

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).

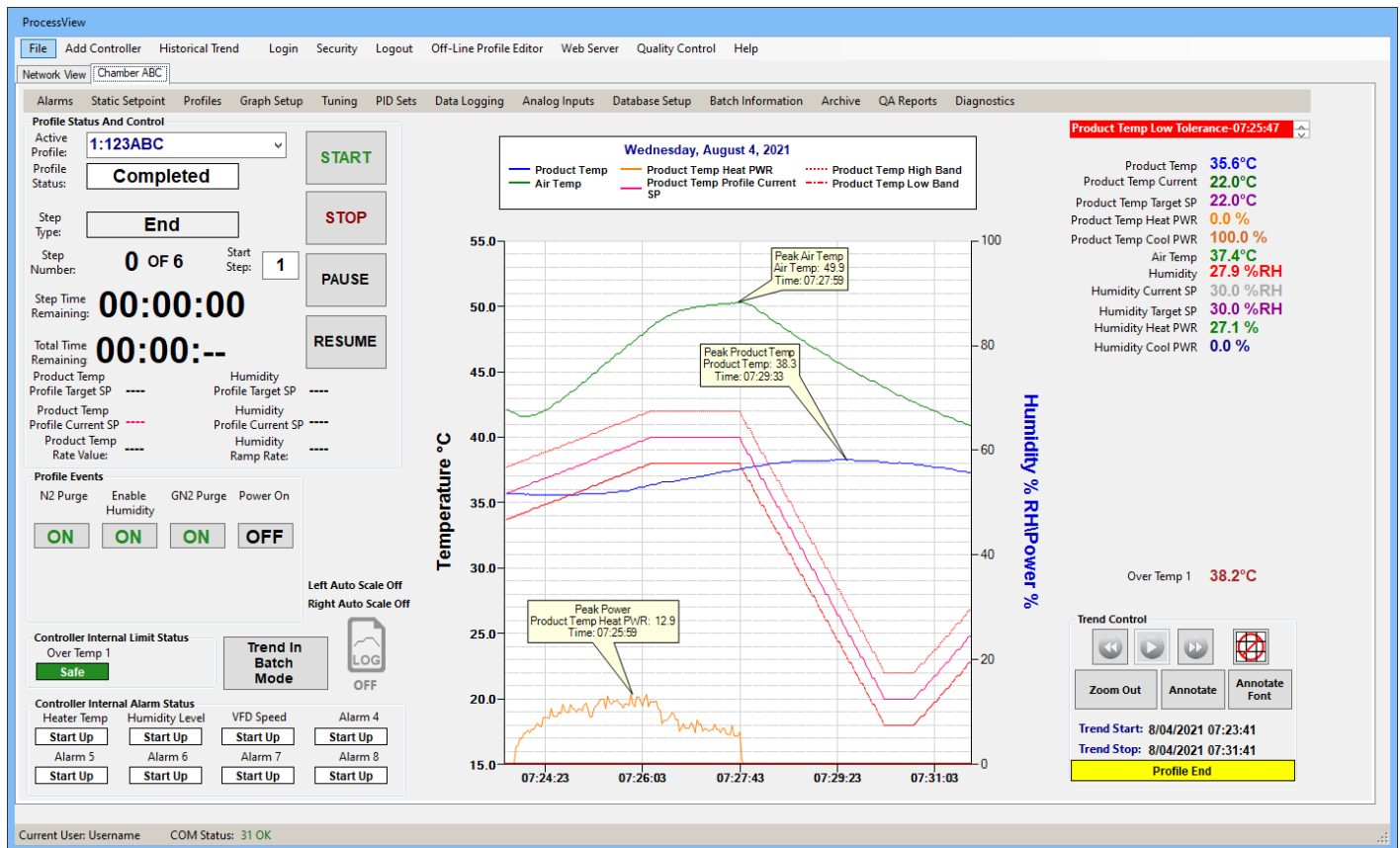
ProcessView supports both Ethernet and RS-485 networks simultaneously!

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 Profile Utility									
File Settings Historical Trend Help									
Network View Chamber 1 Chamber 2 Chamber 3 Chamber 4 Chamber 5 Chamber 6 Chamber 7 Chamber 8 Chamber 9 Chamber 10 Chamber 11 Chamber 12									
	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.

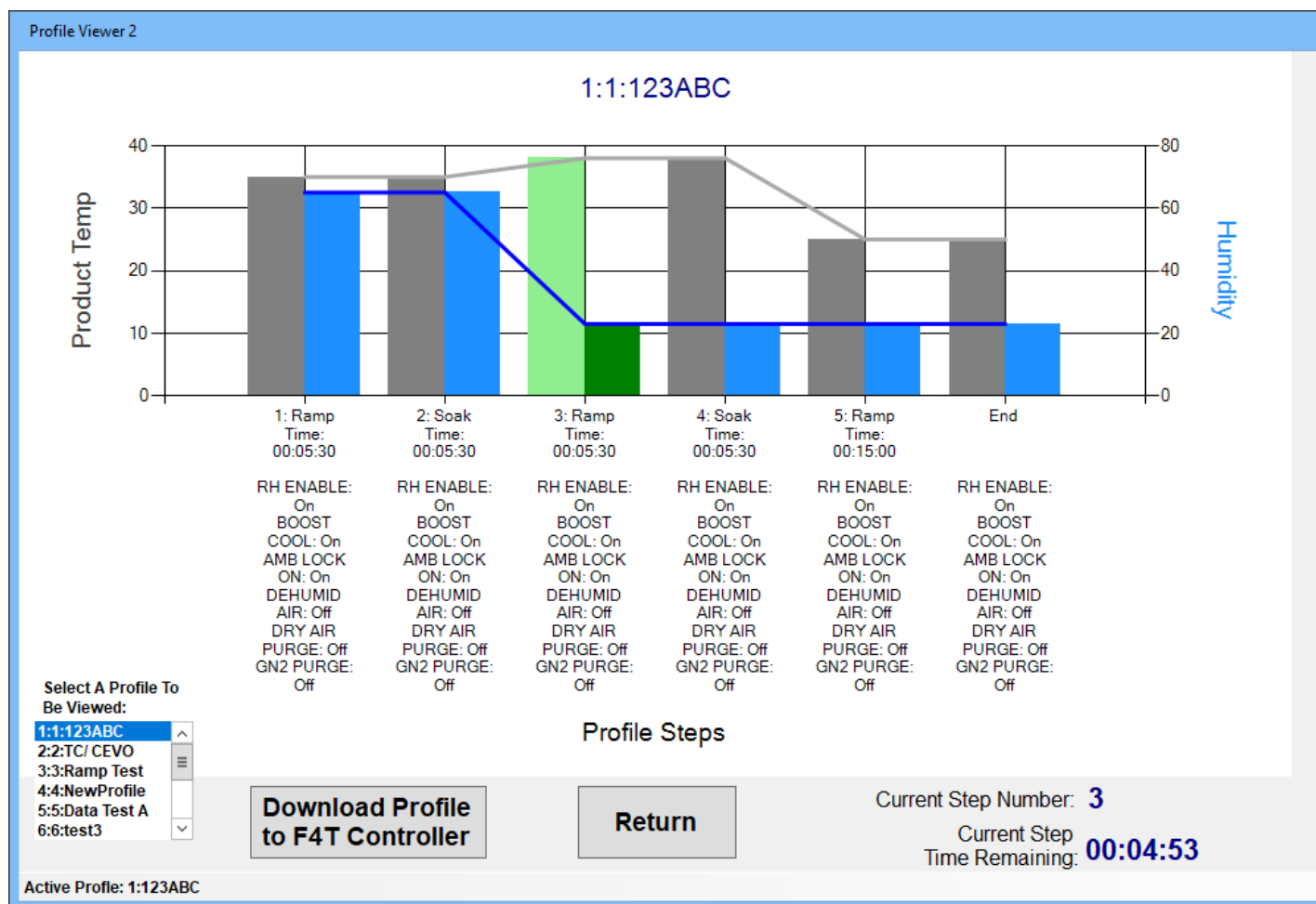
ProcessView Features:

- 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

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



- 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.

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



Profile Editor 1

F4T Profiles

- 1:Testabc
- 2:TC/ CEVO
- 3:DEMO F4T
- 4:LongTest
- 5:Test1
- 6:test3
- 7:Test123
- 8:Short
- 9:Test7
- 10:Glenn1
- 11:Glenn2
- 12:Program 3
- 13:New
- 14:Glenn4
- 15:Glenn5

Calendar Start Profile

Delete Profile F4T Controller

View Profile

Import Profile

Export Profile

Steps

- Ramp Time
- Soak
- Ramp Time
- End

Insert Step After

Insert Step Before

Update Profile F4T Controller

Delete Step

Profile Name: LongTest ☐ F4T Internal Log Data while this profile is running

Profile Number: 4

Type: Soak

Time

- Hours: 5
- Minutes: 1
- Seconds: 0

Product Temp

Humidity

Guaranteed Soak Enable

- Off

Guaranteed Soak Enable

- Off

Event Outputs

- RH ENABLE
 - Off
- BOOST COOL
 - Off
- AMB LOCK ON
 - Off
- DEHUMID AIR
 - Off
- DRY AIR PURGE
 - Off
- GN2 PURGE
 - Off

Calendar Start

- Day of Week: Tuesday
- Hour: 11
- Minute: 42

Step 2

Create New Profile

Profile Sequence

- 3:DEMO F4T
- 4:LongTest

Add Selected Profile

Remove Selected

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'

☒ Enable Profile Sequence

Return

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

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



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

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
Recipe Modified: No Change
Data File: 2023-08-22_20-13-52_F4T_Testabc.csv
Run Start: 08/22/2023 20:13:53
Run End: 08/22/2023 20:14:39

Load Operator: Glenn
Unload Operator: Joe
Initial Product Temp: 24°C
Initial Humidity: 32 %RH
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

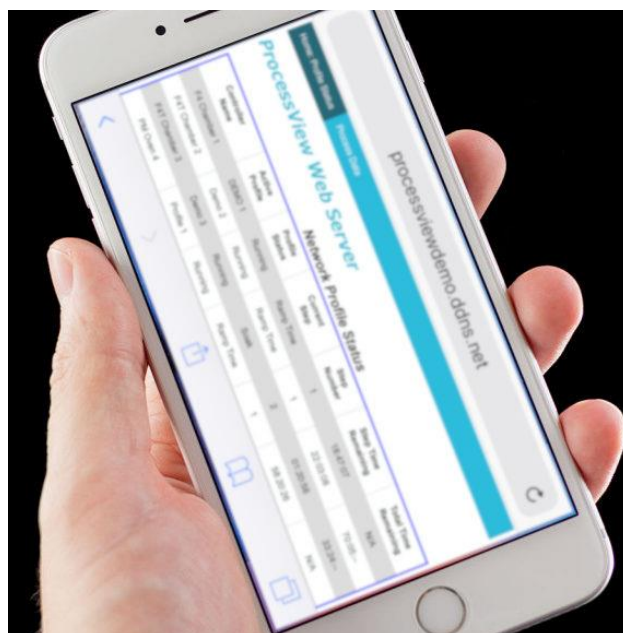
n = number of data points

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.

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



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

Server Information

SMTP Server Information

Email Address:

Password:

SMTP:

Save/Load Server

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

This Computer's IP Address: 192.168.1.137

Email Information

Email Address:

Subject:

Email Alarm
OFF

Email Profile
End OFF

Email Test
Message

Internet Connection Status :
Return

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.

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



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:
F4T

Active Controller:
F4T

Profile List Stored In Controller
Select to Change:
1:Testabc

Active Profile:
1:Testabc

Profile information

Start Stop Pause Resume

Profile Status: Completed

Step #: 0

Step Type: End

Step Time: 00:00:00

Total Time: 00:00:--

ProcessView Client Software Version: 1.09

Process Data

Product Temp PV: 24°C Heat PWR 0 % Over Temp 1 PV: 25°C

Product Temp SP: 21°C Cool PWR 100 %

Over Temp 1 Status: Safe

Temperature Status: Safe

Over Temp Status: Start Up

Humidity PV: 32 %RH Heat PWR 0 %

Humidity SP: 29 %RH Cool PWR 100 %

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	24.00	°C
N/A	Not Used	N/A
N/A	Not Used	N/A
N/A	Not Used	N/A
Humidity	32.00	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	25.00	°C
N/A	Not Used	N/A
N/A	Not Used	N/A
N/A	Not Used	N/A
Product Temp	24.00	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

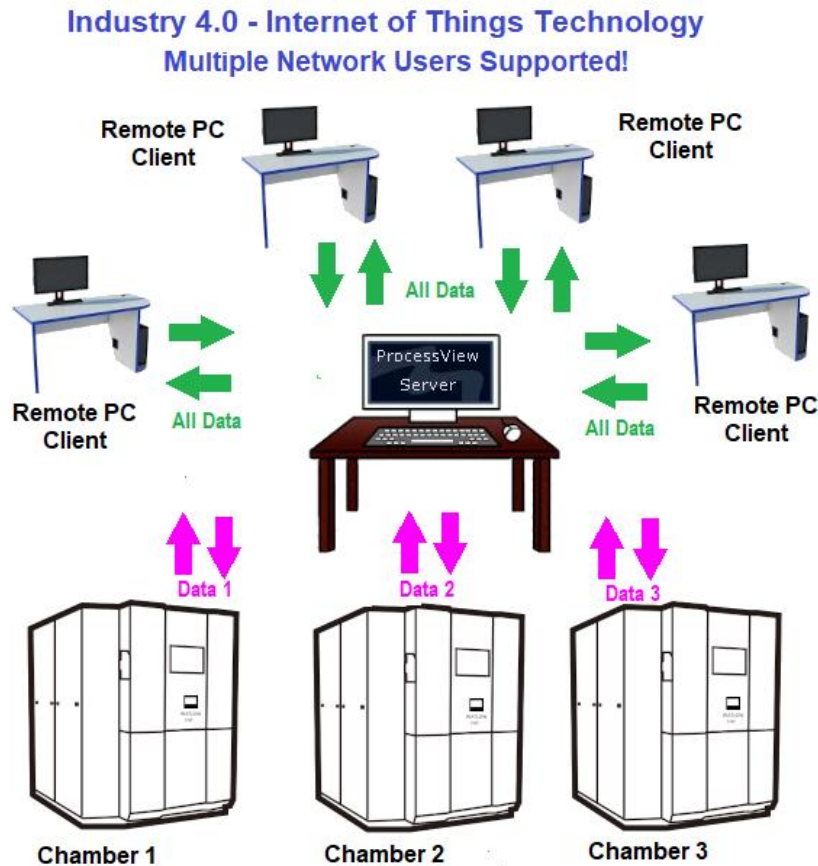
Refresh Data Connect to Server

Connection Opened

Connected to Server
Client ID#: 37473

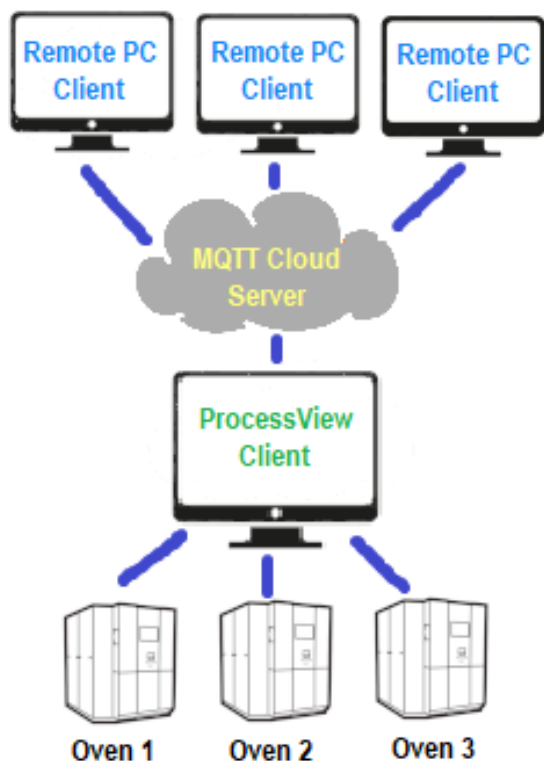
ProcessView Client On-line

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



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

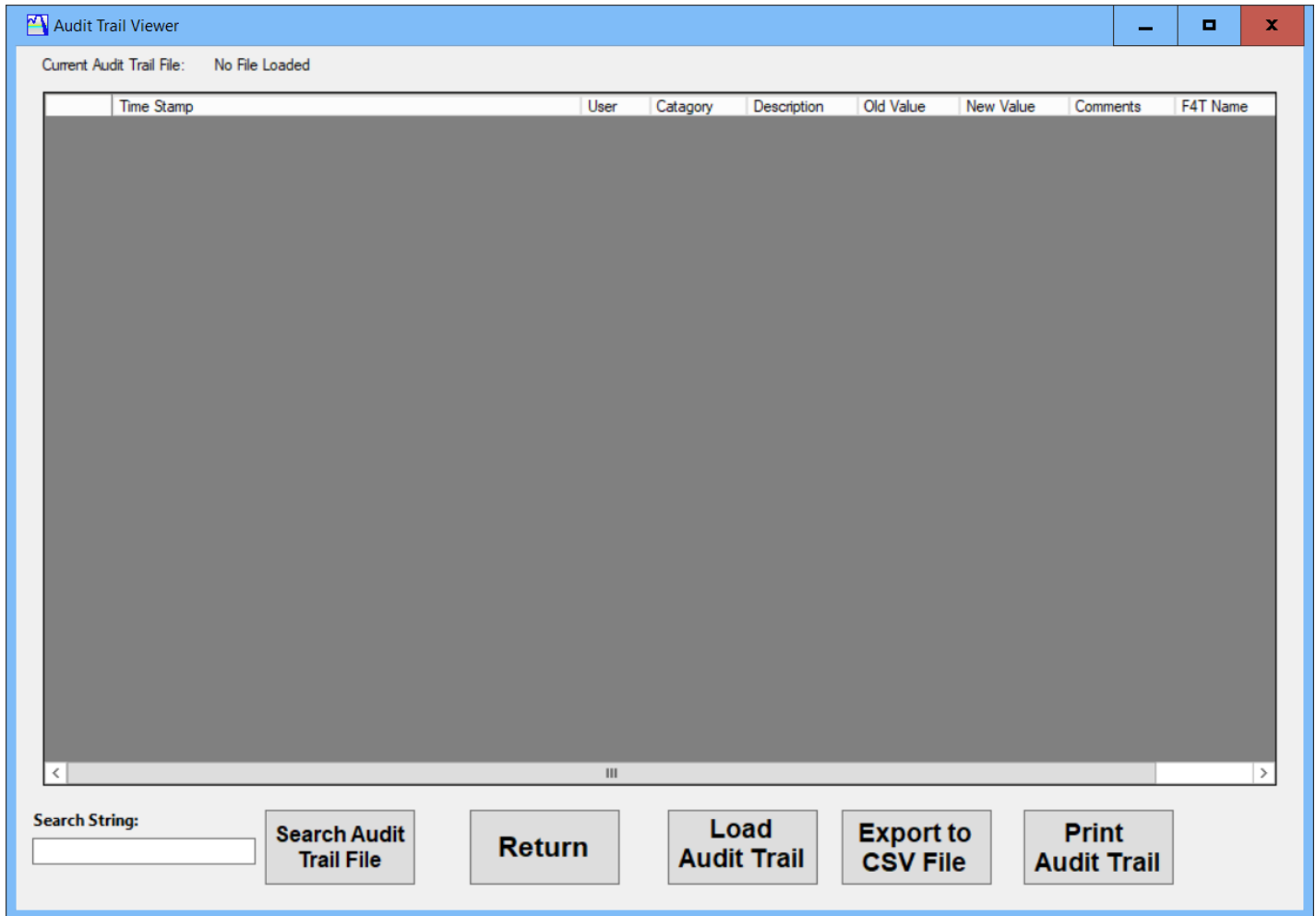


ProcessView® Software – Dedicated to Watlow® F4T/D4T, Legacy F4 and EZ-Zone® PM Controllers



View Data 1									
Data Log File Viewer									
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									
<div> <div>Enter Note to Data Log File</div> <div>Return</div> <div>Add Electronic Signature</div> <div>Graph Data</div> </div>									

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.



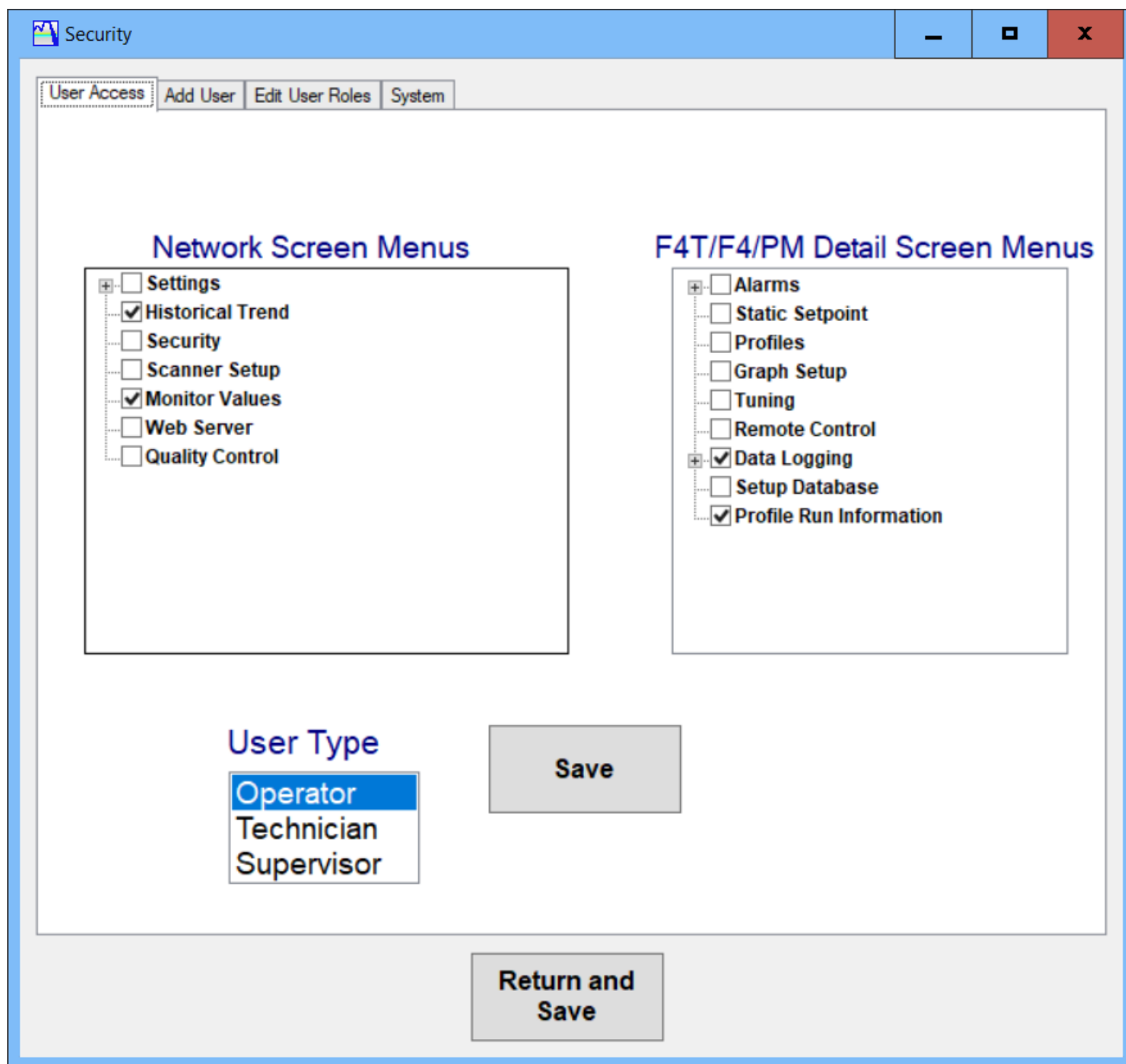
Audit Trail Viewer: All audit trail entries can be viewed with the audit trail viewer screen. Each audit trail entry is time stamped and answer the “How”, “Why”, “Who”, “When” for the change. Audit trails are encrypted and can be printed or exported for auditor inspections in a readable CSV format.

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.



The screenshot shows the 'Security' window with a blue title bar and standard window controls. Below the title bar is a menu bar with 'User Access', 'Add User', 'Edit User Roles', and 'System'. The main area is divided into two columns: 'Network Screen Menus' and 'F4T/F4/PM Detail Screen Menus'. Each column contains a list of items with checkboxes. In the 'Network Screen Menus' list, 'Historical Trend', 'Monitor Values', and 'Quality Control' are checked. In the 'F4T/F4/PM Detail Screen Menus' list, 'Data Logging', 'Setup Database', and 'Profile Run Information' are checked. Below these lists is a 'User Type' section with a dropdown menu showing 'Operator', 'Technician', and 'Supervisor'. To the right of the dropdown is a 'Save' button. At the bottom center is a 'Return and Save' button.

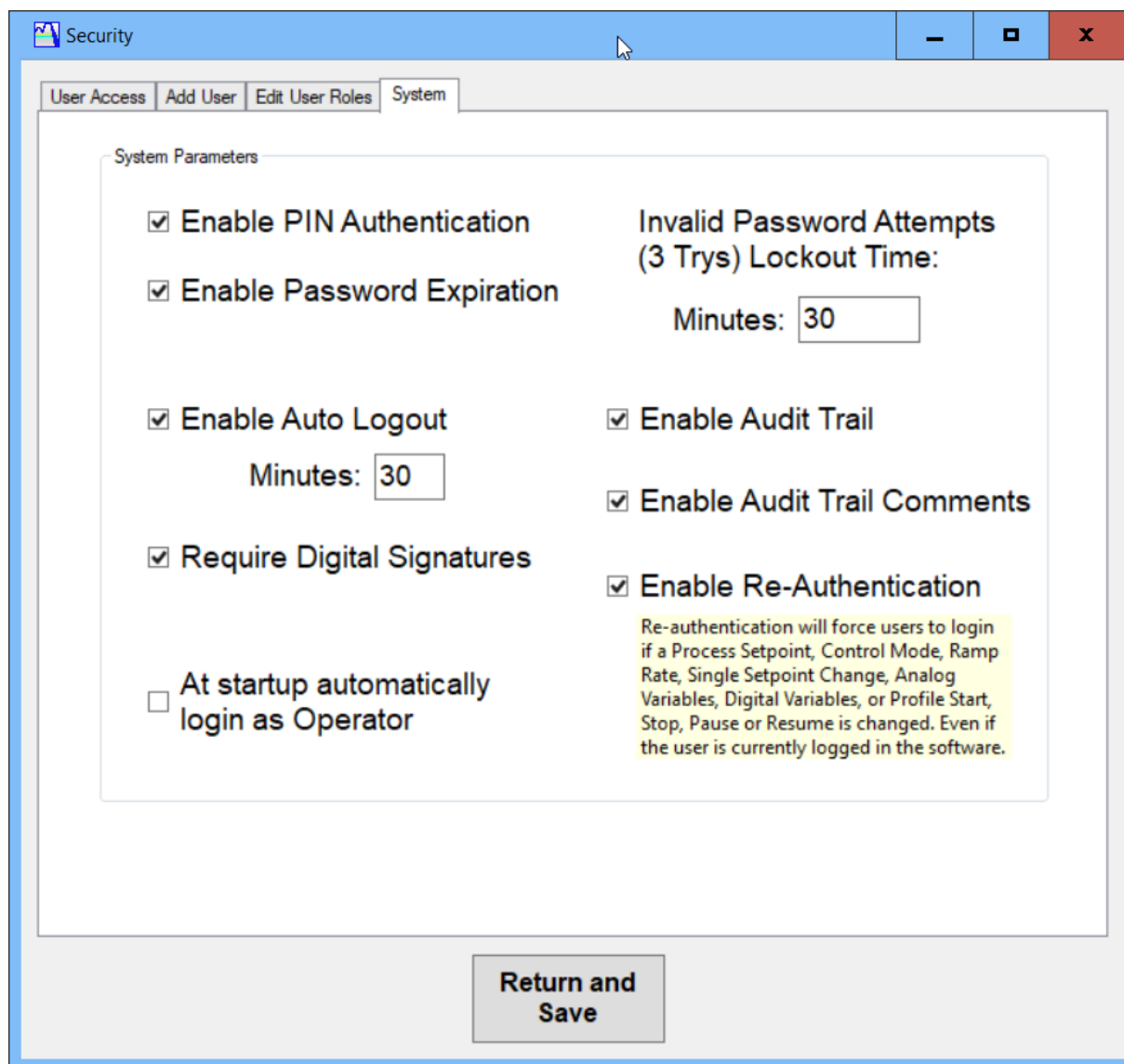
Network Screen Menus	F4T/F4/PM Detail Screen Menus
<input type="checkbox"/> Settings	<input type="checkbox"/> Alarms
<input checked="" type="checkbox"/> Historical Trend	<input type="checkbox"/> Static Setpoint
<input type="checkbox"/> Security	<input type="checkbox"/> Profiles
<input type="checkbox"/> Scanner Setup	<input type="checkbox"/> Graph Setup
<input checked="" type="checkbox"/> Monitor Values	<input type="checkbox"/> Tuning
<input type="checkbox"/> Web Server	<input type="checkbox"/> Remote Control
<input type="checkbox"/> Quality Control	<input checked="" type="checkbox"/> Data Logging
	<input type="checkbox"/> Setup Database
	<input checked="" type="checkbox"/> Profile Run Information

User Type: **Operator**
Technician
Supervisor

Save

Return and Save

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 window titled "Security" with a tabbed interface. The "System" tab is selected, showing "System Parameters". The parameters are organized into two columns. The left column contains five settings: "Enable PIN Authentication" (checked), "Enable Password Expiration" (checked), "Enable Auto Logout" (checked) with a "Minutes: 30" input field, "Require Digital Signatures" (checked), and "At startup automatically login as Operator" (unchecked). The right column contains three settings: "Invalid Password Attempts (3 Trys) Lockout Time: Minutes: 30" (with a text input field), "Enable Audit Trail" (checked), "Enable Audit Trail Comments" (checked), and "Enable Re-Authentication" (checked). A yellow highlight box is placed around the "Enable Re-Authentication" setting and its description. At the bottom center of the window is a button labeled "Return and Save".

System Parameters

- ☒ Enable PIN Authentication
- ☒ Enable Password Expiration
- ☒ Enable Auto Logout
Minutes:
- ☒ Require Digital Signatures
- ☐ At startup automatically login as Operator
- Invalid Password Attempts (3 Trys) Lockout Time:
Minutes:
- ☒ Enable Audit Trail
- ☒ Enable Audit Trail Comments
- ☒ Enable Re-Authentication
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

Setpoint481.0°F

Zone 1481.5°F

Heat Power %23.6 %

Cool Power %0.0 %

AUTO

MANUAL

OFF

Current Control ModeAuto

Zone 2223.4°F

☐ Simple Setpoint Enable

Cascade Loop 2

Setpoint245.0°F

Zone 3252.6°F

Heat Power %26.7 %

Cool Power %0.0 %

AUTO

MANUAL

OFF

Current Control ModeAuto

Zone 4128.9°F

☐ Simple Setpoint Enable

Control Loop 3

Setpoint326.0°F

Zone 5326.0°F

Heat Power %25.6 %

Cool Power %0.0 %

AUTO

MANUAL

OFF

Current Control ModeAuto

Control Loop 4

Setpoint490.0°F

Zone 6490.8°F

Heat Power %13.8 %

Cool Power %0.0 %

AUTO

MANUAL

OFF

Current Control ModeAuto

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.

www.f4tsoftware.com

ProcessView® Data Sheet Rev. M August 2022

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



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.

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



Scanner/User Input 1

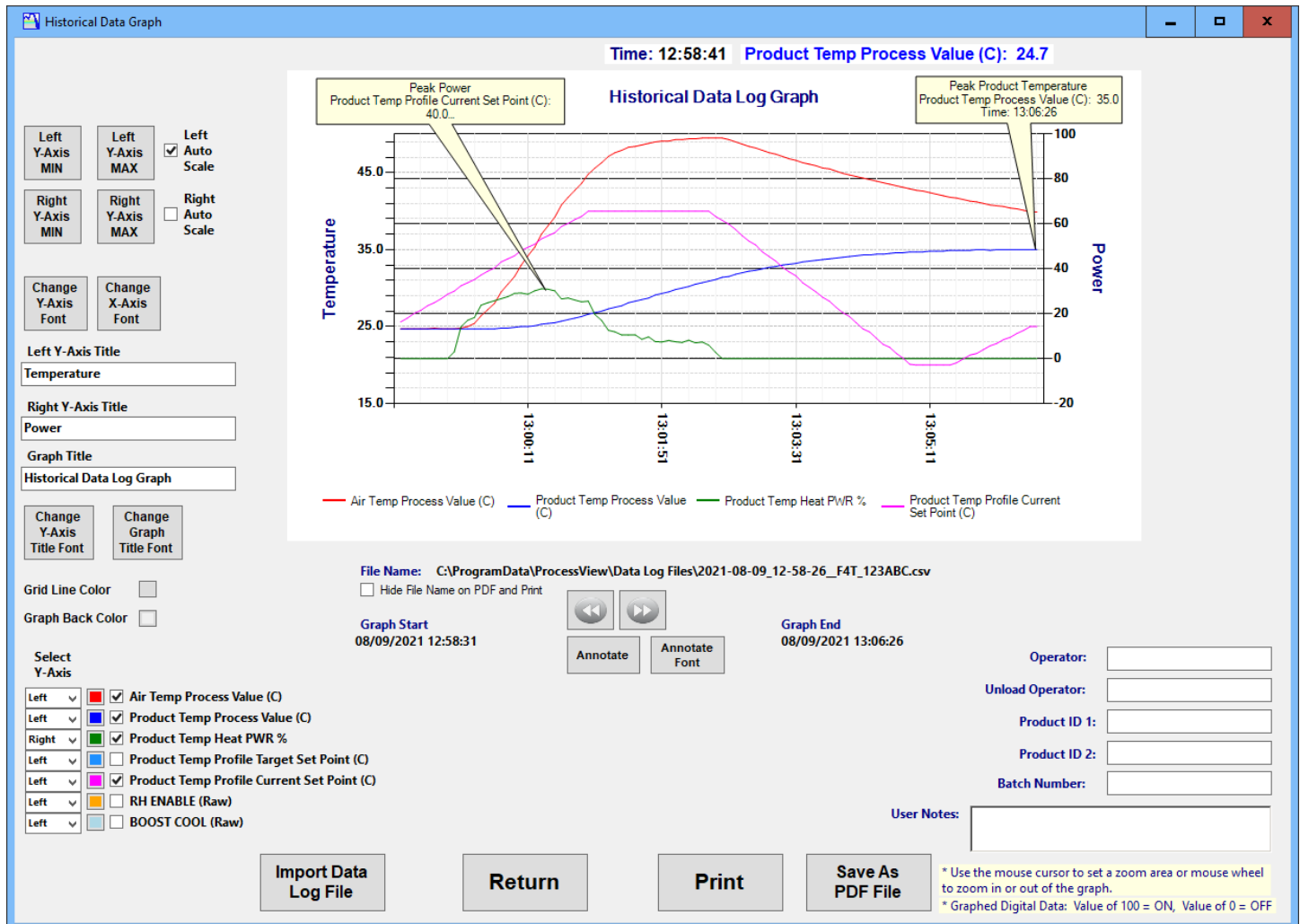
Batch Data	Batch Data Inputs	Shop Order	Shop Order Inputs	Shop Order	Shop Order Inputs
Load Operator:	Glenn	Shop Order #1:	1234	Shop Order #4:	5447
Unload Operator:	Joe	Part #:	12A	Part #:	45S
Batch ID:	ABC	Material:	304 SS	Material:	304 SS
		Qty:	5	Qty:	2
		Shop Order #2:	4567	Shop Order #5:	5493
		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.

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



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 Over Temp 1

Profile Block Ch.1 Units: °C

Profile Block Ch.2 Units: %RH

Profile Block PV Input Information

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!*

Chamber 1

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

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

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	
<div>Exit</div>	
Slot 1 Input1	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.

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



Database 1 Setup

Connection String/
Endpoint String:

Username:
Password:
☐ Show Password

Data Base Name:
(lowercase)

**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.cjsdg5ewmp6r.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.

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



Setup Graph 1

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

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, a menu bar includes File, Add Controller, Historical Trend, Login, Security, Logout, Off-Line Profile Editor, Web Server, Quality Control, Remote PC, and Help. Below the menu is a network view tab bar with options for F4 Chamber 1 through F4 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, three windows show analog inputs for specific chambers:

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

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