

Screen shots and steps for using Accurate Thermal Systems TVS software (Temperature Validation Software)

- 1) Click on “File”, then “Open unit 1” (this establishes the software connection to the Fluidized Bath)
- 2) Click “Start Device”
- 3) Screen will display similar to below

AccuTherm TVS - from Accurate Thermal Systems

File Settings Window Help

COM3

Please select serial port
COM3

Start Device(s)

Realign Windows

Time Now
3:29:01 PM

AccuTherm FTB Unit 1

Controller - Generic PID - Channel Data

	Latest Value	Time
Address 1 Proc Var	21.0	3:29:00 PM
Address 1 Read SV	50.0	3:29:01 PM

Interface

Graph

Timer

Park Now

Validation Log

Log

CONTROLLER SET TO MODBUS RTU: 9600, 8, E, 1

ACCURATE THERMAL SYSTEMS
BETTER BY DEGREE

5 October 2017

3:29 PM 10/16/2017

Next click on “Settings”, “Company Details” and complete your company info and logo as needed. This information will show up on the validation reports.

AccuTherm TVS - from Accurate Thermal Systems
File Settings Window Help

AccuTherm FTB Unit 1

Controller - Generic PID - Channel Data

	Latest Value	Time	
Address 1 Proc Var	21.0	3:35:36 PM	←
Address 1 Read SV	50.0	3:35:35 PM	Set

COM3

Please select serial port
COM3

Start Device(s)

Realign Windows

Time Now
3:35:36 PM

Interface

Graph

Timer

Park Now

Validation Log

Log

Company Details

Company Details

Accurate Thermal Systems
4104 Sylon Blvd
Hainesport, NJ 08036 USA
www.accuthermal.com

Company Logo C:\Users\darre\Desktop\logo 1.jpg

ACCURATE THERMAL SYSTEMS
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OK Cancel

CONTROLLER SET TO MODBUS RTU: 9600, 8, E, 1

5 October 2017

3:35 PM
10/16/2017

Click on "Settings", "Edit Profiles" to create or edit your temperature validation profiles. Here you enter the name of the process, the target temperature, max and min temperatures that the process should be within and then the overall heat treat time. Last you select a log interval for the process. The software will capture the Fluidized Bath temperature reading using the set interval. When readings fall outside of the min/max settings they will be highlighted in italics on the report.

AccuTherm TVS - from Accurate Thermal Systems
File Settings Window Help

COM3

Please select serial port
COM3

Start Device(s)

Realign Windows

Time Now
3:44:20 PM

AccuTherm FTB Unit 1

Controller - Generic PID

Address 1	Proc Var	Latest Value	Time
Address 1	Proc Var	22.0	3:44:18 PM
Address 1	Read SV	50.0	3:44:19 PM

Interface

Graph

Timer

Park Now

Validation Log

Log

Profile Editor

Name	Temperature (°C)	Max Value (°C)	Min Value (°C)	Heat Time (min)	Log Interval
Heat treatment SOP 423.66	25	27	23	5	10sec

CONTROLLER SET TO MODBUS RTU: 9600, 8, E, 1

logo 1 - Paint

5 October 2017 3:44 PM 10/16/2017

ACCURATE THERMAL SYSTEMS
BETTER BY DEGREE

Click on the “Log” button under “Validation Log” and then click “Validation Test”.

Enter the particulars of the validation log including selection of the “Profile”, “Batch No”, “Lot No”, “Serial No”, “Customer”, “Purch Order No”, “User Initials” and “Comments”. When ready immerse fixture or device into the Fluidized Bath and then click the green arrow start button.

The screenshot displays the AccuTherm TVS software interface. On the left, there are control buttons for 'COM3', 'Start Device(s)', 'Time Now' (3:48:05 PM), and 'Validation Log' (Log). The main window, titled 'AccuTherm FTB Unit 1', shows a 'Controller - Generic PID' window with a data table. The table has columns for Value, Ave, Max, Min, Setpoint, Time, and Date. The first row shows a value of 22.0. Below the table is a 'Validation Test' button and a status message: 'Next update in: 12:00:26 AM OFF'. To the right, the 'Validation Log Unit 1' window is open, showing a form for 'Bath N°1' with fields for Profile (Heat treatment SOP 423.66), Batch N°, Lot N°, Serial N°, Customer, Purch Order N°, User Initials, and Comments. A green arrow button is visible below the form. At the bottom right, there is a summary of the selected profile: 'Selected Profile: Heat treatment SOP 423.66' with values for Name, Temp, Max, Min, Time, and Rate. The Accurate Thermal Systems logo and the date '5 October 2017' are also visible.

	Value	Ave	Max	Min	Setpoint	Time	Date
1	22.0						
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							

Once the run starts readings obtained from the Fluidized Bath temperature controller will be displayed in the window in real time. Any readings that exceed the "Max" and "Min" settings in the Profile setup with turn blue as shown.

Accutherm TVS - from Accurate Thermal Systems

File Settings Window Help

COM3

Please select serial port
COM3

Start Device(s)

Realign Windows

Time Now
3:59:20 PM

AccuTherm FTB Unit 1

Controller - Generic PID

	Value	Ave	Max	Min	Setpoint	Time	Date
1	22.0	23.0	26.0	22.0	50.0	3:59:13 PM	10/16/2017
2	22.0	23.1	26.0	22.0	50.0	3:59:03 PM	10/16/2017
3	23.0	23.1	26.0	22.0	50.0	3:58:53 PM	10/16/2017
4	23.0	23.1	26.0	22.0	50.0	3:58:42 PM	10/16/2017
5	23.0	23.2	26.0	22.0	50.0	3:58:32 PM	10/16/2017
6	23.0	23.2	26.0	22.0	50.0	3:58:22 PM	10/16/2017
7	23.0	23.2	26.0	22.0	50.0	3:58:12 PM	10/16/2017
8	26.0	23.2	26.0	22.0	50.0	3:58:02 PM	10/16/2017
9	26.0	22.9	26.0	22.0	50.0	3:57:52 PM	10/16/2017
10	26.0	22.5	26.0	22.0	50.0	3:57:42 PM	10/16/2017
11	22.0	22.0	22.0	22.0	50.0	3:57:32 PM	10/16/2017
12	22.0	22.0	22.0	22.0	50.0	3:57:22 PM	10/16/2017
13	22.0	22.0	22.0	22.0	50.0	3:57:12 PM	10/16/2017
14	22.0	22.0	22.0	22.0	50.0	3:57:02 PM	10/16/2017
15	22.0	22.0	22.0	22.0	50.0	3:56:52 PM	10/16/2017
16	22.0	22.0	22.0	22.0	50.0	3:56:42 PM	10/16/2017
17	22.0	22.0	22.0	22.0	50.0	3:56:32 PM	10/16/2017
18							
19							
20							
21							
22							
23							
24							
25							

Validation Test Next update in: 2 | Ends: 4:01:30 PM Interval: 10sec | RunTime: 5min

Validation Log Unit 1

Bath 1 Report 1

Bath №1

Profile: Heat treatment SOP 423.66

Batch №: 10/13/17-A

Lot №: 22

Serial №: 425844C-22


Customer: Smith Stent Company

Purch Order №: PO 93421

User Initials: DS

Comments: Ambient test

Selected Profile: Heat treatment SOP 423.66 27
 Name: Heat treatment SOP 423.66 23
 Temp: 25
 Max: 27
 Min: 23
 Time: 5
 Rate: 10sec



ACCURATE THERMAL SYSTEMS
BETTER BY DEGREE

5 October 2017

3:59 PM
10/16/2017

After the heat treatment time is up the message below will pop up. Remove your fixture or device from the Fluidized Bath. Next click on the Red stop button in the "Validation Log unit 1" window which will end the run. Click on "OK" in the pop up message.

Accutherm TVS - from Accurate Thermal Systems

File Settings Window Help

COM3

Please select serial port
COM3

Start Device(s)

Realign Windows

Time Now
4:01:37 PM

AccuTherm FTB Unit 1

Controller - Generic PID

	Value	Ave	Max	Min	Setpoint	Time	Date
1	22.0	22.6	26.0	22.0	50.0	4:01:23 PM	10/16/2017
2	22.0	22.6	26.0	22.0	50.0	4:01:13 PM	10/16/2017
3	22.0	22.6	26.0	22.0	50.0	4:01:03 PM	10/16/2017
4	22.0	22.6	26.0	22.0	50.0	4:00:53 PM	10/16/2017
5	22.0	22.7	26.0	22.0	50.0	4:00:43 PM	10/16/2017
6	22.0	22.7	26.0	22.0	50.0	4:00:33 PM	10/16/2017
7	22.0	22.7					10/16/2017
8	22.0	22.7					10/16/2017
9	22.0	22.8					10/16/2017
10	22.0	22.8					10/16/2017
11	22.0	22.9					10/16/2017
12	22.0	22.9					10/16/2017
13	22.0	22.9					10/16/2017
14	22.0	23.0					10/16/2017
15	22.0	23.1					10/16/2017
16	23.0	23.1	26.0	22.0	50.0	3:58:53 PM	10/16/2017
17	23.0	23.1	26.0	22.0	50.0	3:58:42 PM	10/16/2017
18	23.0	23.2	26.0	22.0	50.0	3:58:32 PM	10/16/2017
19	23.0	23.2	26.0	22.0	50.0	3:58:22 PM	10/16/2017
20	23.0	23.2	26.0	22.0	50.0	3:58:12 PM	10/16/2017
21	26.0	23.2	26.0	22.0	50.0	3:58:02 PM	10/16/2017
22	26.0	22.9	26.0	22.0	50.0	3:57:52 PM	10/16/2017
23	26.0	22.5	26.0	22.0	50.0	3:57:42 PM	10/16/2017
24	22.0	22.0	22.0	22.0	50.0	3:57:32 PM	10/16/2017
25	22.0	22.0	22.0	22.0	50.0	3:57:22 PM	10/16/2017
26	22.0	22.0	22.0	22.0	50.0	3:57:12 PM	10/16/2017
27	22.0	22.0	22.0	22.0	50.0	3:57:02 PM	10/16/2017
28	22.0	22.0	22.0	22.0	50.0	3:56:52 PM	10/16/2017
29	22.0	22.0	22.0	22.0	50.0	3:56:42 PM	10/16/2017
30	22.0	22.0	22.0	22.0	50.0	3:56:32 PM	10/16/2017

Interface

Graph

Timer

Park Now

Validation Log

Log

Validation Test

Next update in: 12:00:25 AM OFF

Your validation run is complete. Please remove your product/sample from the bath

OK

Validation Log Unit 1

Bath 1 Report 1

Bath N°1

Profile: Heat treatment SOP 423.66

Batch N°: 10/13/17-A

Lot N°: 22

Serial N°: 425844C-22

Customer: Smith Stent Company

Purch Order N°: PO 93421

User Initials: DS

Comments: Ambient test

Selected Profile: Heat treatment SOP 423.66

Name: Heat treatment SOP 423.66

Temp: 25

Max: 27

Min: 23

Time: 5

Rate: 10sec

5 October 2017

4:01 PM 10/16/2017

Click the "Report 1" tab in the "Validation Log Unit 1" window to reveal the validation results. The print button will print the report and clicking PDF will launch a standard Windows save box to allow the test result to be saved as a PDF file.

To start another validation log click on the "Bath 1" tab and complete data and select the profile for the next run.

The screenshot displays the AccuTherm TVS software interface. On the left, there are control buttons for 'COM3', 'Start Device(s)', 'Realign Windows', and 'Time Now' (4:08:19 PM). The main area shows a data table for 'Controller - Generic PID' with columns for Value, Ave, Max, Min, Setpoint, Time, and Date. The data table contains 30 rows of temperature readings. On the right, a 'Validation Log Unit 1' window is open, showing a 'Report 1' for 'Bath 1'. This report includes a header with the AccuTherm Systems logo and contact information, and a table of temperature profiles. The report table has columns for Name, Temp. °C, Max. °C, Min. °C, Time min, and Start °C/min. The table lists 30 profiles with their respective parameters.

Name	Temp. °C	Max. °C	Min. °C	Time min	Start °C/min
1	22.0	26.0	22.0	8.0	0.0
2	22.0	26.0	22.0	8.0	0.0
3	22.0	26.0	22.0	8.0	0.0
4	22.0	26.0	22.0	8.0	0.0
5	22.0	26.0	22.0	8.0	0.0
6	22.0	26.0	22.0	8.0	0.0
7	22.0	26.0	22.0	8.0	0.0
8	22.0	26.0	22.0	8.0	0.0
9	22.0	26.0	22.0	8.0	0.0
10	22.0	26.0	22.0	8.0	0.0
11	22.0	26.0	22.0	8.0	0.0
12	22.0	26.0	22.0	8.0	0.0
13	22.0	26.0	22.0	8.0	0.0
14	22.0	26.0	22.0	8.0	0.0
15	22.0	26.0	22.0	8.0	0.0
16	23.0	26.0	22.0	8.0	0.0
17	23.0	26.0	22.0	8.0	0.0
18	23.0	26.0	22.0	8.0	0.0
19	23.0	26.0	22.0	8.0	0.0
20	23.0	26.0	22.0	8.0	0.0
21	26.0	26.0	22.0	8.0	0.0
22	26.0	26.0	22.0	8.0	0.0
23	26.0	26.0	22.0	8.0	0.0
24	22.0	26.0	22.0	8.0	0.0
25	22.0	26.0	22.0	8.0	0.0
26	22.0	26.0	22.0	8.0	0.0
27	22.0	26.0	22.0	8.0	0.0
28	22.0	26.0	22.0	8.0	0.0
29	22.0	26.0	22.0	8.0	0.0
30	22.0	26.0	22.0	8.0	0.0