Interval: 5.0 Sec

Login User Name
 Active Profile

Profile Data
 Product Temp Target SP
 Product Temp Current SP
 Humidity Target SP
 Humidity Current SP
 Step Number
 Step Type
 Profile Status

Event Outputs
 RH ENABLE
 BOOST COOL
 AMB LOCK ON
 DEHUMID AIR
 DRY AIR PURGE
 GN2 PURGE

Units: 5.0 Sec

Product Temp
 Target SP
 Current SP
 Air Temp
 Product Temp
 Heat PWR
 Cool PWR

Humidity
 Target SP
 Current SP
 Humidity
 Heat PWR
 Cool PWR

Over Temp 1 Data
 Over Temp 1 Status
 Over Temp 1
 Over Temp 1 High SP
 Over Temp 1 Low SP

Alarms 3-4
 Humidity Status
 Humidity High SP
 Humidity Low SP

Batch Info
 Load Operator ID
 Unload Operator ID
 Product ID 1
 Product ID 2
 Batch ID

Tolerance
 High Tolerance 1
 Low Tolerance 1
 High Tolerance 2
 Low Tolerance 2

Event Output Data Enable
Event 3

Analog Inputs
 Air Temp
 Humidity
 Slot 4 Limit 1
 Product Temp

Save and Exit

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.



Home: Profile Status		Process Data					
<i>ProcessView Web Server</i>							
<i>Process Data</i>							
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

Server Information

SMTP Server Information

Email Address:

Password:

SMTP:

Example: Email Adress: Joe@gmail.com
Password: Password1
SMTP: smtp.gmail.com

This Computer's IP Address: 192.168.1.137

Email Information

Email Address:

Subject:

Internet Connection Status :

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.

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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.

ProcessView Client
Configuration Help Exit

Network Controllers
Select To Change:

Active Controller:

Profile List Stored In Controller
Select to Change:

Active Profile:

Profile information

Start Profile Status: Completed

Stop Step #:

Pause Step Type:

Resume Step Time:

Total Time:

ProcessView Client Software Version: 1.09

Process Data

Product Temp PV: <input type="text" value="24°C"/>	Heat PWR: <input type="text" value="0 %"/>	Over Temp 1 PV: <input type="text" value="25°C"/>
Product Temp SP: <input type="text" value="21°C"/>	Cool PWR: <input type="text" value="100 %"/>	Over Temp 1 Status: Safe
Humidity PV: <input type="text" value="32 %RH"/>	Heat PWR: <input type="text" value="0 %"/>	Temperature Status: Safe
Humidity SP: <input type="text" value="29 %RH"/>	Cool PWR: <input type="text" value="100 %"/>	Over Temp Status: Start Up

Event Outputs

Batch Information

Operator ID: N/A
Unload Operator ID: N/A
Product ID 1: N/A
Product ID 2: N/A
Batch ID: N/A

Analog Inputs

Air Temp	<input type="text" value="24.00"/>	<input type="text" value="°C"/>
N/A	Not Used	N/A
N/A	Not Used	N/A
N/A	Not Used	N/A
Humidity	<input type="text" value="32.00"/>	<input type="text" value="PRC"/>
N/A	Not Used	N/A
N/A	Not Used	N/A
N/A	Not Used	N/A
N/A	76.40	N/A
N/A	Not Used	N/A
N/A	Not Used	N/A
N/A	Not Used	N/A
Slot 4 Input 1	<input type="text" value="25.00"/>	<input type="text" value="°C"/>
N/A	Not Used	N/A
N/A	Not Used	N/A
N/A	Not Used	N/A
Product Temp	<input type="text" value="24.00"/>	<input type="text" value="PRC"/>
N/A	80.34	N/A
N/A	75.34	N/A
N/A	0.00	N/A
N/A	Not Used	N/A
N/A	Not Used	N/A
N/A	Not Used	N/A
N/A	Not Used	N/A

Refresh Data

Connect to Server

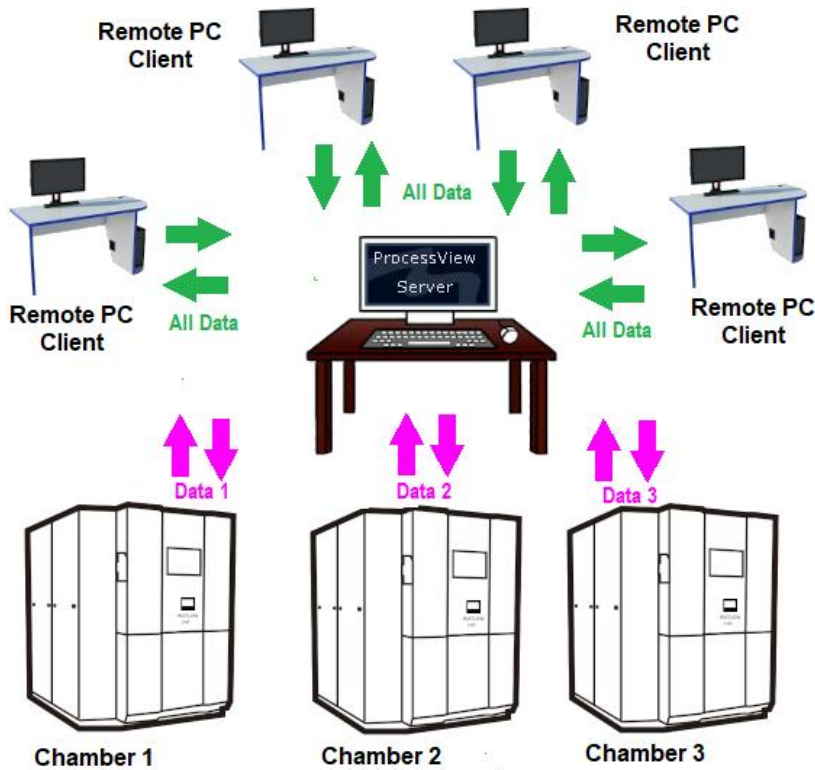
Connection Opened

Connected to Server
Client ID#: 37473

ProcessView Client On-line

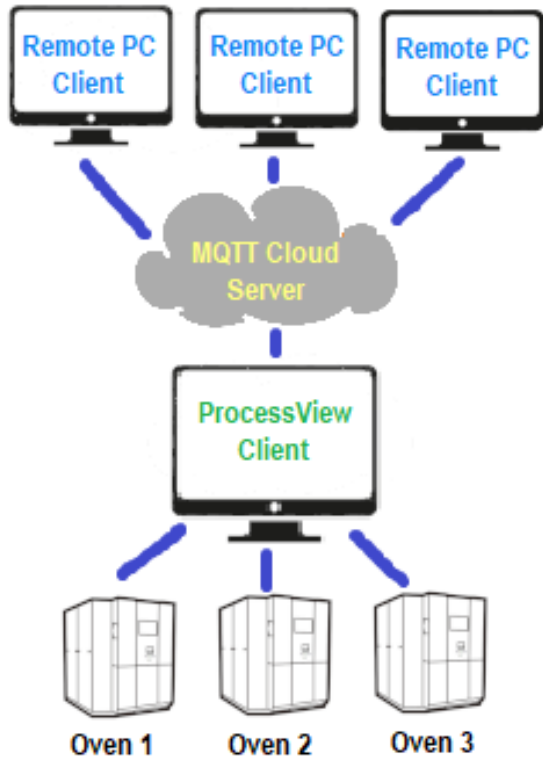
Below is a diagram for using the Remote PC Client, ProcessView Server and ProcessView Client for remote users:

Industry 4.0 - Internet of Things Technology Multiple Network Users Supported!



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:

Industry 4.0 - Internet of Things



View Data 1
— □ ×

Data Log File Viewer

Load Data Log File
Start Data Logging
End Data Logging

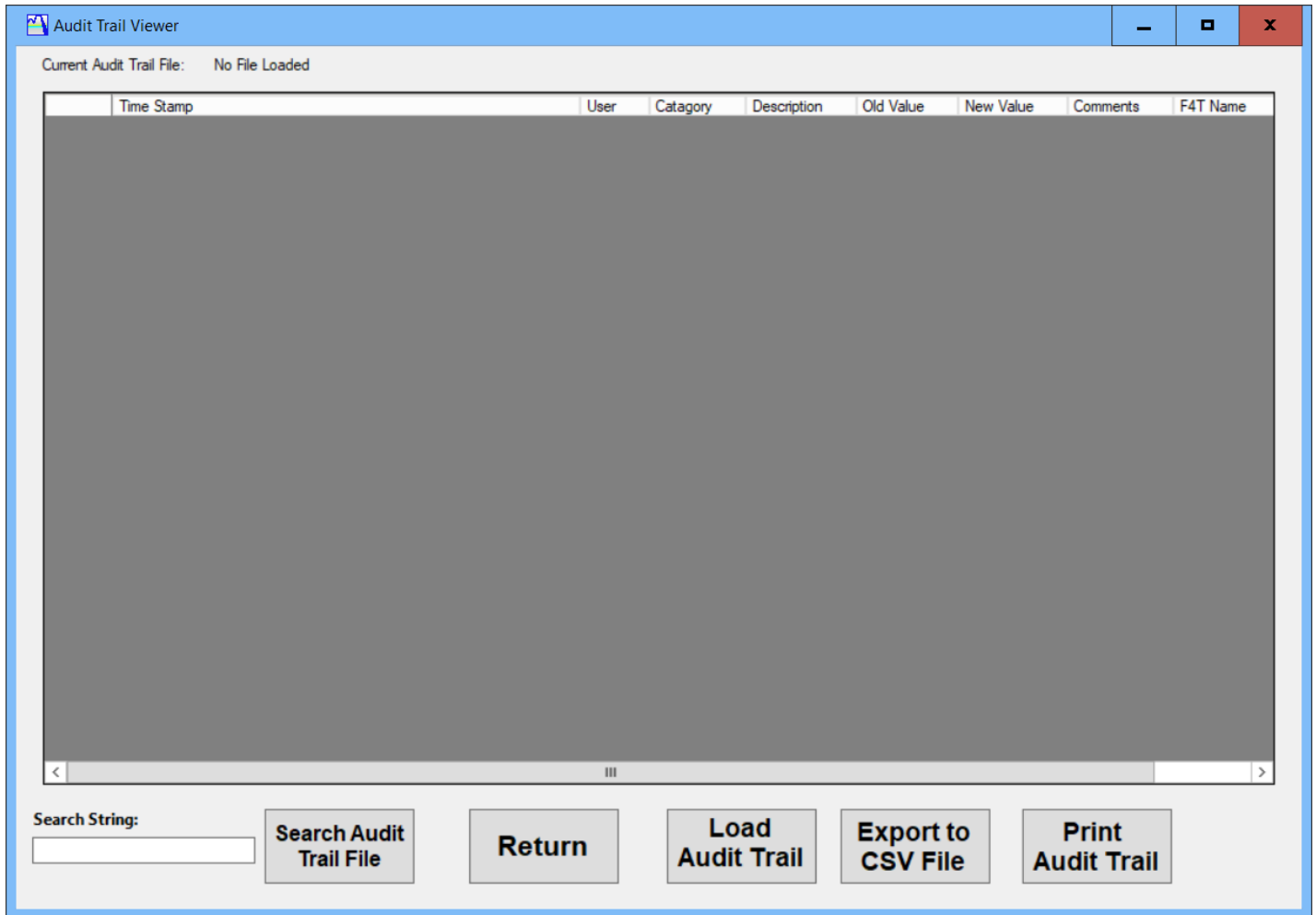
Data Log File: D:\Data\VB Source\Versions\F4T 4.01\April 14 173021 Chamber 1.csv

	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	

Enter Text To Be Added To Data Log File Here

Enter Note to Data Log File
Return
Add Electronic Signature
Graph Data

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.



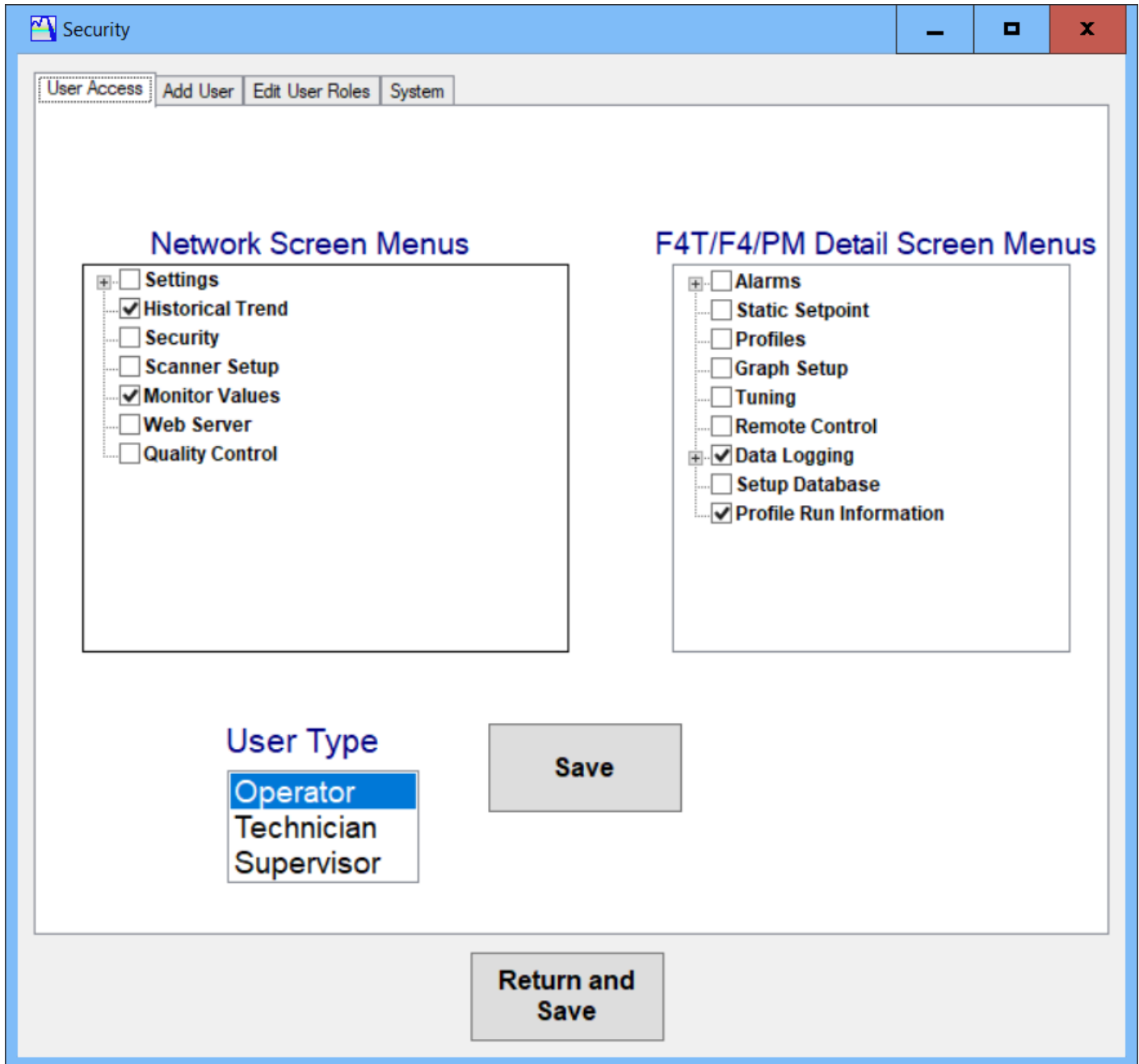
Audit Trail Viewer: All audit trail entries can be viewed with the audit trail viewer screen. Each audit trail entry is time stamped and answer the “How”, “Why”, “Who”, “When” for the change. Audit trails are encrypted and can be printed or exported for auditor inspections in a readable CSV format.

Software Alarms 1

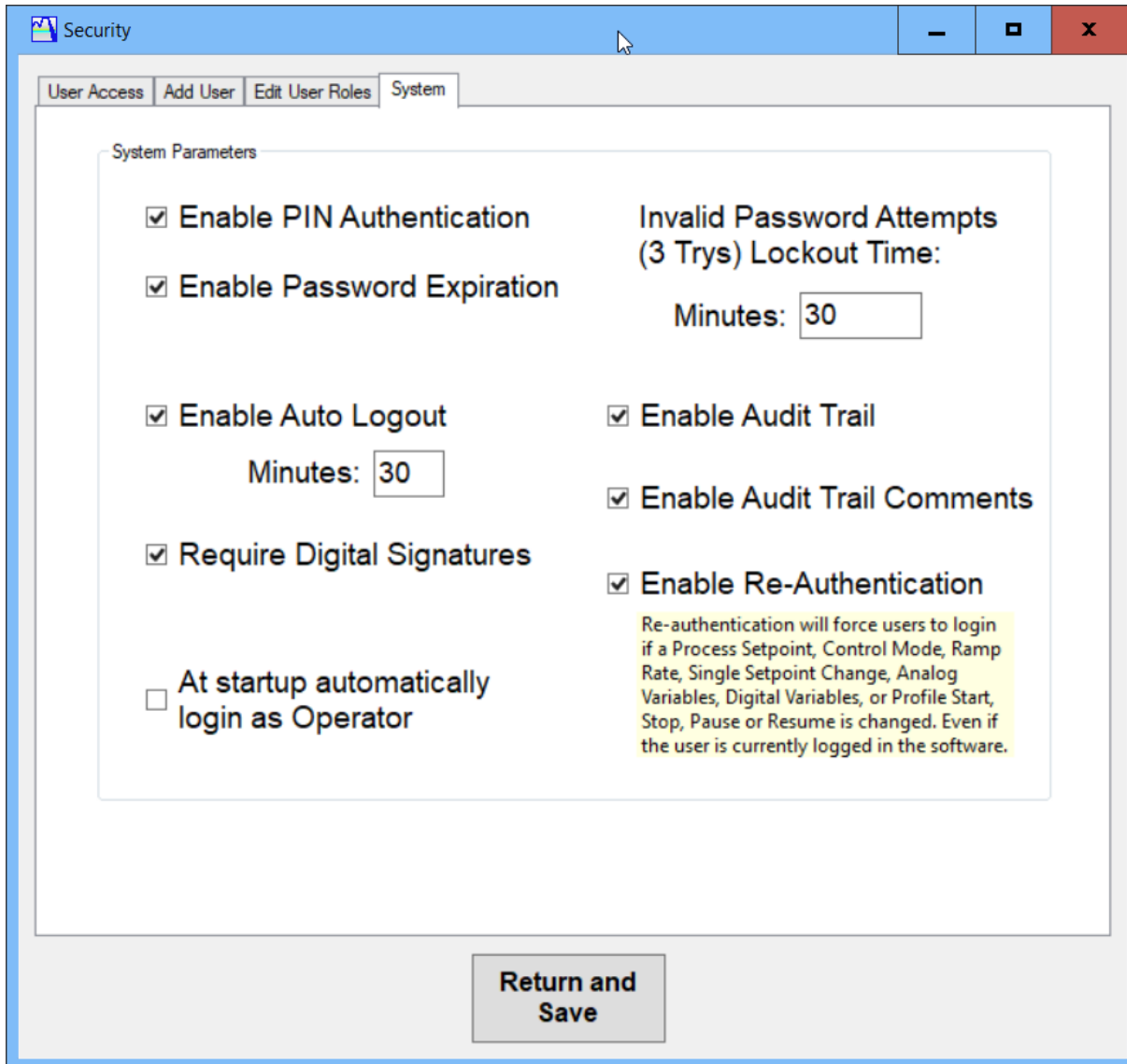
Air Temp <input checked="" type="checkbox"/> Enable High Alarm High Alarm <input checked="" type="checkbox"/> Enable Low Alarm <input checked="" type="checkbox"/> Audible Alarm Enable Process High Limit Value: 10 Process Low Limit Value: 0 Alarm Silence Reset Alarm	Zone 5 <input type="checkbox"/> Enable High Alarm <input type="checkbox"/> Enable Low Alarm <input type="checkbox"/> Audible Alarm Enable Process High Limit Value: 1000 Process Low Limit Value: 0 Alarm Silence Reset Alarm
Humidity <input checked="" type="checkbox"/> Enable High Alarm <input type="checkbox"/> Enable Low Alarm <input checked="" type="checkbox"/> Audible Alarm Enable Process High Limit Value: 85 Process Low Limit Value: 0 Alarm Silence Reset Alarm	Zone 6 <input type="checkbox"/> Enable High Alarm <input type="checkbox"/> Enable Low Alarm <input type="checkbox"/> Audible Alarm Enable Process High Limit Value: 1000 Process Low Limit Value: 0 Alarm Silence Reset Alarm
Part Temp <input checked="" type="checkbox"/> Enable High Alarm <input checked="" type="checkbox"/> Enable Low Alarm Low Alarm <input checked="" type="checkbox"/> Audible Alarm Enable Process High Limit Value: 356 Process Low Limit Value: 50 Alarm Silence Reset Alarm	Zone 7 <input type="checkbox"/> Enable High Alarm <input type="checkbox"/> Enable Low Alarm <input type="checkbox"/> Audible Alarm Enable Process High Limit Value: 1000 Process Low Limit Value: 0 Alarm Silence Reset Alarm
Zone 4 <input type="checkbox"/> Enable High Alarm <input type="checkbox"/> Enable Low Alarm <input type="checkbox"/> Audible Alarm Enable Process High Limit Value: 1000 Process Low Limit Value: 0 Alarm Silence Reset Alarm	Zone 8 <input type="checkbox"/> Enable High Alarm <input type="checkbox"/> Enable Low Alarm <input type="checkbox"/> Audible Alarm Enable Process High Limit Value: 1000 Process Low Limit Value: 0 Alarm Silence Reset Alarm

Update Alarm Settings **Return**

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.



The screenshot shows a software window titled "Security" with a tabbed interface. The "System" tab is selected, showing "System Parameters". The parameters are as follows:

Parameter	Value / Status
Enable PIN Authentication	Checked
Enable Password Expiration	Checked
Invalid Password Attempts (3 Trys) Lockout Time: Minutes	30
Enable Auto Logout	Checked
Minutes	30
Require Digital Signatures	Checked
At startup automatically login as Operator	Unchecked
Enable Audit Trail	Checked
Enable Audit Trail Comments	Checked
Enable Re-Authentication	Checked

Re-authentication will force users to login if a Process Setpoint, Control Mode, Ramp Rate, Single Setpoint Change, Analog Variables, Digital Variables, or Profile Start, Stop, Pause or Resume is changed. Even if the user is currently logged in the software.

Return and Save

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

Control 1

Cascade Loop 1		Cascade Loop 2	
Setpoint	481.0°F	Setpoint	245.0°F
Zone 1	481.5°F	Zone 3	252.6°F
Heat Power %	23.6 %	Heat Power %	26.7 %
Cool Power %	0.0 %	Cool Power %	0.0 %
AUTO	MANUAL	OFF	OFF
Current Control Mode	Auto	Current Control Mode	Auto
Zone 2	223.4°F	Zone 4	128.9°F
<input type="checkbox"/> Simple Setpoint Enable		<input type="checkbox"/> Simple Setpoint Enable	

Control Loop 3		Control Loop 4	
Setpoint	326.0°F	Setpoint	490.0°F
Zone 5	326.0°F	Zone 6	490.8°F
Heat Power %	25.6 %	Heat Power %	13.8 %
Cool Power %	0.0 %	Cool Power %	0.0 %
AUTO	MANUAL	OFF	OFF
Current Control Mode	Auto	Current Control Mode	Auto

Return

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.

Scanner Setup 3

Batch Data	Enable	Required	Parameters A	Enable	Required	Parameters B	Enable	Required	Parameters C	Enable	Required	Parameters D	Enable	Required
Load Operator:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter A1:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter B1:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter C1:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter D1:	<input type="checkbox"/>	<input type="checkbox"/>
Unload Operator:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter A2:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter B2:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter C2:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter D2:	<input type="checkbox"/>	<input type="checkbox"/>
Parameter 0:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter A3:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter B3:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter C3:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter D3:	<input type="checkbox"/>	<input type="checkbox"/>
Parameter 1:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter A4:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter B4:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter C4:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter D4:	<input type="checkbox"/>	<input type="checkbox"/>
Parameter 2:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter A5:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter B5:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter C5:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter D5:	<input type="checkbox"/>	<input type="checkbox"/>
Parameter 3:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter A6:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter B6:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter C6:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter D6:	<input type="checkbox"/>	<input type="checkbox"/>
Parameter 4:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter A7:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter B7:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter C7:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter D7:	<input type="checkbox"/>	<input type="checkbox"/>
Parameter 5:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter A8:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter B8:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter C8:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter D8:	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	Parameter A9:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter B9:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter C9:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter D9:	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	Parameter A10:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter B10:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter C10:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter D10:	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	Parameter A11:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter B11:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter C11:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter D11:	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	Parameter A12:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter B12:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter C12:	<input type="checkbox"/>	<input type="checkbox"/>	Parameter D12:	<input type="checkbox"/>	<input type="checkbox"/>

Clear All Fields when Batch Input Window Loads

Enable All

Disable All

Save and Exit **Cancel**

Select the "Enable" Check Box to make the parameter visible in the Batch Input Window.

Select the "Required" Check Box if you want the software to check if the field has been filled out by an Operator before a profile is started and if not display a warning message to the Operator.

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.



Scanner/User Input 1

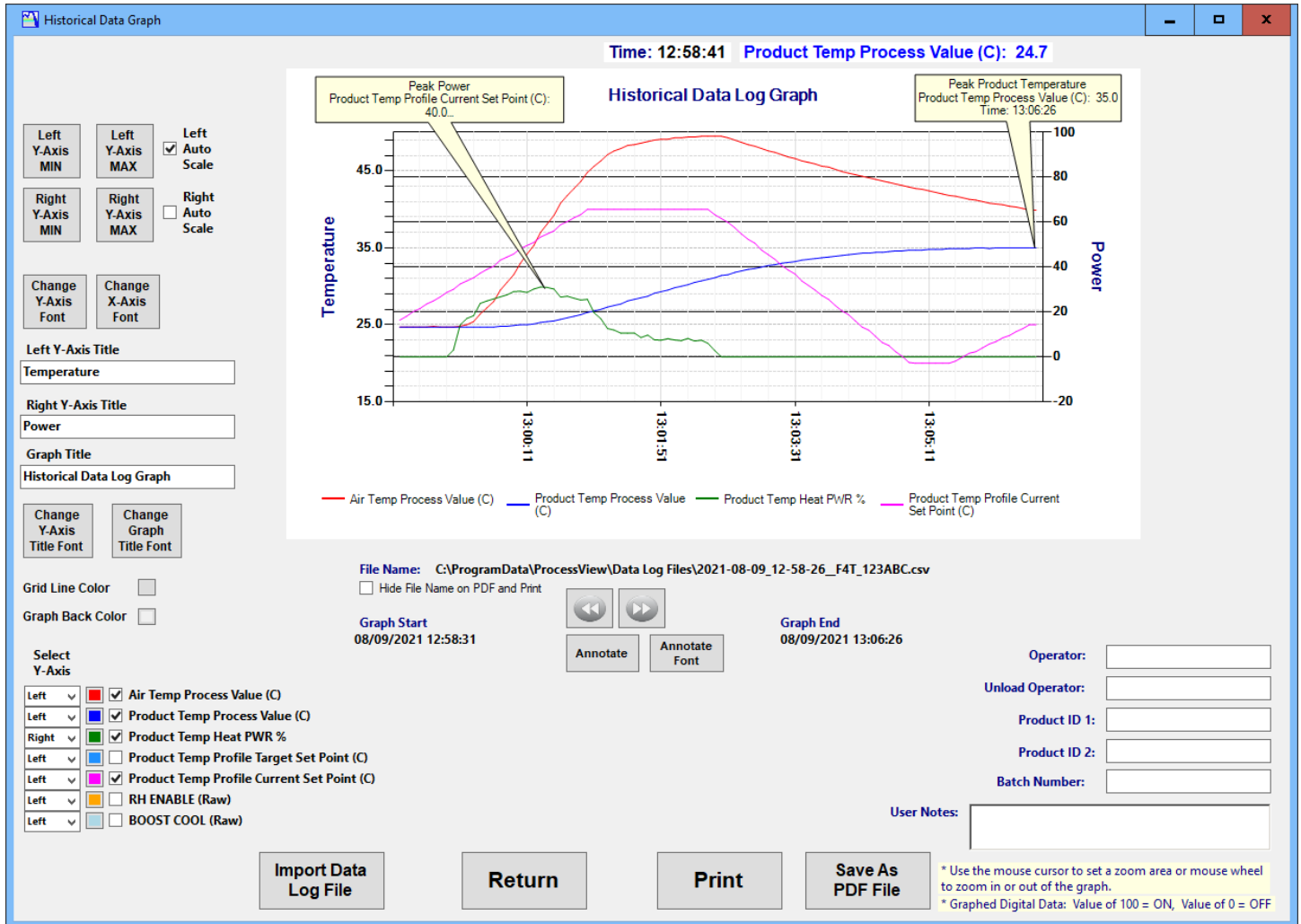
Batch Data	Batch Data Inputs	Shop Order	Shop Order Inputs	Shop Order	Shop Order Inputs
Load Operator:	Glenn	Shop Order #1:	1234	Shop Order #4:	5447
Unload Operator:	Joe	Part #:	12A	Part #:	45S
Batch ID:	ABC	Material:	304 SS	Material:	304 SS
		Qty:	5	Qty:	2
		Shop Order #2:	4567	Shop Order #5:	5493
		Part #:	13B	Part #:	12A
		Material:	304 SS	Material:	304 SS
		Qty:	6	Qty:	6
		Shop Order #3:	9876	Shop Order #6:	5403
		Part #:	15G	Part #:	33S
		Material:	304 SS	Material:	304 SS
		Qty:	7	Qty:	7

Profile to be Loaded:

User Notes:

Exit and Save **Clear All**

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.



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.

Add New F4T Online

Communications Configuration **Analog Inputs** Events/Alarms Email Alerts Variables

F4T1J5EAA2C8019 Cascade Control Loops might be connected to a SP sender on the Profile Block (only regular Control Loops can be detected)

Control Loop Names	Control Loop Units	Control Loop Used	Profile Block Connections
Cascade Loop 1			
Product Temp	°C	YES	<input checked="" type="checkbox"/> Cascade Loop is connected to SP1 of Profile Block
Air Temp			
Control Loop 1			
Humidity	%RH	YES	<input checked="" type="checkbox"/> Control Loop is connected to SP2 of Profile Block
Control Loop 2			
PV 2	°C	NO	<input checked="" type="checkbox"/> Control Loop is connected to SP3 of Profile Block

For Quick Setup Select Chamber/Furnace Manufacturer:

- Default
- TPS-Tenney**
- TPS-Blue M
- Russells Technical Products
- TestEquity
- Wiess Technik- CSZ

Profiles Used in F4T Controller

Limits

Name:

Limit 1

Profile Block Ch.1 Units:

Profile Block Ch.2 Units:

PV Number	PV Source	PV Input Type	PV Units
PV 1	Slot 1 Input 1	Analog Input	PRC
PV 2	Internal	Process Value	%RH
PV 3	Slot 2 Input 1	Analog Input	°C
PV 4	Internal	None	None

F4T Name: Edit Name Below If Desired!

IP Address: 10.0.0.20

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!

Tuning 1

Cascade Loop 1			Cascade Loop 2		
Inner PID Loop		Outer PID Loop	Inner PID Loop		Outer PID Loop
Heat PB	25	Heat PB 20	Heat PB	56	Heat PB 53
Cool PB	26	Cool PB 24	Cool PB	4	Cool PB 24
Integral	180	Integral 181	Integral	180	Integral 240
Derivative	10	Derivative 24	Derivative	5	Derivative 4
Inner Dead Band	4	Outer Dead Band 3	Inner Dead Band	4	Outer Dead Band 7
Setpoint 375.0°F		Autotune Off	Setpoint 300.0°F		Autotune Off
Autotune Status: Off		Autotune Aggressiveness: Critical	Autotune Status: Off		Autotune Aggressiveness: Critical
Autotune Set Point: 100		Start Autotune	Autotune Set Point: 100		Start Autotune
Cascade Range High: 400		Cascade Range Low: 50	Cascade Range High: 400		Cascade Range Low: 50
Cascade Function: Process			Cascade Function: Process		

Control Loop 3		Control Loop 4	
Heat PB	30	Heat PB	25
Cool PB	28	Cool PB	25
Integral	180	Integral	100
Derivative	10	Derivative	1
Setpoint	285.0°F	Setpoint	485.0°F
Autotune Status: Off	Autotune Aggressiveness: Critical	Autotune Status: Off	Autotune Aggressiveness: Critical
Autotune Set Point: 100	Start Autotune	Autotune Set Point: 100	Start Autotune
Dead Band: 2		Dead Band: 3	

Return

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!

MonitorValues

Watlow D4T Monitor Sensors

Exit

Slot 1 Input 1	481.5 °C
Slot 1 Input 2	44.1 °C
Slot 1 Input 3	44.1 °C
Slot 1 Input 4	239.4 °C
Slot 2 Input 1	223.4 °C
Slot 2 Input 2	55.9 °C
Slot 2 Input 3	14.0 °C
Slot 2 Input 4	228.4 °C
Slot 3 Input 1	252.6 °C
Slot 3 Input 2	223.4 °C
Slot 3 Input 3	3.5 °C
Slot 3 Input 4	223.4 °C
Slot 4 Input 1	128.9 °C
Slot 4 Input 2	223.4 °C
Slot 4 Input 3	221.4 °C
Slot 4 Input 4	223.4 °C
Slot 5 Input 1	326.0 °C
Slot 5 Input 2	223.4 °C
Slot 5 Input 3	223.4 °C
Slot 5 Input 4	207.3 °C
Slot 6 Input 1	490.8 °C
Slot 6 Input 2	223.4 °C
Slot 6 Input 3	214.4 °C
Slot 6 Input 4	3062.4 PRC

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 1 Setup

Connection String/
Endpoint String:

Data Base Name:
(lowercase)

Username:

Password:

Show Password

**Upload Data
To Cloud
Database**

Login Connected

Database Table Name: **dbo.test**

	Date_YYYYMMDD	Time	Monitor_1_F	Monitor_2_F	Monitor_3_F	Monitor_4_F	Monitor_5_F	Monitor_6_F
	2018-06-24	10:47:17	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:47:22	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:47:27	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:47:32	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:47:37	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:47:42	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:47:47	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:47:52	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:47:57	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:48:02	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:48:07	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:48:12	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:48:17	266.7	295.7	319.5	296.4	153.3	343.2
▶	2018-06-24	10:48:22	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:48:27	266.7	295.7	319.5	296.4	153.3	343.2
	2018-06-24	10:48:32	266.7	295.7	319.5	296.4	153.3	343.2

Note: Connection/Endpoint String should look something like this:

Microsoft Azure: f4tserver.database.windows.net
 Amazon AWS RDS: f4tserver.cjsgd5ewmpfr.us-east-1.rds.amazonaws.com

Return

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.

Setup Graph 1

Pen Name	Pen Color	Pen Enable	Select Y-Axis
Process Inputs			
Product Temp	<input type="checkbox"/> Blue	<input checked="" type="checkbox"/> On	Left
Air Temp	<input type="checkbox"/> Red	<input type="checkbox"/> Off	Left
Humidity	<input type="checkbox"/> Green	<input checked="" type="checkbox"/> On	Right

Product Temp Cascade Loop

Product Temp Setpoint Off

Product Temp Heat PWR Off

Product Temp Cool PWR Off

Humidity Control Loop

Humidity Target SP Off

Humidity Current SP On

Humidity Heat PWR Off

Humidity Cool PWR Off

Axis Control

Left Y-Axis MIN Left Y-Axis MAX Left Auto Scale

Right Y-Axis MIN Right Y-Axis MAX Right Auto Scale

X-Axis Font Y-Axis Font

Grid Line Color Graph Back Color

Stop Trending When Profile Has Ended "Continuous" Mode When Profile Running

Left Y-Axis Title: Temperature °C

Right Y-Axis Title: Humidity % RH Power %

Limit: Limit 1 Off

Sample Rate: 2.0 Sec

Units: Sec

Maximum time the Data will be Graphed with Sample Rate: Maximum Trend Time: 8 Hours 20 Minutes 0 Seconds

Return

Product Temp Tolerance Bands

Current Setpoint On Display High Tolerance Alarm Display Low Tolerance Alarm

High Tolerance Band: 5 °C

Low Tolerance Band: -5 °C

Select Y-Axis: Left

Humidity Tolerance Bands

Current Setpoint On Display High Tolerance Alarm Display Low Tolerance Alarm

High Tolerance Band: 5 %RH

Low Tolerance Band: -5 %RH

Select Y-Axis: Left

Analog Inputs

Air Temp Off Humidity Off

Product Temp Off

Graph Setup Screen: The Graph Setup screen allows the User to choose what parameters 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.

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



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

The screenshot displays the ProcessView software interface. At the top, there is a menu bar with options: File, Add Controller, Historical Trend, Login, Security, Logout, Off-Line Profile Editor, Web Server, Quality Control, Remote PC, and Help. Below the menu bar, there is a network view section with tabs for F4 Chamber 1, F4T Chamber 2, F4 Chamber 3, F4T Chamber 4, and F4T Chamber 5. The main area features a table with the following data:

Name	Active Profile	Profile Status	Current Step	Step Number	Step Time Remaining	Total Time Remaining	Network Address	Communications Enabled
F4 Chamber 1	4:HIGSSTHOP	Running	Soak	4	00:02:16	NA	Slave #: 2	<input checked="" type="checkbox"/>
F4T Chamber 2	1:123ABC	Terminated	End	0	00:00:00	04:38:--	10.0.0.31	<input checked="" type="checkbox"/>
F4 Chamber 3	1:TEST8	Completed	Ramp Time	0	00:00:00	NA	Slave #: 3	<input checked="" type="checkbox"/>
F4T Chamber 4	1:PrintTest	Terminated	Ramp Time	0	00:00:00	00:03:--	10.0.0.42	<input checked="" type="checkbox"/>
F4T Chamber 5	1:Test	Terminated	Ramp Time	0	00:00:00	00:01:--	10.0.0.20	<input checked="" type="checkbox"/>

Below the table, there are three panels showing analog inputs for different chambers:

- F4T Chamber 2 Analog Inputs:** Air Temp 22.57 °C, Product Temp 22.46 °C, Humidity 32.00 %RH.
- F4T Chamber 4 Analog Inputs:** Air Temp 73.14.
- F4T Chamber 5 Analog Inputs:** Temperature 24.79.

The bottom status bar shows: Version: 6.48, Current User: System Manager, COM Status: COM3 OK, 31 OK, 42 OK, 20 OK.

Multiple Guaranteed Soak Timers can be started for loading multiple parts in an oven or chamber and a quality report can be generated for record keeping:

Chamber 1 Soak Timers Status

Current Temperature: 27.0°C

Setpoint: 27°C Deviation: ±5°C

Export PDF
Clear Timer History

Add New Part

Operator ID	<input type="text"/>	Set Soak Time:		
Job Number	<input type="text"/>	Hours	Minutes	Seconds
Part Number	<input type="text"/>	1	30	0
Serial Number	<input type="text"/>	Start Timer		

Active Timers

Job: ABC **Status: Timer Running**

Part: 123 13.6%

SN #: 555-444 Time Remaining: **1h 17m 46s** Elapsed: 00:12:15

Operator: Joe

Pause
Stop
i

Job: 345 **Status: Timer Running**

Part: 678 13.1%

SN #: 333 Time Remaining: **1h 18m 13s** Elapsed: 00:11:48

Operator: Joe

Pause
Stop
i

Job: 555 **Status: Timer Running**

Part: 12345 12.6%

SN #: 6669999 Time Remaining: **1h 18m 41s** Elapsed: 00:11:20

Operator: Glenn

Pause
Stop
i

Job: 666 **Status: Timer Running**

Part: 1256 11.8%

SN #: a4445 Time Remaining: **1h 19m 24s** Elapsed: 00:10:37

Operator: Glenn

Pause
Stop
i

www.chamberdatahub.com

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