Temperature Recorder Manual

PLEASE NOTE: This manual is currently undergoing updates following the addition of a large update to the features and functions of the HEAT VIEW Computer Application. Any section still currently being reviewed will be tagged with this symbol in the first paragraph the affected section. We are aware of a few visual bugs with some of the settings windows following the update that don't impact the functionality and are currently resolving them. Please https://heatviewcontrols.com/ check regularly for the updated computer application as well as this manual. We apologize for any inconvenience this may cause.

Revision 1.00.0

Creation Date: 12 August 2023

1. Revision Log

Revision	Description	Initial	Date
1.0.0	Initial Release	JB	12 Aug 2023

2. Table of Contents

3. Table of Figures

4. Introduction

This document was created to help an operator or service technician setup and use the computer application created for the (HV DV) HEAT VIEW -> Data View temperature recorder. In this manual you will learn how to download and install the desktop application, record temperature data as well as generate reports in PDF format that can be kept for your own records or provided to clients and customers.

There are several important features about the Data View Temperature Recorder that should be always kept in mind while reading this manual.

First, this software in conjunction with the recorder allows an operator to record and generate reports for heat cycles without ever having to leave the application, in an all-in-one solution to previously separate heat treatment practices.

Second, each Data View recorder as a unit is independent from all other Data View recorders. Recorders are identified and interfaced with based on their individual assigned name. While you can connect to multiple recorders simultaneously, recorders cannot interface with each other. Meaning you cannot configure channels from recorder A to be slaved to a master from recorder B. This means you can also not combine recorded cycle data from two separate recorders into a single combined chart.

Lastly, this system is being actively developed and upgraded to meet new and ever evolving industry needs. Should you encounter any bugs or have thoughts on ways to improve the system, or if you have a specific need the system does not fulfill, please do not hesitate to reach out to the HEAT VIEW authorized distributor you purchased your system from to request support, provide feedback, or even explore a custom solution to your problem.

We at HEAT VIEW are very proud of the system we have created and are pleased that you've purchased a controller and are coming with us as we aim to digitalize an industry that has been traditionally analogue.

Please visit the HEAT VIEW website at: http://www.heatviewcontrols.com for the latest software, products, manuals, and tutorial videos.

5. Getting Started

The initial configuration of your computer and networking it to the controller is best performed by an IT professional. If possible, please have your IT department assist with the setup or contact your authorized HEAT VIEW distributor for installation or training assistance.

PLEASE NOTE: HEAT VIEW recorders come preconfigured with an IP address in the format of 10.0.0.XXX (where XXX is the unique system number between 50-200) . If you are required to have a static IP assigned to your laptop, please do so in the range of 10.0.0.2-49. However, the recorder will assign an IP address if you do not have one statically assigned already.

PLEASE NOTE: When setting up your connections, it is best practice to connect your HEAT VIEW temperature recorder with an UNDAMAGED ethernet cable directly to a computer that has a built in ethernet/RJ45 port. USB-to-Ethernet adapters can be used; however, they can prove to be less reliable and can cause communication faults to occur resulting in lost data or undesirable down time. A large majority of support calls stem from using these adapters and/or damaged ethernet cables.

If the initial software installation has been completed and you are simply new to operating the computer application for the HEAT VIEW recorder or are looking for a specific function of the system, please skip ahead to page 19, or use the Table of Contents to find which function you are looking for and start learning how to operate and use the system.

1. Thermocouple Connected Lights

The data recorder is equipped with 2 Lights for every thermocouple connection. These are blue and green lights. If the system is powered up and running/recording, then these lights will be active.

1) If the system is getting valid readings from the thermocouple, then the light above the connecter will turn green
2) If the thermocouple is “open” the blue light will be on.
3) If there is a problem with the measuring channel, then the blue and green lights will flash rapidly.
4) If there is a pattern of flashing lights where there are only 1 or two lights on at a time, then the system is booting up or not running.

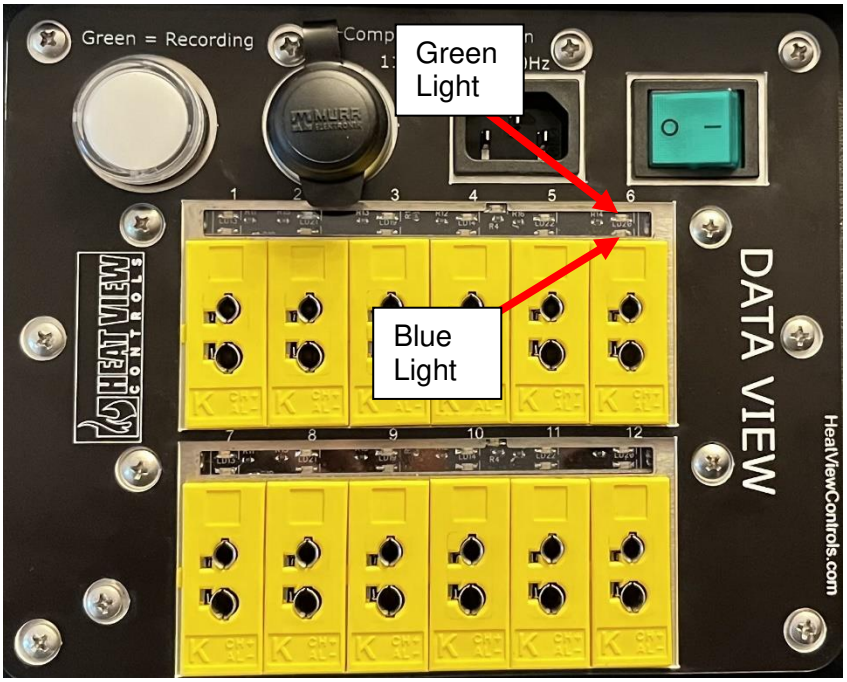


Figure 1: Thermocouple connection plate

6. Downloading & Installing the Computer Application

An installer should have been provided to you with the purchase of your HEAT VIEW recorder. Currently this software is only supported on Windows® 10 and 11 computers and will **not** work on any Mac® or Linux® machines.

2. Downloading the Application

If you were not supplied with the installer or are installing the software on a new machine and don't have access to the original installation media, you can download it from http://www.heatviewcontrols.com.

1. Once on the page of the Data View, select the computer application download link.

2. Clicking the link will open a new window prompting you to save the installer to a location of your choice. By default, Windows® 10/11 saves new downloads in your Downloads

folder within ‘File Explorer’ as seen in Figure 2 below. Click ‘Save’ to save the file in the location you have chosen.

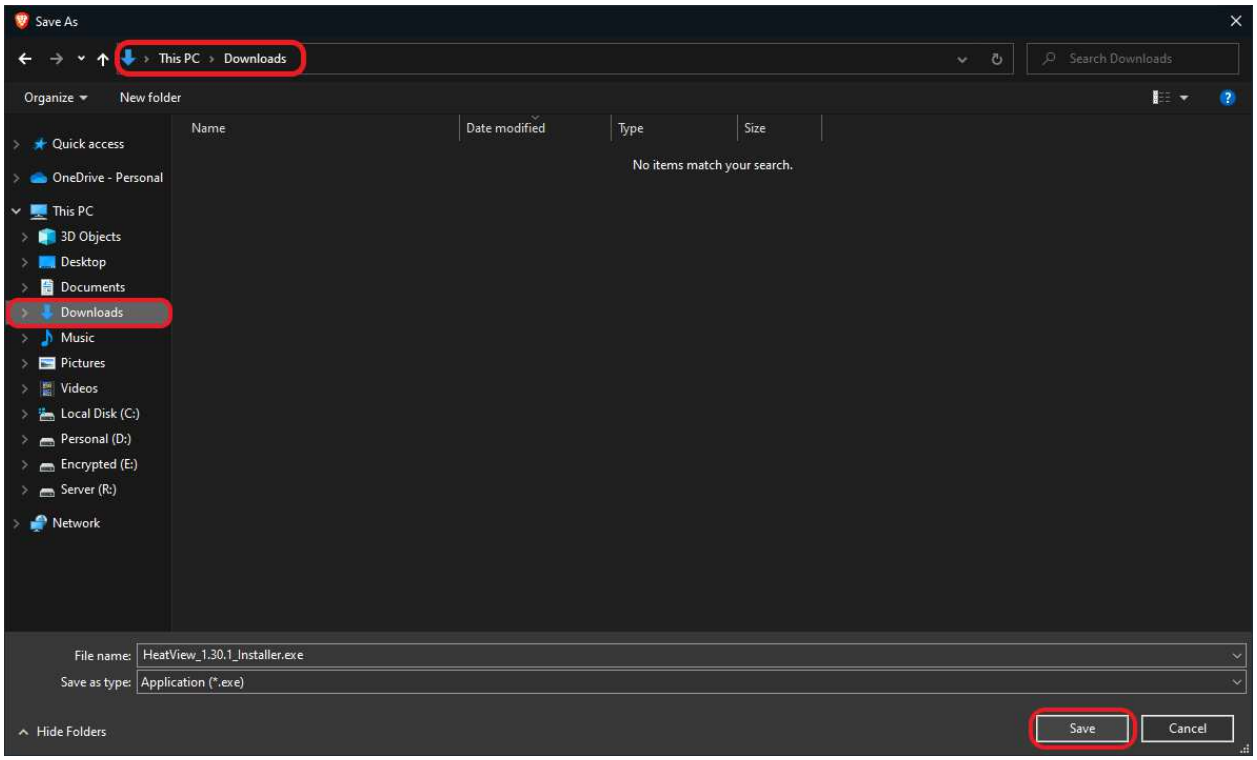


Figure 2: Installer save location

3. Installation Steps

Installing the software is as simple as running the HEAT VIEW_DV_X.X.X_Installer.exe file (where “X.X.X” is the version number of the software.) provided with your HEAT VIEW recorder or that you downloaded from the HEAT VIEW website in the previous step.

1. In ‘File Explorer’, open the location that contains your “HEAT VIEW_X.X.X_installer.exe” file – either on the installation media provided to you with your purchase, or the folder you selected in the previous step – and double-click the installer to start the process. Refer to Figure 3 below for an example. Version 1.0.0 is shown in this manual as an example, however yours will appear as whichever version you are installing. This file will be in the location you selected when downloading the file.

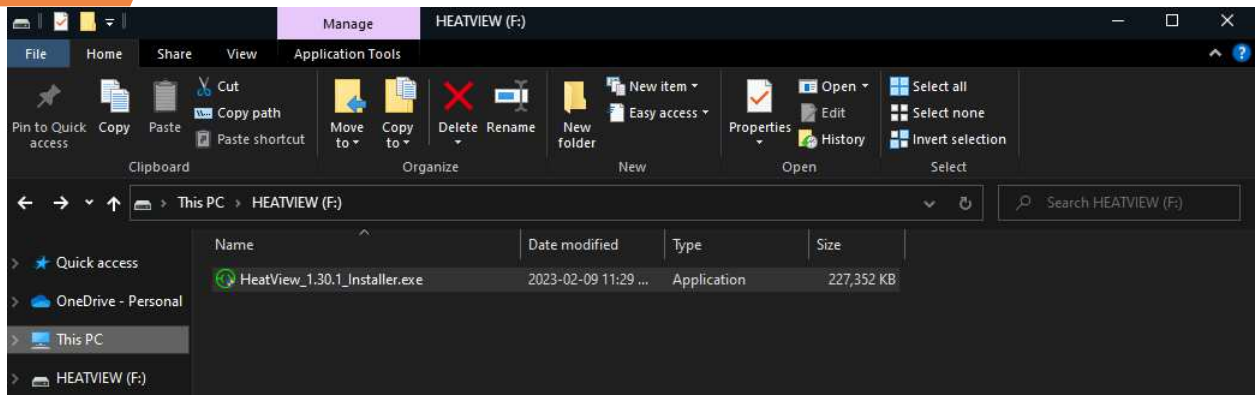


Figure 3: Installation – Locating your installer

2. Depending on how your system is configured this may or may not open 'the User Account Control' window shown in
3. Figure 4 below, requesting administrator level permissions to proceed. If you have 'User Account Controls' turned off, you might not see this pop-up. You must either click 'YES' or provide the installation with administrator authorization in order to proceed.

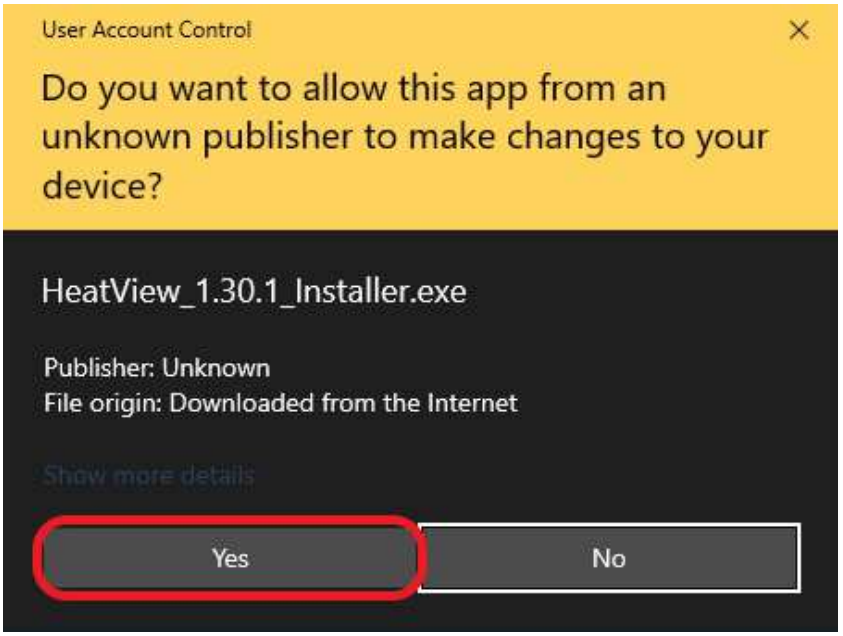


Figure 4: Installation – 'User Access Controls' window

4. To continue the installation, you must click 'Next >' – as highlighted in Figure 5 below.

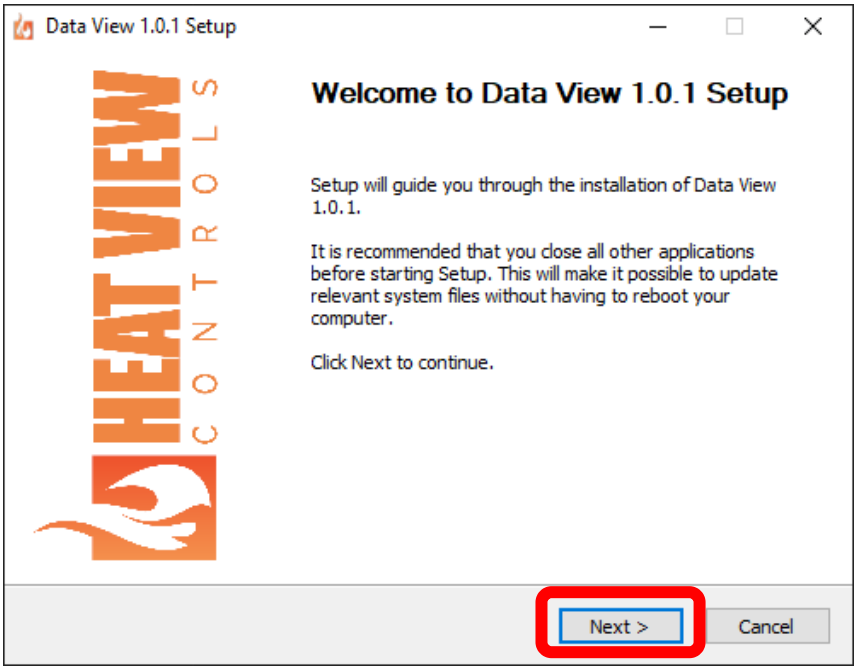


Figure 5: Installation - Welcome Screen

5. Next, you can choose to rename the folder the program will be accessible under in the 'Start Menu'. The default is "DataView X.X.X" (where X.X.X is the version number). Once you've chosen your desired name, click 'Install' – as highlighted in Figure 6 below – to proceed.

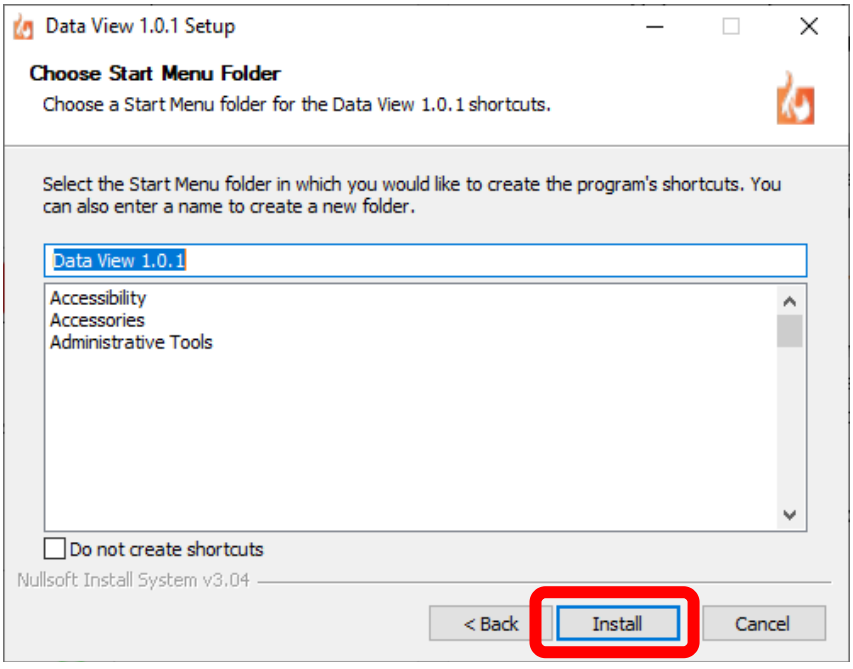


Figure 6: Installation – 'Start Menu' folder name

6. The installer should automatically install the software and for the DATA VIEW recorder, and you should see the installation status progress and completion message.

4. Opening The Software

Unless you chose otherwise during the installation process, the installer automatically installed a desktop icon and a shortcut link in your start menu for the DATA VIEW recorder software to make it simple to find, open, and start using.

The desktop icon can be easily located on both Windows® 10 and Windows® 11 and simply double-clicking the icon will open the DATA VIEW computer application. However, the process for finding the 'Start Menu' folder differs slightly between the two operating systems. The steps for finding it on each operating system are outlined below.

I. Windows® 10 Start Menu Folder Location

Click the 'Start' button in the 'Task Bar' in bottom left corner of your screen – highlighted in Figure 7 below. Scroll through the alphabetical list of programs until you find a folder called "Data View X.XX.X" (where X.XX.X is the version number) or whatever name you gave this folder during step 5 of the installation procedure on page 13. Click on this folder – in this example it is titled "Data View 1.0.1" – to expand it and find the icon for the DATA VIEW computer application; also highlighted in Figure 7. Clicking this icon will launch the DATA VIEW computer application.

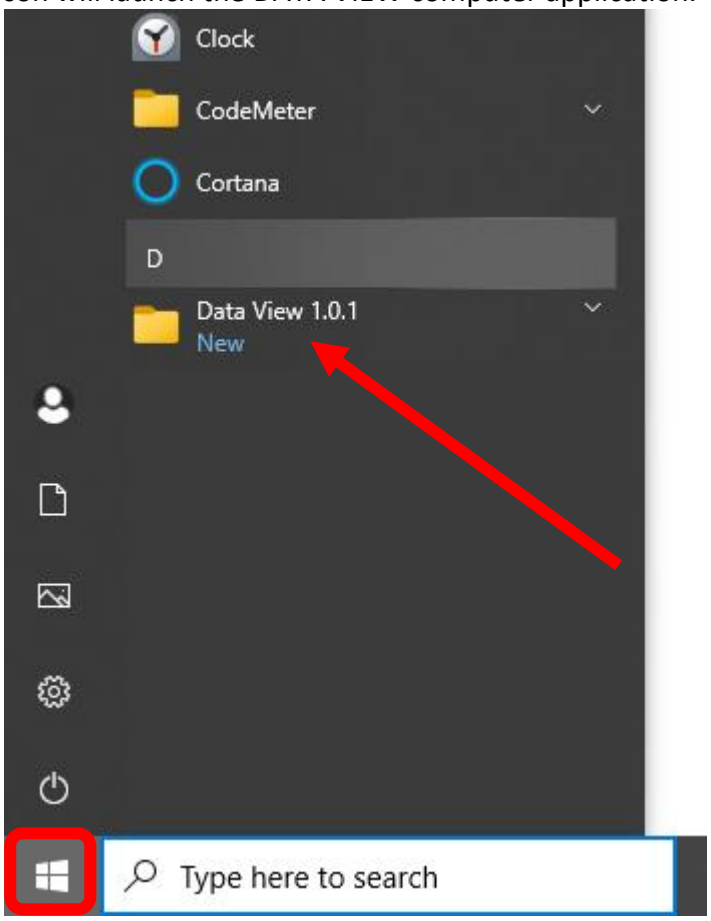


Figure 7: Windows® 10 – 'Start Menu' folder location

II. Windows® 11 Start Menu Folder Location

1. Click the 'Start' button in your 'Task Bar' – highlighted in Figure 8 below – to bring up the 'Start Menu.'

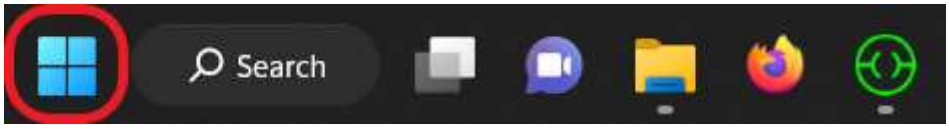


Figure 8: Windows® 11 'Start' button

2. Next, click on the 'All Apps' button at the top right of the 'Start Menu' – highlighted in Figure 9 below – to access the alphabetical list of installed applications.

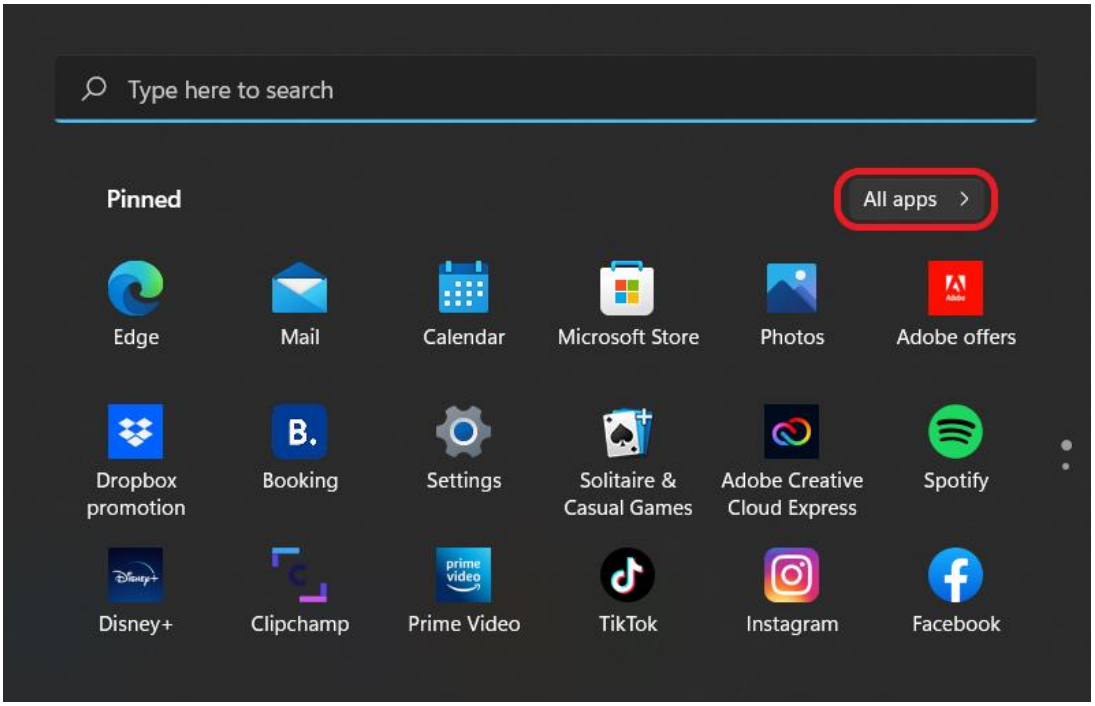


Figure 9: Windows® 11 – 'Start Menu' main window

3. Scroll through the alphabetical list of programs until you find a folder called "HeatView X.XX.X" (where X.XX.X is the version number) or whatever name you gave this folder during step 5 of the installation procedure on page 13. Click on this folder – in this example it is titled "HeatView 1.30.1" – to expand it and find the icon for the HEAT VIEW computer application, which is highlighted in Figure 10 on the next page. Clicking this icon will launch the HEAT VIEW computer application.

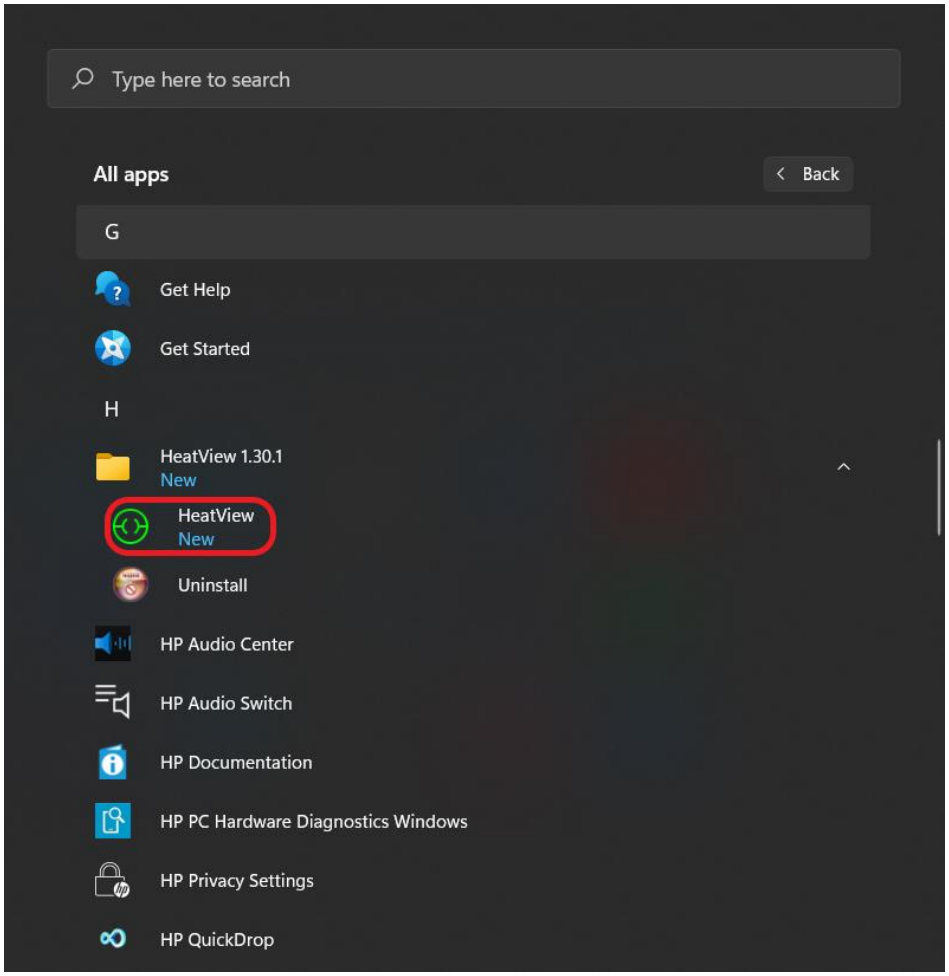


Figure 10: Windows® 11 – 'Start Menu' folder location

PLEASE NOTE: Once you have launched the application you can right-click on the icon for it in the 'Task Bar' and select 'Pin to taskbar' – highlighted in Figure 11 below – to pin the application to the 'Task Bar' for faster launching of the program in the future in both Windows® 10 & 11.

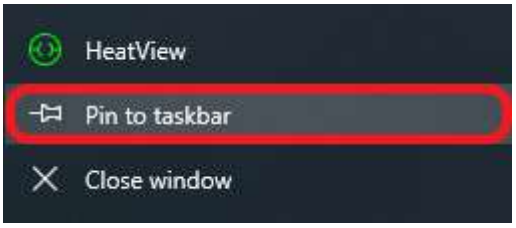


Figure 11: 'Task Bar' – Pinning the application

7. Connecting Your Computer to The Recorder

To connect to your Data Recorder, simply connect a CAT5 or CAT6 Ethernet cable from your computer to the Data Recorder. Once your recorder has powered up, simply open the computer software and wait for it to connect.

The image below shows what the computer software will look like before it is connected to the controller.

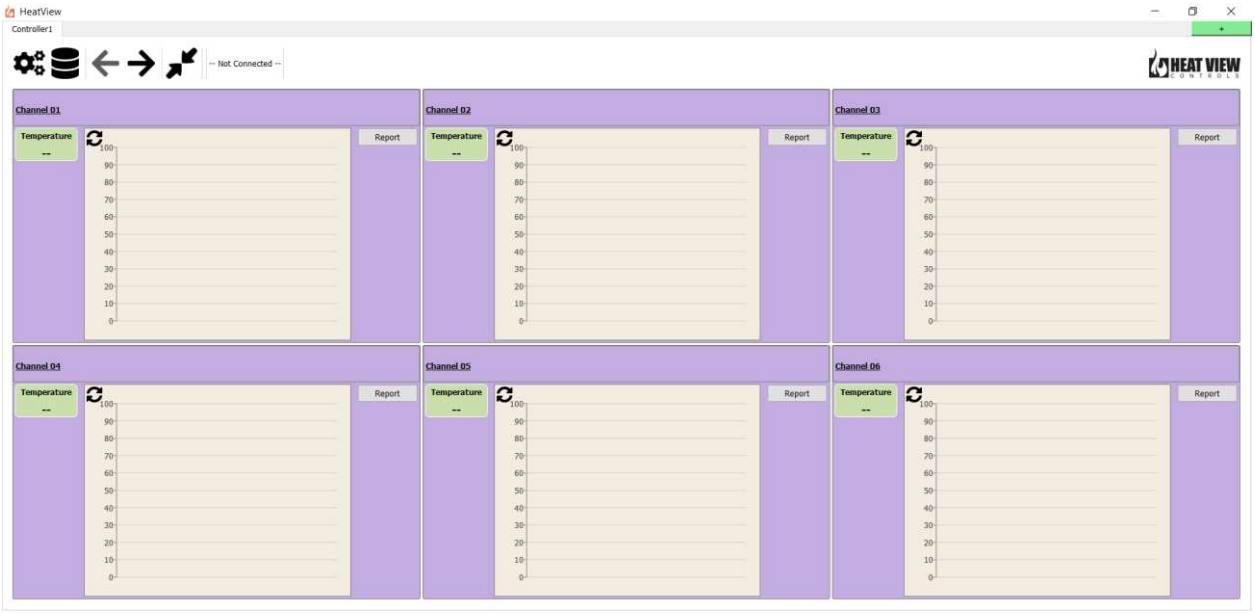


Figure 12: Computer app before it is connected to a recorder

Once connection has been established you will see the recorder's name appear at the top of the computer app. It will also start adding data to the mini charts on the channels, along with the current temperature in the channels "Temperature" value display widget. The image below shows the software once it is connected to the recorder.

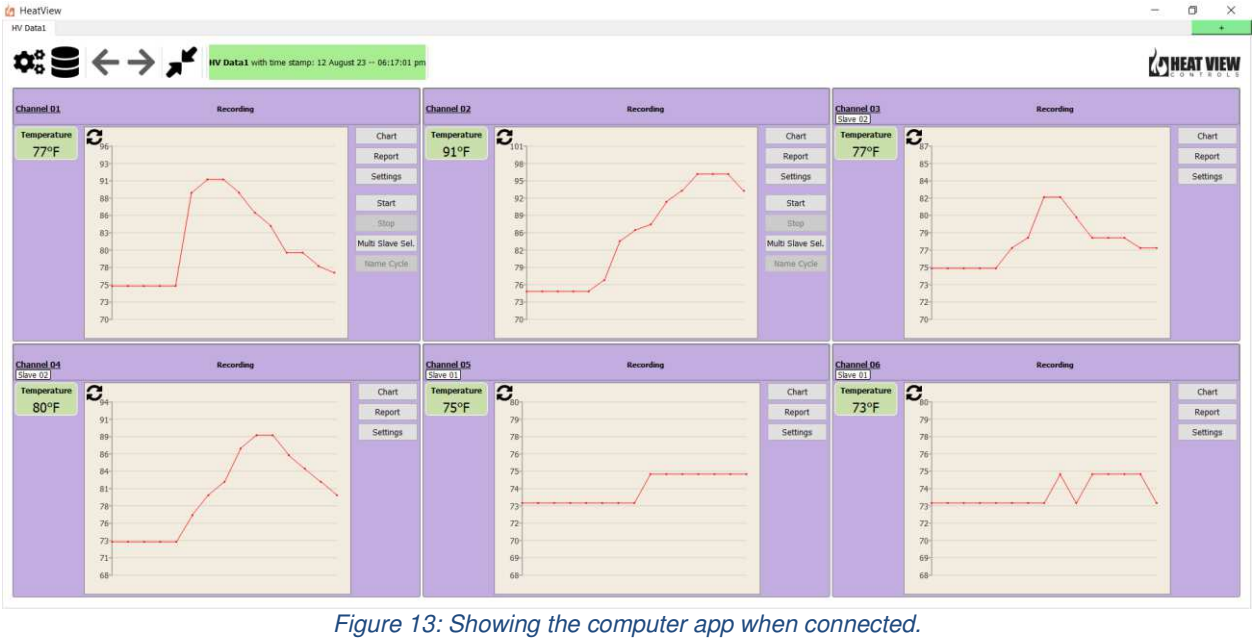


Figure 13: Showing the computer app when connected.

If this is your first time connecting to the recorder, this is all you need to do. If you have connected to this controller before and it has been more than 2 minutes since the last time you were connected to it, then it will prompt you to find out if you want to upload all the data from the controller since the last time you disconnected. Below is a screenshot of a prompt you will see. If you do not want to upload this data, simply click “no”. Otherwise clicking yes will automatically recall all the data from the recorder for all the channels and add it to your local database.

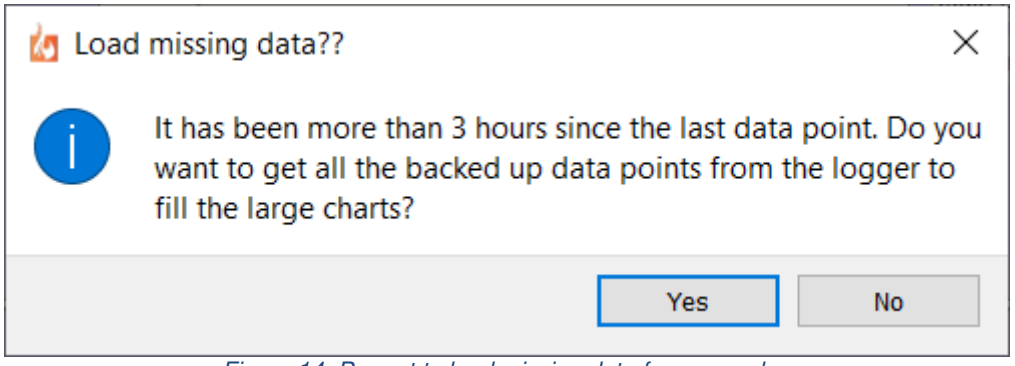


Figure 14: Prompt to load missing data from recorder.

8. Welcome to the Data View Computer Application

This section is an introduction and preliminary explanation to the 'Main Screen' of the application; it will explain the buttons you see on screen and highlight features specific to each window you can interact with from this screen. Steps to utilize various features will be explored in their own sections later in this manual.

1. Introduction to The Main Screen

Figure 41 below is an image of the HEAT VIEW computer applications 'Main Screen', separated into its important elements. From this 'Main Screen' an operator can interact with almost every other element of the application. The 'Main Screen' can be broken down into 2 key elements. These elements are:

1. The 'Title Bar' – highlighted in red in **Error! Reference source not found.** below – is always a vailable along the top portion of the application and offers access to various system functions.

2. The 'Data Window' – highlighted in black in **Error! Reference source not found.** below – is the l ower section of the program that shows an operator either channel data or chart data, depending on which 'Data Window' you are currently set to view.

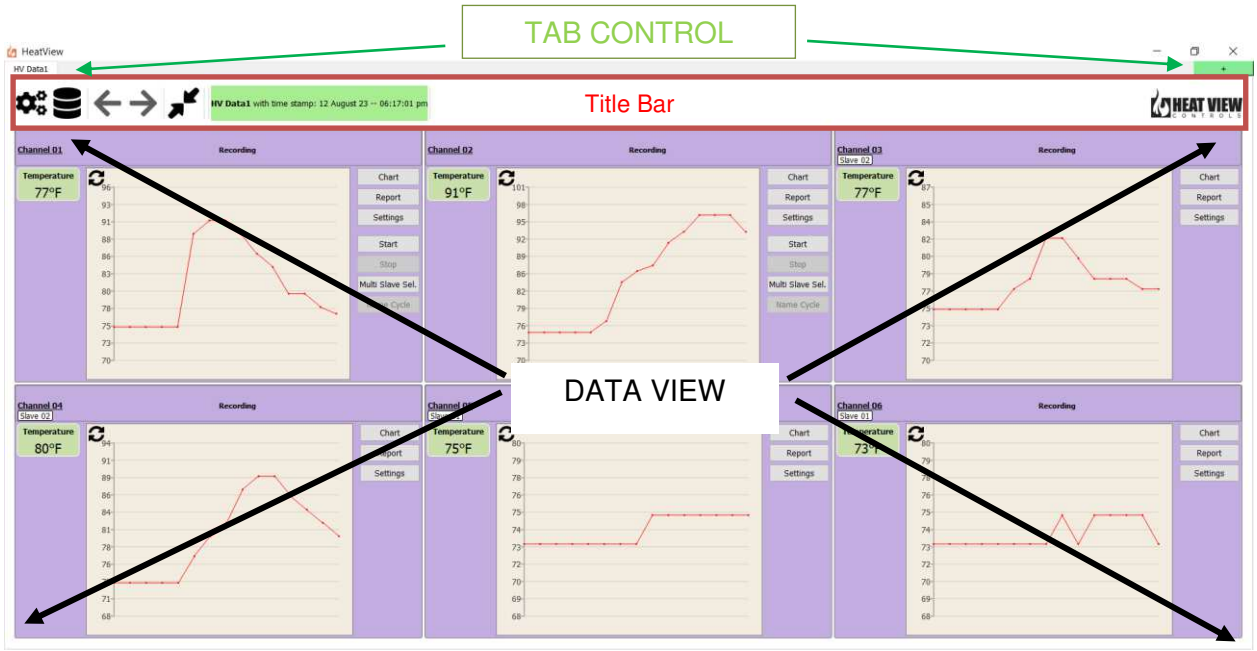


Figure 15:The Main Screen - Elements

PLEASE NOTE: As you proceed through the following sections you will notice that the computer application changes the color of the channels (and at times the whole window) to reflect specific functions and states. These colors and the states they correspond to are explained in Section 6 ' Channel States and Colors' on page 34.

I. Tab Control

The computer software allows you to connect to multiple recorders at the same time to record data from all of them at the same time. Each recorder will have its own tab, with its name on the tab for identification.

If you want to connect to more than one recorder at a time, simply connect to the second recorder via an Ethernet switch and then press on the green "+" button in the tab control to add a new recorder to the app and wait for it to connect.

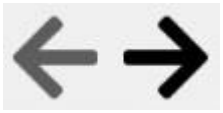
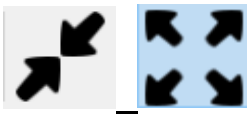
II. The Title Bar

In this section of the manual, we will explore the 'Title Bar' of the HEAT VIEW computer application, its buttons and their functions. All the buttons that can be in the 'Title Bar' are shown in Figure 16 below, however not all the buttons are always present. More on this ahead.

Figure 16: Title Bar - All buttons

The table below offers a brief description of what each element of the 'Title Bar' does, in order of appearance from top-to-bottom then left-to-right, and references the section of the manual that covers the window each button opens – if applicable.

Icon	Description
 **Application Settings**	Clicking this button will open the 'Application Settings' window. In this window you can adjust application specific settings such as chart recording intervals and if you want to see the data in Fahrenheit or Celsius. From this window you can also access calibration dialog, firmware updater and also clear the database on the recorder itself if you have the proper login credentials. The Application Settings Window is covered in more detail in Section 9 'Application Settings Window' on page 38.
 **Get Backup Report**	The 'Get Backup Report' button will allow you to pull the recorded temperature from the recorder and add it to your local database.

Icon	Description
 **I Previous Channels I Next Channels I**	The 'Detailed, 6-Channel' view shows multiple channels at once for easy and accurate viewing of channel data. Use these buttons to cycle between pages of channels. These buttons will also cycle between channels 1 at a time in the 'Chart' view. A black arrow means that you can change pages in that direction, while a grey arrow means that you have reached the furthest page in that direction. If both arrows are grey, it is because you do not have more than 6 channels configured for use – 'Detailed, 6 Channel View' only.
 **Show/Hide Summary Screen**	The 'Show Summary Screen' button allows you to change the view of the 'Data Window' on the 'Main Page'. The color and Icon of this button changes when pressed. A grey button with 2, inward pointing arrows, indicates the 'Data window' is set to either the 'Detailed, 6-Channel' or 'Chart' view. Clicking this button will switch the 'Data Window' to a 'Summary' view of all channels. A blue button with 4, outward pointing arrows, indicates the 'Data Window' is currently set to the 'Summary' view. Clicking this button will change the 'Data Window' back to the previous view.

Icon	Description
 **View Errors**	This button is used to view the 'Error List' window. This window shows any system or channel faults that have occurred. Note that this button only appears when a fault has occurred. This is by design so that operator will intuitively learn that this icon requires them to address a problem.

	The appearance of this button will always be accompanied by an audible alarm. Once the faults have been corrected and dismissed, this button will disappear until another fault is registered.
 **Controller ID and time**	This label will either show "—Not Connected –" or it will show the name of the controller you are connected to, along with the current date and time on the recorder for you to ensure it is correct. If the date and/or time is wrong the computer application will automatically update it for you.
 **About**	Though not obvious that it is also a button, the HEAT VIEW logo doubles as the access point for the 'About' window for the software. Double-click this icon to bring up important information about both the computer application and the currently connected HEAT VIEW recorder. These details will be critical when contacting your supplier for technical support should the need ever arise.

2. The Data Window

The ‘Data Window’ of the HEAT VIEW application is where an operator can view most of the data about channels and their states, both running and not. This window can be changed between 3 separate views. These views are as follows:

1. **‘Detailed, 6 Channel’ view:** This is the default view that the HEAT VIEW computer application shows upon launching the program for the first time. This view allows an operator to see the current data pertaining to the current channels in groupings of 6 at a time. It also provides the operator with channel specific control options that are not available in the ‘Summary’ View.

   Using the ‘Next/Previous Channel(s)’ (Arrow) buttons allows the operator to cycle between pages of channels in groups of 6. Figure 17 below is a broad example of the types of data you might see in this view.

Figure 17: Data Window – ‘Detailed, 6 Channel View’

2. **‘Summary’ view:** The ‘Summary’ view can be accessed by pressing the ‘Show Summary Screen’ button in the ‘Title Bar’. This can be done from either the ‘Detailed, 6 Channel’ view or from the ‘Chart’ view. Clicking the ‘Summary View Indicator’ button will return you to whichever view you were on before entering the ‘Summary’ view.

   This view shows all configured channels, up to a maximum of 24, with only the most relevant information about each channel and a button to access the ‘Channel Settings’ window for each channel. Figure 18 on the next page is a broad example of the types of data you may see on this screen.

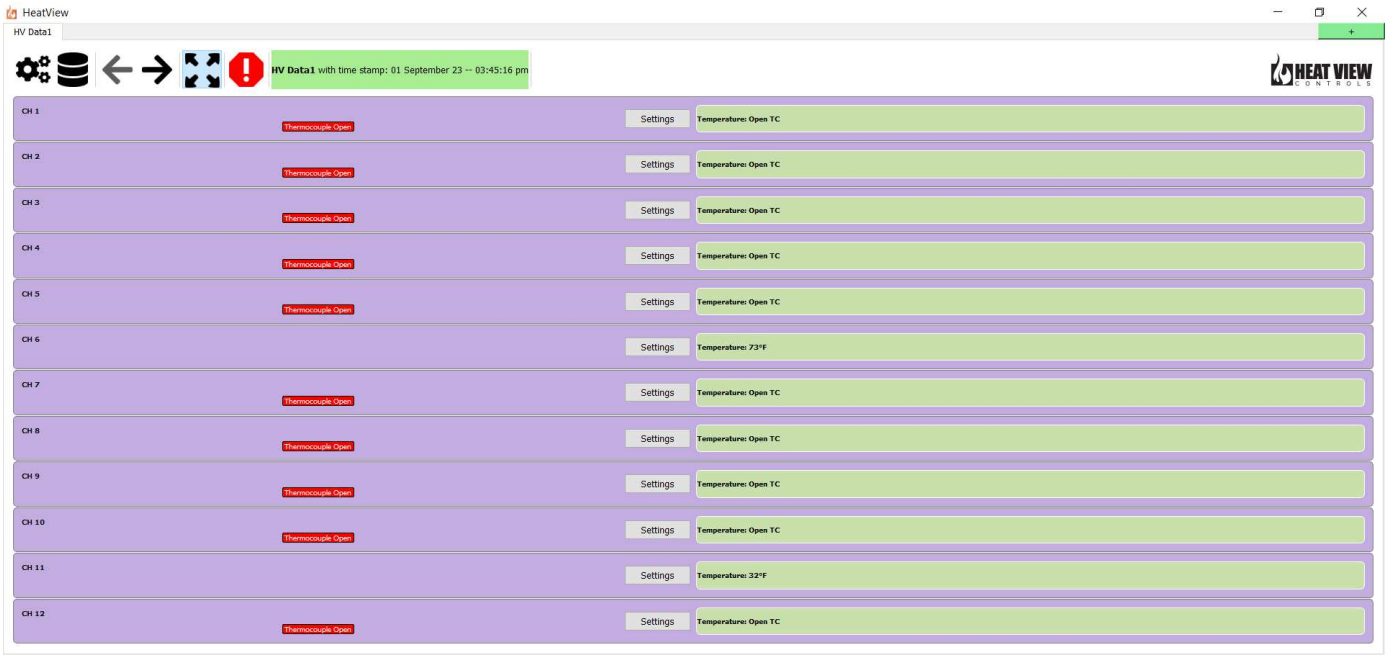


Figure 18: Data Window – 'Summary' view

3. **'Chart' view:** Figure 19 below is a visual example of what the Chart View looks like when the system is running. Changing the Data Window over to the Chart View allows an operator to see highly detailed visual process information about the current cycle.

   Accessing the 'Chart' on a master channel in a master-slave configuration will bring up visual data for all channels in the configuration, on a single visual graph. The 'Chart' and its features are explained in depth in Section 5 ' Chart View' on page 30.

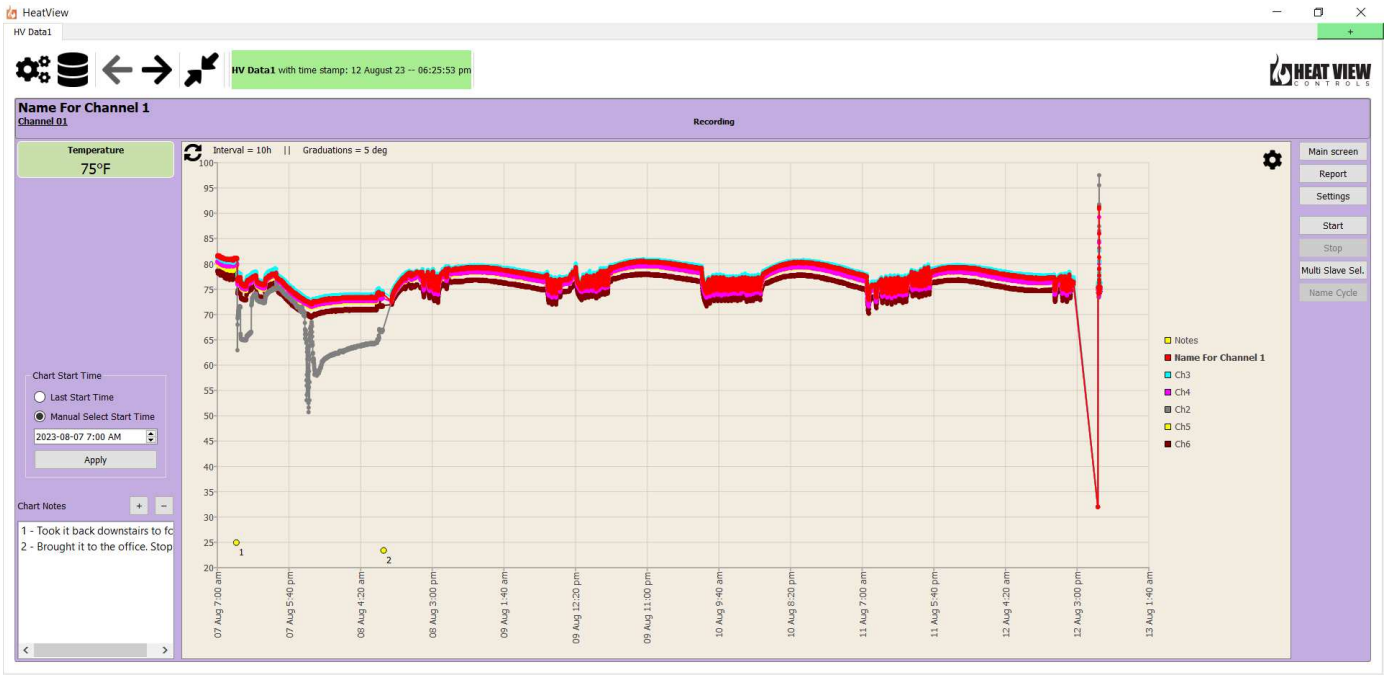


Figure 19: Data Window - Chart View

3. Detailed, 6 Channel View

This view of a channel provides multiple levels of data as well as control that is not available on the 'Summary' view. The operator receives rapidly updating, real time data that they can then use to visualize just how well a cycle is running and anticipate any problems that may occur. This view can be a key troubleshooting tool if experiencing thermocouple or power output issues.

Figure 20 below is a representation of the types of data you can find in this view, specifically those relating to a master channel.

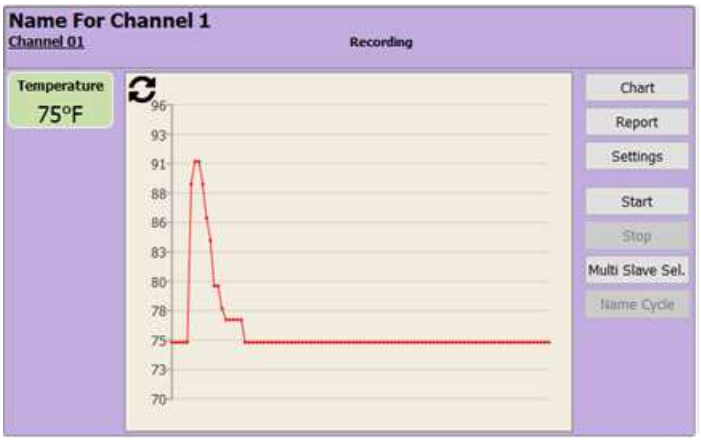


Figure 20: Detailed, 6 Channel View – Master channel example

PLEASE NOTE: This is only an example of the kinds of things that can be shown on a channel and not a guarantee of the items you will specifically see as you operate your system. Some of these element's change depending on how you have your system configured. Any configuration change that also changes the view of your system will be covered in detail further on in this manual and will always be accompanied by a screenshot of said change.

This view of a channel's data can be broken down into 4 key zones as seen in Figure 21 on the next page. These zones are each described in detail further down.

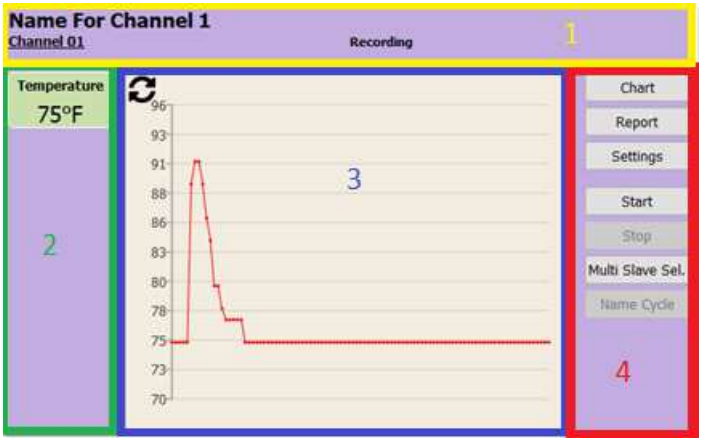


Figure 21: Detailed, 6-Channel View - Zones

I. Name & Status Information

This zone – shown in Figure 22 below – always contains the channel's number, and its currently selected Run Mode as well as its current State. Run Modes and States are explored further in Section X and Section X. This zone can also contain additional information including but not limited to, a specific user defined channel and cycle name, 'Slave State' information, as well as any currently active faults specific to the channel.

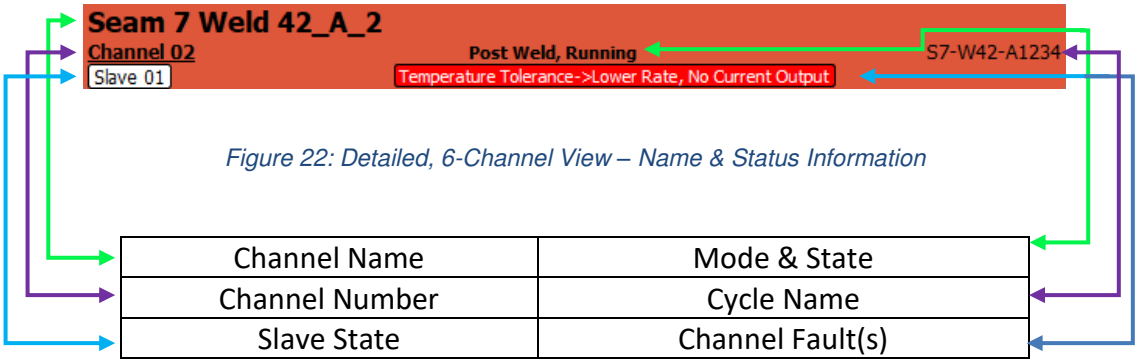


Figure 22: Detailed, 6-Channel View – Name & Status Information

Channel Name	Mode & State
Channel Number	Cycle Name
Slave State	Channel Fault(s)

Channel Name: This field is only populated if the operator has assigned a name to the channel in the 'Channel Settings' window. It is best to avoid special characters when creating channel names such as `~!@$^*/ \ as an example. However, dashes (-) underscores (_) hashtags (#) and ampersands (&) are okay to use freely. For more information, please see Section 11 'Channel Settings Window' on page **Error! Bookmark not defined.**.

Channel Number: The 'Channel Number' field is set by the system and always present in this view, unlike the 'Summary' view, where setting a custom channel name visually replaces the 'Channel Number.'

Slave State: This indicates whether a channel is a master channel or a slave Channel. If there is nothing in this field, then the channel is a Master, otherwise this field will be populated with the term "Slave" followed by the number of the master channel it is slaved to.

Mode & State: This field shows what mode the channel is currently set to; 'Post-Weld', 'Pre-Heat', 'Percentage Timer', or 'Monitor Only'. As well the systems current run state; 'Stopped', 'Running', or 'Paused'. Each of these modes and states is explained in greater detail further on.

Cycle Name: If the Operator uses the 'Name Cycle' button to give the entire process a name, this field is where that name will appear. It is critical to avoid all special characters other than dashes (-) and underscores (_).

Channel Fault(s): Should any channel specific faults occur while the process is running or while trying to start the heat cycle, the associated fault message will appear in this field as well as in the Error List. Faults are explored in depth in Section 14.

II. Process Control Information

Zone 2 – detailed in

Figure 23 below – shows current temperature of the channel being viewed. If the temperature value shows "—" it means that the recorder is currently not connected. If it shows "TC Open" then the TC reading is not present.

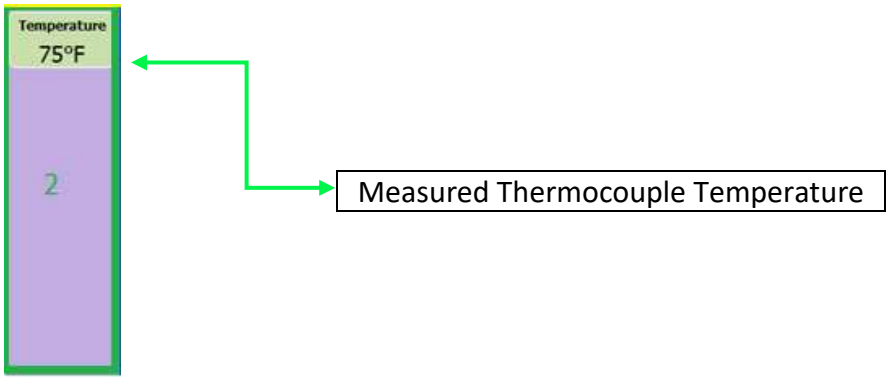


Figure 23: Detailed, 6-Channel View – Process Control Information

III. Temperature Snapshot Graph

below - is a highly detailed 30-minute live 'Snapshot Graph' of the channels current running process. This graph shows temperature data of the channel for the past 30 minutes, or since the computer app connected to the recorder.

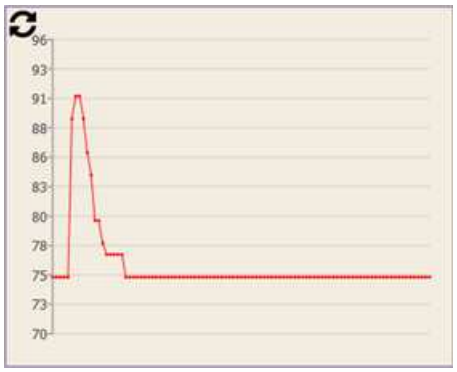


Figure 24: Screenshot of the live temperature chart for a channel control on the computer app.

Reset Button: This button will reset the graph to the default zoom level if you have used the click-and-

drag zoom function to see even greater detail. At any time, you can simply click and drag a rectangle on the chart for it to zoom into that rectangle so you can see greater detail in that area.

Temperature Scale: The scale that runs vertically along the left side of the graph is the temperature scale. This scale is automatically adjusted as necessary by the software.

Temperature Line: This line is an extremely detailed raw temperature data line showing exactly what is occurring with the associated thermocouple. This line is an excellent troubleshooting tool for operators, as it is normally very smooth and with only mild fluctuations in temperature. Large or erratic fluctuations appearing, indicates the thermocouple is experiencing environmental or signal interference, or is about to fail.

IV. Menu & Control Buttons

Chart Button
Report Window Button
Channel Settings Button

Channel Start Button
Channel Stop Button
Multi Slave Select Button
Name Cycle Button

Figure 25 below – Is where the operator interacts with channel specific control and information functions. These functions include switching the 'Data Window' to the 'Chart' view, opening the 'Report', 'Channel Settings', and 'Multi Slave Select' windows, run state controls, and the 'Toggle Power' button for the 'Snapshot Graph.' This zone also shows the current process step when running the channel in 'Post-Weld' mode.

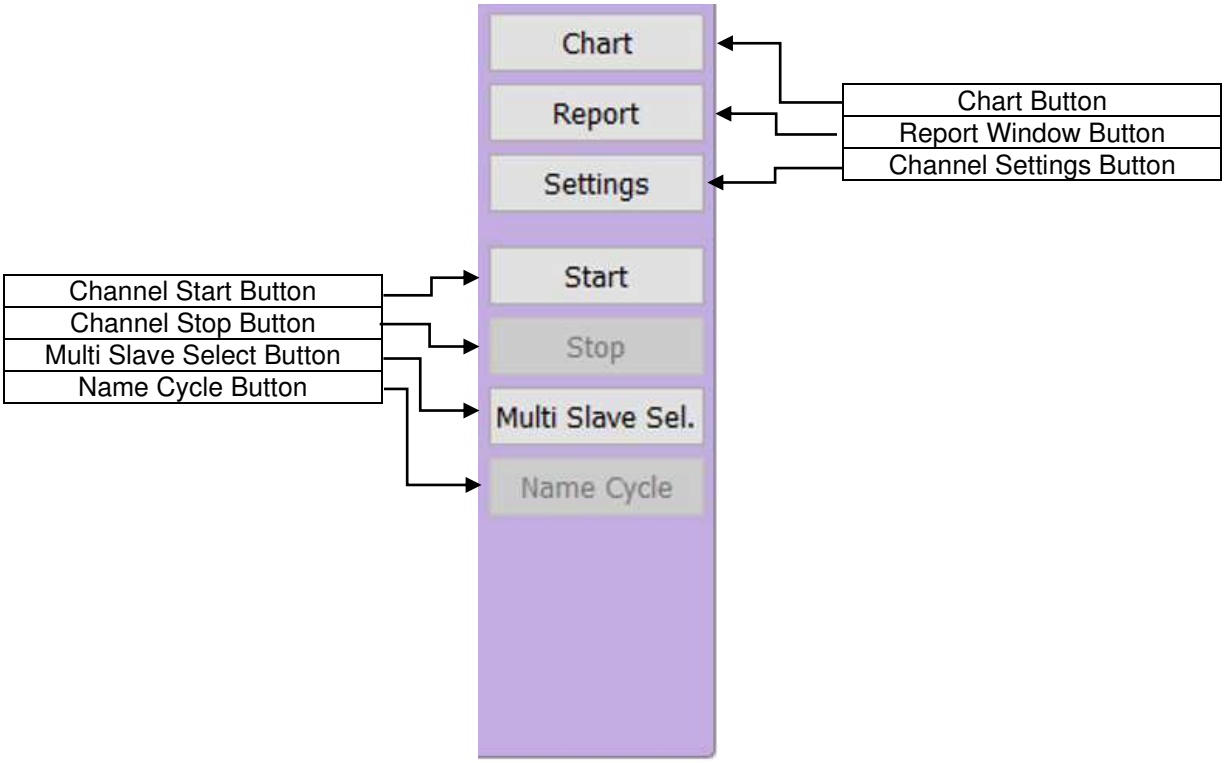


Figure 25: Detailed, 6-Channel View - Menu & Control Functions

Chart: This button switches the view of the 'Data Window' on the 'Main Screen' from the 'Detailed, 6 Channel' view, to a highly detailed view of the channels, as well as any of its slaves, recorded temperature(s) over the course of the entire cycles' timeline. The 'Chart' view and its features are explored in depth in Section 5 ' Chart View' on page 30.

Report Button: Clicking the 'Report' button will open the 'Report' window. In this window an operator can pick which controller, channel(s) and information they would like to compile into a PDF document that can be kept as a record or provided to clients for proof of completed work. The 'Report' window is covered in depth in Section 1 - The Report Window.

Settings Button: This button opens the 'Channel Settings' window. Currently all it contains is the ability to set the channel name.

Start Button: The 'Start' button starts a heat cycle. This simply designates a start time for the report generation window. It just helps you find your heating cycles easier.

Stop Button: This button will stop the cycle. Once stopped the system will be able to add the cycle to a drop-down menu in the report generation screen to make it easier to find your report window.

Multi Slave Sel.: This button opens the 'Multi Slave Select' window. In this window you can add and remove slave channels to/from the channel that this window was opened from. This button becomes greyed out once a cycle is running.

Name Cycle: This allows a user to give the running process a unique name so it can be found in the 'Report' window more easily. This button is accessible only while the channel is in a 'Running' state.

4. Summary View

The 'Summary' view is far more limited in its features and function in comparison to the 'Detailed, 6 Channel' view. It does, however, allow an operator to see the most basic process information of all configured channels simultaneously. This enables an operator to monitor all running processes on the controller without having to cycle between charts or pages like the other views do. An example of some of the things you may see in this view are shown in Figure 26 below.

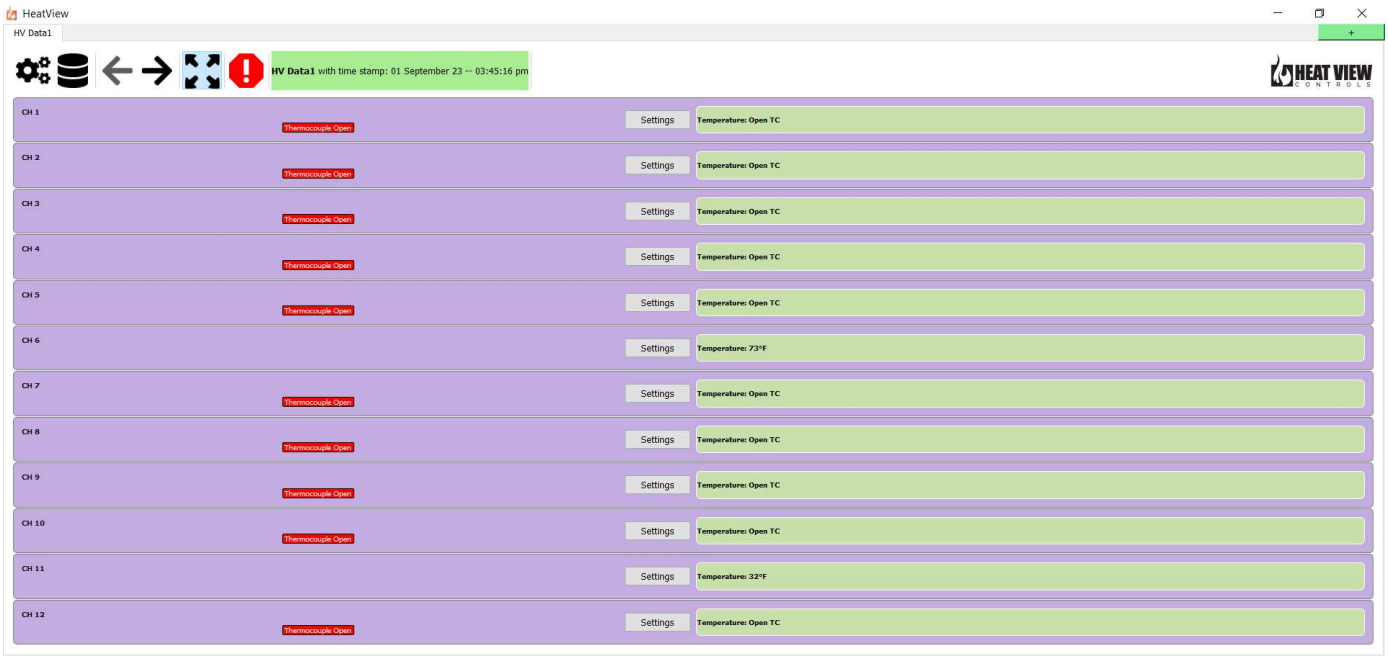


Figure 26: Summary View – Example

The data shown in the 'Summary' view is similar, but less than that shown on the main screen. The key differences being, no 'Snapshot Graph' or 'Chart', no control buttons, user defined 'Channel Names' take the place of the 'Channel Number'.

5. Chart View

The 'Chart' – shown in Figure 54 below – in many ways is the core feature of the entire program. It is a live visual record of exactly what has occurred during a heat cycle and allows an operator to highlight and document any abnormalities that arose during the cycle. It also becomes the final delivered product once transferred to the 'Report' window at the end of the cycle.

As the cycle progresses, this chart provides critical data to the operator about just how things are progressing.

The 'Name & Status Information', 'Process Control Information', and 'Menu & Control buttons' zones are identical to those that were detailed in Section 3 "Detailed, 6 Channel View" Subsections I, II, and IV. This section introduces you to the 2 zones unique to this view.

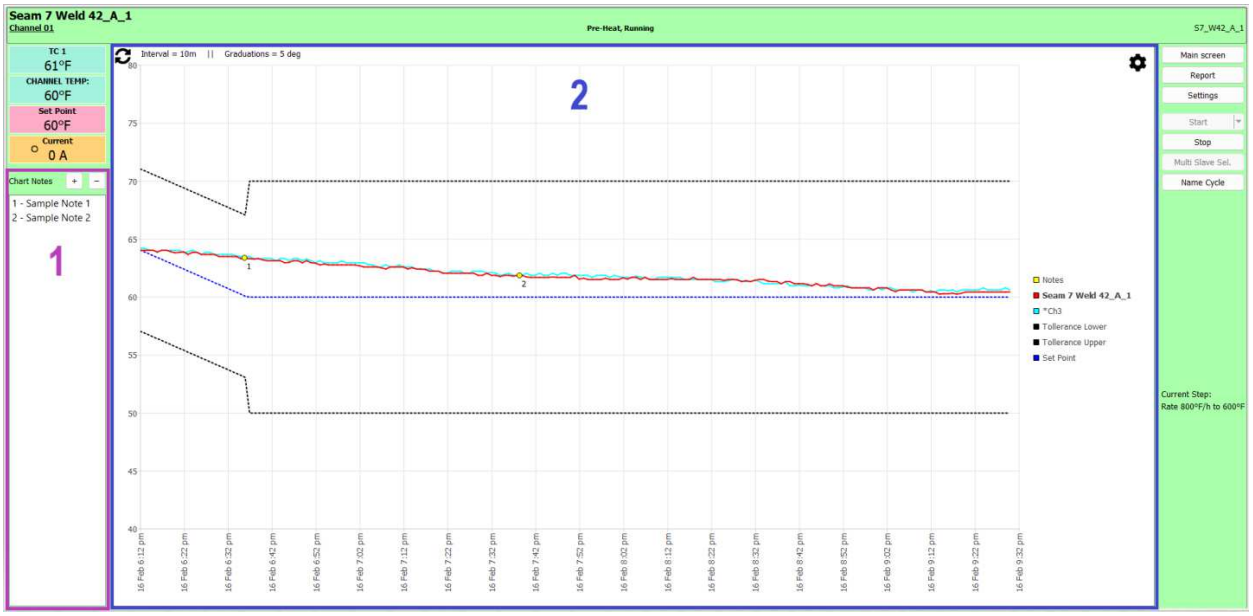


Figure 27: Chart View – Zones

I. Chart Notes

The first zone unique to the 'Chart' view, is the 'Chart Notes' segment. Here an operator can choose to add and remove notes to and from specific points on the chart as well as view any notes currently tagged to the chart. It is common practice to tag the chart with a note when a channel faults, or environmental factor affects the heat cycle.

This same function can be found in the 'Report' window so that notes can be added to, or removed from, a cycle's recorded data before generating a final report. All notes added to a chart appear on the final report.

Figure 28 below highlights this zone' features and buttons.

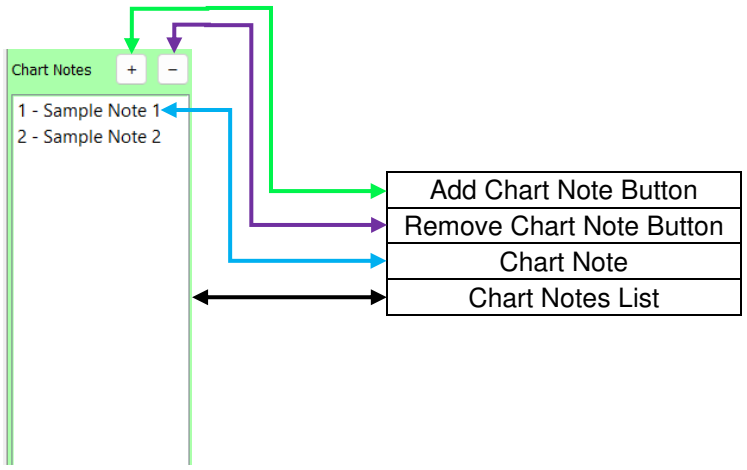


Figure 28: Chart View – 'Chart Notes'

[+]: The 'Add Chart Note' button opens the 'Add New Note' window and allows a user to add notes to a currently running cycle before the cycle ends. Notes must be tagged to a specific point on a channel' recorded temperature line. Once placed, they will appear on the chart as a yellow dot with number next to it and in the 'Chart Notes List'. The number on the chart corresponds with the same numbered note in the list.

[-]: The 'Remove Chart Note' button allows an operator to remove an existing 'Chart Note' from the 'Chart Notes List'. Clicking on the note you wish to remove in the list and then clicking the 'Remove Chart Note' button will permanently remove the note from both the chart and the list. Alternatively, an operator can also right-click on a note in the list they wish to remove and select the "Delete Note" option that appears.

Chart Note: After adding a note to the chart this is where the data associated with that note will appear. Should you need to edit a note after it has been added, simply double click on the note in the list and it will re-open the 'Add New Note' window and allow you to alter the details of your note.

Chart Notes List: This is where all notes added to a cycles chart will appear, sequentially in the order they appear on the chart, from left to right. Notes are tagged with the date and time they were added for record keeping purposes.

II. Adding a note to a chart

The process of adding a note to the chart is as simple as clicking on the [**+**] button on top of the list of charts and then moving your mouse of the point on one of the lines in the chart and clicking **on** the line. Then a small pop-up screen will come up and allow you to enter the note you desire. Click OK afterwards and the note is added to the chart and will appear in any future reports you generate from the given cycle.

III. The Chart

Functionally the 'Chart' allows an operator to see in depth details about a channels current running process and interact with it in multiple ways. It can be thought of as a much more interactive version of the 'Snapshot Graph' in the 'Detailed, 6 Channel View'. Here an operator can visualize, document, and control the process of not only one channel, but all channels in a master-slave configuration, or even observe data relating to all running channels if the right configuration settings are selected.

By default, the software is set to automatically adjust both the time and temperature scales as it sees fit to create a smooth flowing chart. However, it is possible to force these scales to adhere to user defined temperature and time increments for a more traditionally uniform chart.

Operators can also choose to click-and-drag on the chart to select a segment of recorded process data that they wish to zoom in on and inspect more closely. This and the other features specific to the chart are broken down in Figure 29 below.

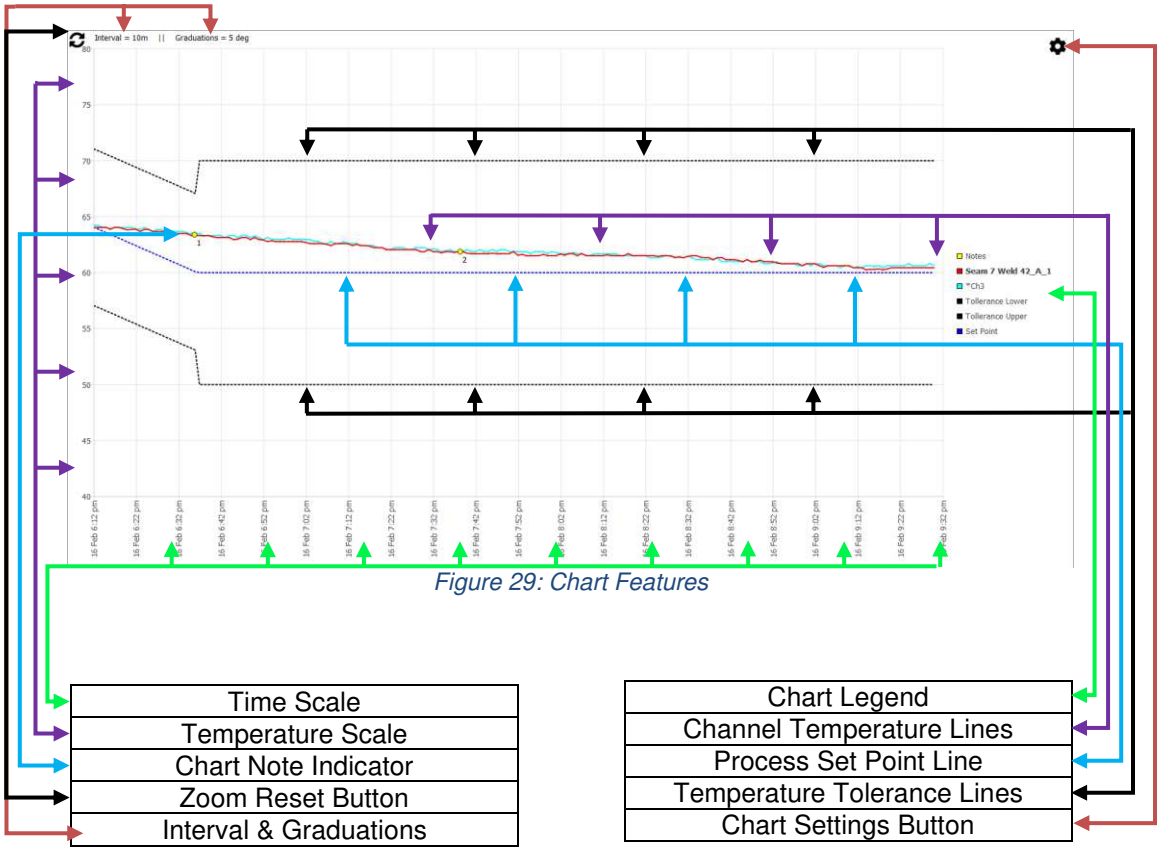


Figure 29: Chart Features

Time Scale: The 'Time Scale' runs horizontally along the bottom of the chart; by default, the software will automatically adjust this scale as the length of time the cycle has been running, increases. If at any time the operator wants to set a specific time scale interval to be shown on the chart, they can do so from the 'Chart Settings' window.

Temperature Scale: The 'Temperature Scale' runs vertically along the left side of the chart; by default, the program will automatically adjust this scale to accurately reflect the changes in temperature that occur throughout the heat cycle. If at any time the operator wants to change the temperature graduations of the scale on the chart, they can do so from the 'Chart Settings' window.

Chart Note: Seeing this little yellow dot with a number beside it on the chart indicates that the operator has added a 'Chart Note' documenting something that happened during the heat cycle. The details of the 'Chart Note' can be found in the 'Chart Notes List' to the left of the 'Chart'.

Reset Button: This button will reset the 'Chart' to the default zoom level if you have used the click-and-drag zoom function to see even greater detail.

Interval & Graduations: In the top left corner of the 'Chart' the operator will see the current denominations the system is using, whether automatic or user defined, to adjust both the 'Time' ('Interval') and 'Temperature' ('Graduation') scales.

Legend: On the right side of the chart is the 'Legend'. This 'Legend' automatically changes and adapts to changes in the configuration of channels, 'Channel Names', 'Temperature Tolerances', and 'Chart Notes'. By default, the number of a channel appears in this legend, however it is replaced with text if the user sets a specific name for a channel. These channel names as they appear in the legend will also appear in the chart in the 'Report' window.

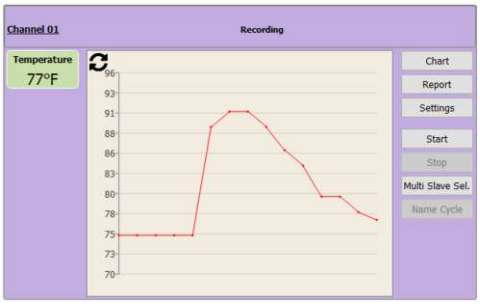
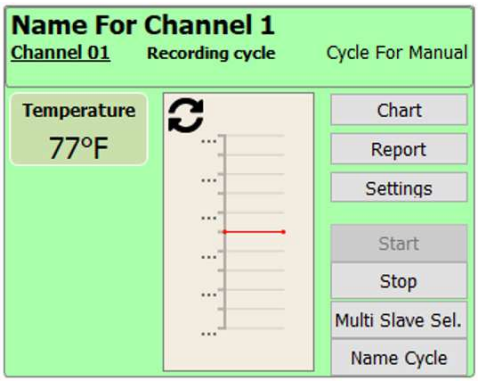
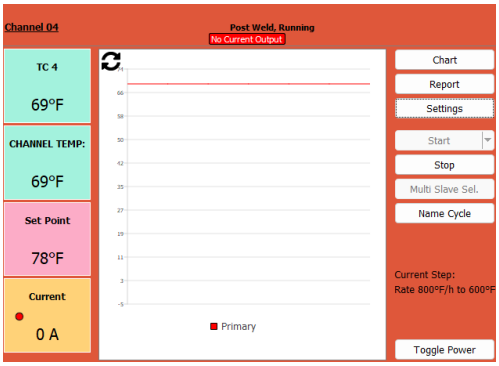
Temperature Lines: When viewing an individual channel, the 'Temperature Line' will always be red, however the addition of slaves to a channel causes the 'Temperature Line' of each additional channel on a chart to be is given its own individually colored line. This is to differentiate them from each other when viewing the 'Chart'. Monitor only channels will appear in the 'Legend' with an asterisk (*) next to their name and can be hidden from view using the 'Chart Settings' window, to enable an operator to see only data relevant to the master channel if necessary. These lines will be recorded to the 'Chart' at whichever interval has been set in the 'Applications Settings' window under the 'Chart Sample Interval' option. The 'Application Settings' window is explored in Section 9 'Application Settings Window' on page 38.

Settings Button: Clicking this button will open the 'Chart Settings' window. From this window an operator can choose to show or hide channels, the set point and tolerance lines, as well as slave channels. This window is also where an operator can 'Force Interval Values' to make the chart appear how they want.

6. Channel States and Colors

By now you've probably noticed that the HEAT VIEW application is quite colorful by nature and that these colors change in sync with certain system functions and events. Colors and their associated state are universal throughout the application, so no matter what view you are using to observe a channels data, it will be color coordinated to match a channels 'State'. These states and colors are detailed in the table below.

Color & State	Description
Purple = Stopped - No Faults	Blue is used to indicate that a channel is currently in a 'Stopped' state and has no

	active channel specific faults that have not been addressed and cleared. This is the default state and color of a channel within the HEAT VIEW computer application.
<u>Green = Running - No Faults</u> 	Green indicates that the channel has been started by the user and is currently in the "Running" state without fault or error and is within the user defined parameters.
<u>Red = Faulted</u> 	A channel turning red is a visual queue to the Operator that the channel is currently in a 'Fault' state. The 'Fault' state and color can appear in conjunction with all states discussed previously. A fault being generated will always be accompanied by both a visual readout of what fault has occurred as well as an audible alarm. The fault must be corrected and dismissed before the channel will change back to either yellow or green, depending on the fault generated.

It is important to note that the 'Fault' state can happen simultaneously alongside the 'Running', 'Paused', and 'Stopped' states, causing these normally colored channels to turn red. A channel experiencing a 'Fault' state will never stop its already 'Running' cycle as the result of a fault, not even if it experiences a 'Thermocouple Open' fault. Only a

7. The 'About' Window

Double-clicking the HEAT VIEW logo in the title bar will open the software's 'About HeatView' window. Here an operator can view important information about the software and controller they are connected to. This window is detailed below in

Figure 30.

Figure 30: The About Window – Detailed

Application Version Number: This field lists the currently installed and running version of the HEAT VIEW computer application.

Controller Serial Number: If for any reason the serial number physically marked on your controller becomes illegible, it can be found here in the 'About HeatView' window.

PLEASE NOTE: This serial number must also appear, exactly as shown here, on any calibration certificates you acquire each time you have the controller calibrated to verify functionality and certify the accuracy of the device. The industry standard is to have the controller calibrated yearly and maintain traceable calibration records.

PLEASE NOTE: The industry standard calibration interval has been shifting in the last few years, with many applications demanding 3- or 6-month calibration intervals as a standard requirement. Please contact your authorized HEAT VIEW distributor to arrange calibration at the routine interval you require for your application or clients, and they will be happy to assist you in maintaining whichever calibration interval you require.

Controller Code Version: This is the current version of the code running on the HEAT VIEW controller you're connected to.

PLEASE NOTE: It is imperative that you know your 'Software Version' 'Controller Code Version' and 'Serial Number' when calling your authorized HEAT VIEW distributor for support. This information will allow them to pull up system configuration and warranty information directly related to you controller and expedite the support process.

Website Link: Should you ever wish to quickly access the HEAT VIEW website, to check for new software updates, products, or service bulletins, simply click this link in the 'About HeatView' window to automatically open the website in your default internet browser.

'OK' Button: Clicking this button will dismiss the 'About HeatView' window.

9. Application Settings Window

On the surface, the 'Application Settings' window of the HEAT VIEW computer application appears simplistic in nature; however, it also acts as the login portal to access multiple tiers of additional application, channel, and controller settings. The different access levels are explored further in this section. Figure 31 below is an example of what the 'Application Settings' window looks like when connected to a logger before logging in to the advanced settings.

1. Basic Application Settings

There are only 2 basic functions available to an operator upon first opening the 'Application Settings' window. These functions are detailed below.

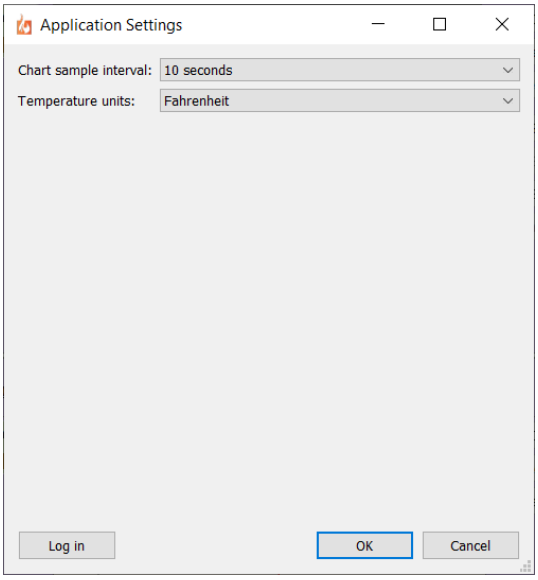


Figure 31: Basic Application Settings

Chart Sample Interval: The 'Chart Sample Interval' setting allows an operator to choose the frequency they want the computer application to sample a channels temperature data and record it to the chart, and by extension the database, when a heat cycle is running. This option, upon connecting to a controller for the first time, or after a major code update, will be set to a 2-minute interval, however, intervals of 10 seconds, 30 second, 1 minute, and 5 minutes are also available.

Setting your 'Chart Sample Interval' is important to how your controller captures cycle data. A short sample interval will capture large amounts of data and will be more likely to capture fluctuations in temperature and log abnormal events. This is helpful in certain applications when you need to see exactly what occurred with a cycle. However, if working on an application where precision is less important or the cycle will be running for potentially days at a time, a long sample interval will ignore negligible fluctuations and events. Best practice is to choose either a 1- or 2-minute sample interval.

Temperature units: This is the selection of units you wish to work with in the app. It can be changed at any time.

Login: This button will open a separate smaller window with options to enter a 'Username' and 'Password'. Depending on your credentials, you can access Supervisor or Service level 'Advanced Settings' for several sections of the application and controller. The Supervisor level is explored in the next section.

2. Advanced Settings

The 'Operator' level login provides access to 'Advanced Settings' window as well as a couple other options in the 'System Settings' window. The image below shows the options available to you when you are logged in as an Operator or higher level.

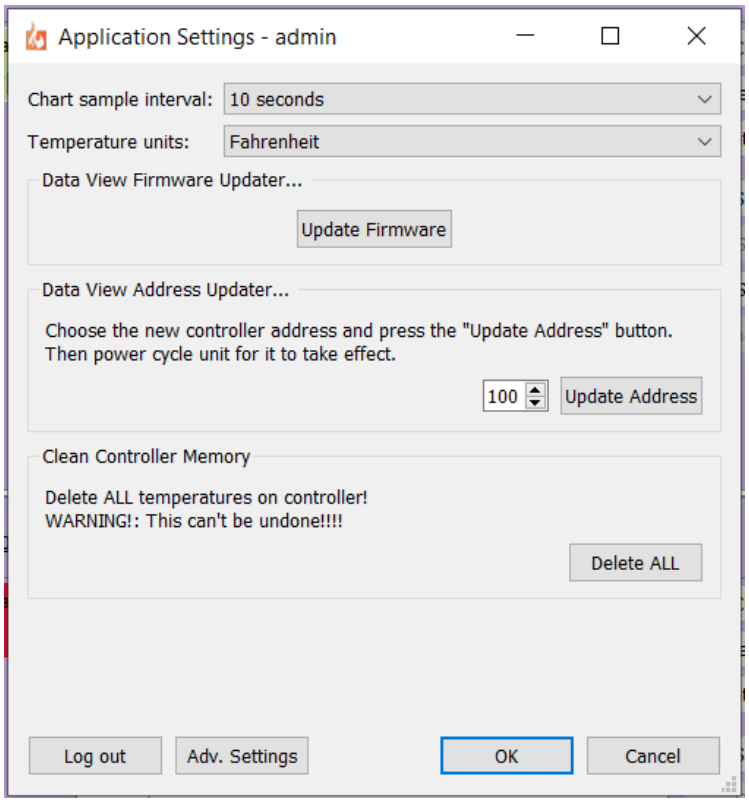


Figure 32: Applications setting screen once logged in

I. Chart sample interval

The software running on your computer will log the current temperatures on the device at every couple of seconds or minutes. The amount of data you want to record is up to you. Setting this value in the drop-down menu will tell your computer to log the temperature data at this specified interval. When generating the report, it will pull this data that was recorded for chart on the report.

Please note, this does not affect the rate at which the recorder logs data. It will always log one data point for every channel that has a thermocouple plugged into it every minute.

II. Temperature units

The system will always work in degrees Celsius and show the temperature to you in either Celsius or Fahrenheit. This is a live setting, so changing it will change the values on the charts and the

reporting window immediately.

III. Data View Firmware Updater

The "**Update Firmware**" button will allow to update the firmware on the controller. If there is a newer version of the firmware on the website HeatViewControls.com then you can download it and update your controller. Once you have downloaded the updated firmware, simply click this button and a new window will appear as shown below.

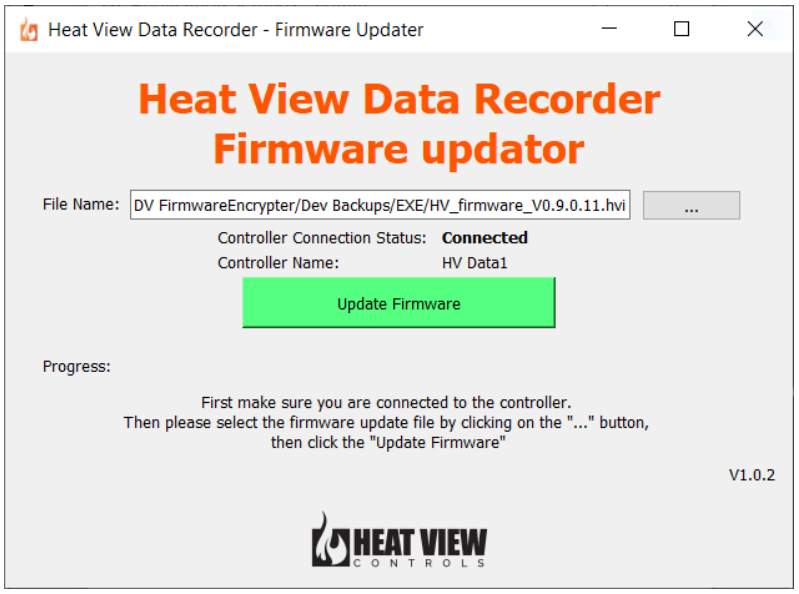


Figure 33: The firmware updater window.

Next, click on the button with the "…" to find the file you downloaded from the website and select the file. The "File Name:" text box will now show the file you selected. Once you have selected the file, click on the "**Update Firmware"** button. This will then write the firmware to the controller and confirm it was written successfully. Once complete the window will tell you it was successfully as shown below. Then the next time the controller boots up it will be running the new firmware.

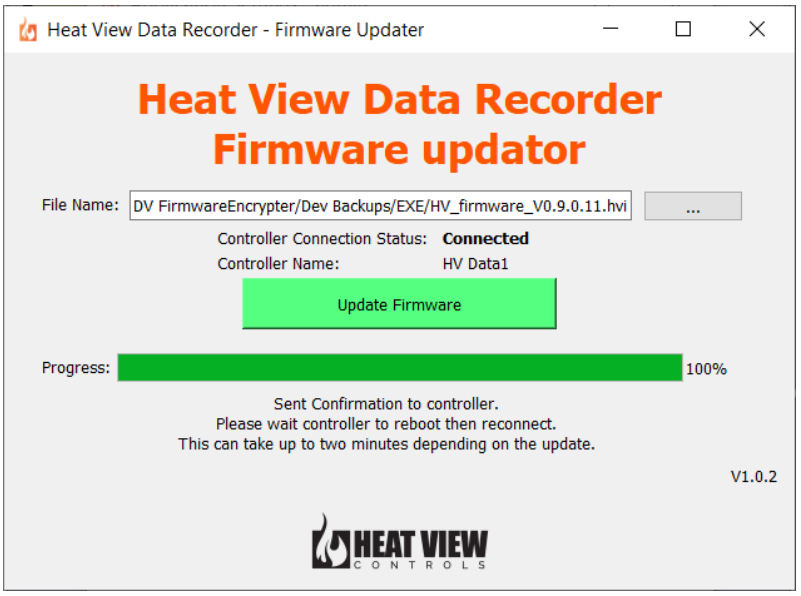


Figure 34: Firmware update completed.

IV. Data View Adress Updater

The Data View recorder is designed to allow you to connect to more than one recorder at a time. For this to happen they need to have their own addresses. The system is setup to have an address in the range of 75 to 150.

Simply select an address that none of your other recorders are at and then press this button. The next time the recorder boots up, it will have the new address.

V. Clean Controller Memory

This option is provided to erase all recorded data on a recorder. It is a permanent action and all recorded temperature stored on the recorder will be permanently erased. Do not use this unless you have to. If the system seems to be running too slow or other side effects, you can try this as an option.

VI. Advanced Settings button

Once logged in, the advanced settings button will appear. This will allow the user to open a new window to allow you to make more in depth settings changes to the application. The only advanced settings available to you will be the calibration values for the system. The calibration process is covered in more detail later in this manual.

10. Chart Settings Window

The graph or 'Chart' that is present in both the 'Chart' view of the 'Main Screen', as well as in the 'Report' window, can be adjusted to suit an operators view preference within the 'Chart Settings' window. This window can be accessed via the 'Chart Settings' button ⚙ in the upper right corner of the graph, and is identical in both features and function, no matter where it is accessed from.

When in the 'Chart' view, the 'Channel Settings' window changes the view of only the chart for the channel currently being viewed. In the 'Report' window, since there is only one chart, changing settings in this window affects just the 'Report' window chart. The image below explores the features of the 'Chart Settings window'.

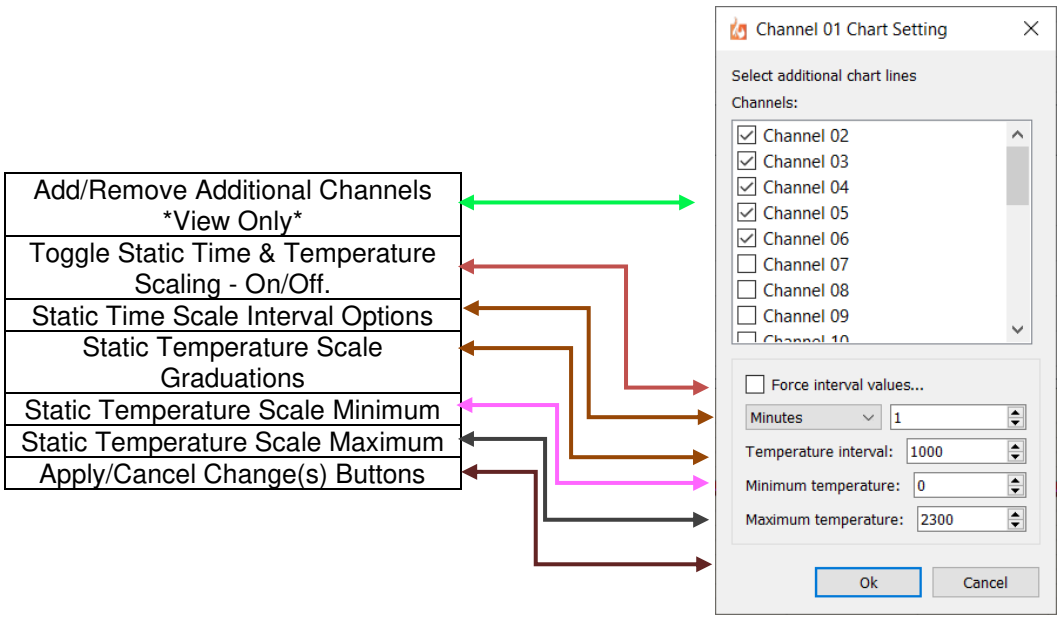


Figure 35: Chart Settings Window - Features

Select Additional Channels to Draw on the Chart: This is where an operator can choose additional channels to view while in a channels 'Chart' view on the 'Main Screen'. Once selected, the charts for the additionally selected channel(s) get drawn on the chart currently in view and remain until deselected. These additional channels do not get recorded to the original channel' chart or database entry from its heat cycle and are *View Only*.

Force Interval Values…: Enabling this option disables the auto-scaling features of the chart and allows an operator to choose exactly how they wish to view both the 'Time' and 'Temperature' scales. This is accomplished via the 5 fields discussed below that become available once the checkbox for this option has been selected. Deselecting this checkbox returns control of the 'Time' and 'Temperature' scales back to the system.

Time Interval Options: The two options directly below the 'Force Interval Values…' checkbox adjust the horizontal 'Time Scale' along the bottom of the chart. The drop-down list on the left is for choosing the 'Time Scale' modifier – minutes, hours, or days – while the text box on the right is where the operator enters the number of the selected modifier. I.e., setting the drop-down to 'Hours' and typing '1' into the

text box, will force the chart to draw the channel data on the chart with the 'Time Scale' now increasing hourly from the start of the cycle. Depending on the length of the cycle, an operator may have to re-adjust this scale to cleanly view the chart data.

Temperature Interval: The number an operator enters in this field adjusts the graduations of the 'Temperature' Scale', which runs vertically along the left side of the chart. I.e., setting this to '100' would forcibly adjust the 'Temperature Scale' so that it now increases vertically in graduations of 100°; starting from the user defined 'Minimum temperature' and increasing at the set graduation until reaching the user defined 'Maximum temperature'.

Temperature Minimum: This field allows an operator to choose the lowest temperature that will appear on the vertical 'Temperature Scale'. The 'Temperature scale' will start at this temperature and increase by the graduation value you entered in the 'Temperature interval' field until reaching the user defined 'Maximum temperature'.

Temperature Maximum: This field allows an operator to choose the highest temperature value that will appear on the vertical 'Temperature Scale'. The 'Temperature scale' will end at this temperature, decreasing by the graduation value you entered in the 'Temperature interval' field until reaching the user defined 'Minimum temperature'.

PLEASE NOTE: When defining custom static scales, it is best practice to set you your 'Minimum temperature' 5-10% lower than the heat cycles starting temperature, and 'Maximum temperature' 10-25% higher than the maximum temperature the heat cycle will reach so that chart has room to draw any large fluctuations or cycle events that occur.

'Ok' & 'Cancel' Buttons: Pressing the 'Ok' button will cause any changes you made in this window to be applied to the chart you are currently viewing. Make sure you click 'Ok' and not 'Cancel' when exiting this window if you want to use the settings you enabled. If you make changes but decide you don't wish to use them, the 'Cancel' button will close the 'Chart Settings' window without applying any of your changes. All changes to the chart from inside this settings window stay in effect until disabled by the operator.

PLEASE NOTE: The system always records time and temperature data from the heat cycle to the database in such a way that, at any time, an operator can freely change between using scales of their choosing, or letting the system auto-scale the chart. This allows an operator to quickly choose the best-looking view of their chart.

11. Channel Settings Window

The only option for the channel settings is to set the channel name. The only reason to name a channel is for easier identification on the channel in the report window. Simply type a name for the channel in the settings window and click OK. This will set the channel name on the recorder.

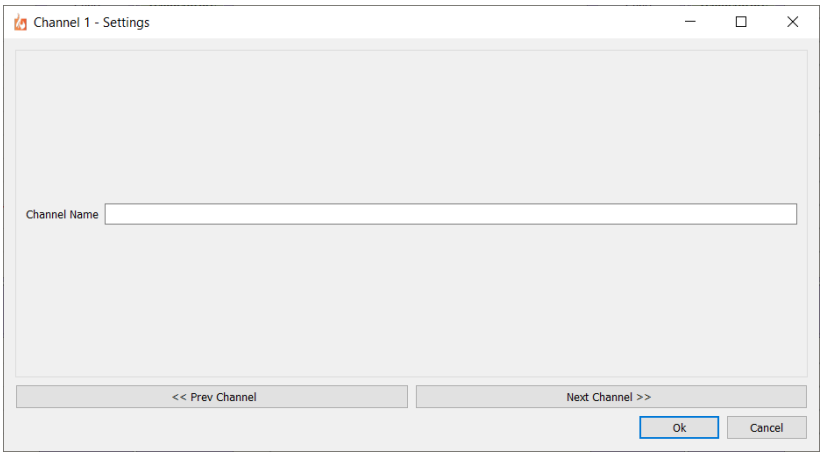


Figure 36: Channel Settings

12. Master/Slave Channels

The Master-Slave chains on the recorder is different from most controllers you may be used to. This recorder simply uses the master slave chain to start a cycle recording on all the master slave channels with one click. There is no other function than this. For example, if you have a 24 channel recorder and you want to record a heat cycle on all the channels, rather than clicking on the start button on all the channels, you can slave them together and click start on the master channel and they will all start together. Here is how you go about making a master slave chain.

When a 'Master' channel is in a 'Stopped' state, the 'Multi Slave Sel.' button is available as shown and discussed in Section IV. Clicking the 'Multi Slave Sel.' button will open the 'Multiple Slave Selection' window shown in Figure 37 below. Then simply select all the channels you want to slave to the master channel and click OK. Deselecting and previously checked channels will remove them from the chain.

If you would like to select all the channels, simply click "Toggl All". Clicking the "Toggle All" button again will turn them all off.

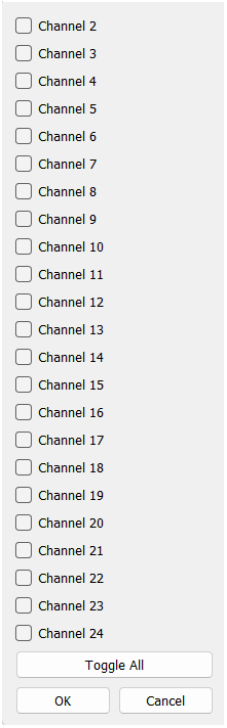


Figure 37: Adding/Removing Slaves - Multiple Slave Selection Window

13. The Error List Window & Audible Alarms

The system will check for any open thermocouples and also any internal problems in the controller and show them to you. The error list is shown when clicking on the red icon at the top of the software. This icon will be hidden if there are no ACTIVE faults.

The following sections will detail how the system alerts operators to a new fault, both visually and audibly, mute the audible alarm that accompanies new faults, dismiss faults that have been resolved, and even change the sound of the alarm if they desire.

1. The Error List/Fault Window

The 'Error List' or 'Fault' window serves multiple purposes. First, it is where an operator can view a list of active faults currently affecting the controller in a single consolidated environment, enabling them to track and troubleshoot multiple issues simultaneously. Second, it allows the operator to the 'Mute' the 'Audible Alarm' while they troubleshoot. Lastly, this is where operators must come to 'Dismiss' faults once they have been resolved, enabling them to 'Resume' channels that were 'Paused' or start channels that were 'Stopped' but also faulted.

When a new fault is detected by the controller and computer software, the computer application will immediately notify the operator of the new fault in multiple ways. For all faults, the 'View Errors'/ 'Fault Indicator' button will appear in the 'Title Bar' (if not already present due to a previous, unresolved fault) and an 'Audible Alarm' will sound to alert the operator to the problem.

If the fault is specific to a channel or group of channels, the affected channel(s) will also turn from blue, green or yellow depending on their current run state, to red; indicating they are currently experiencing a fault. For more information on colors of channels and their meanings please refer to Section 6 ' Channel States and Colors' on page 34.

Should you ever experience a fault you cannot resolve, and require technical support from a HEAT VIEW technician, please record the fault exactly as you see it in the 'Error List' and relay it to your authorized HEAT VIEW distributor when contacting them.

Figure 38 on the next page highlights the features of the 'Error List/Fault' window.

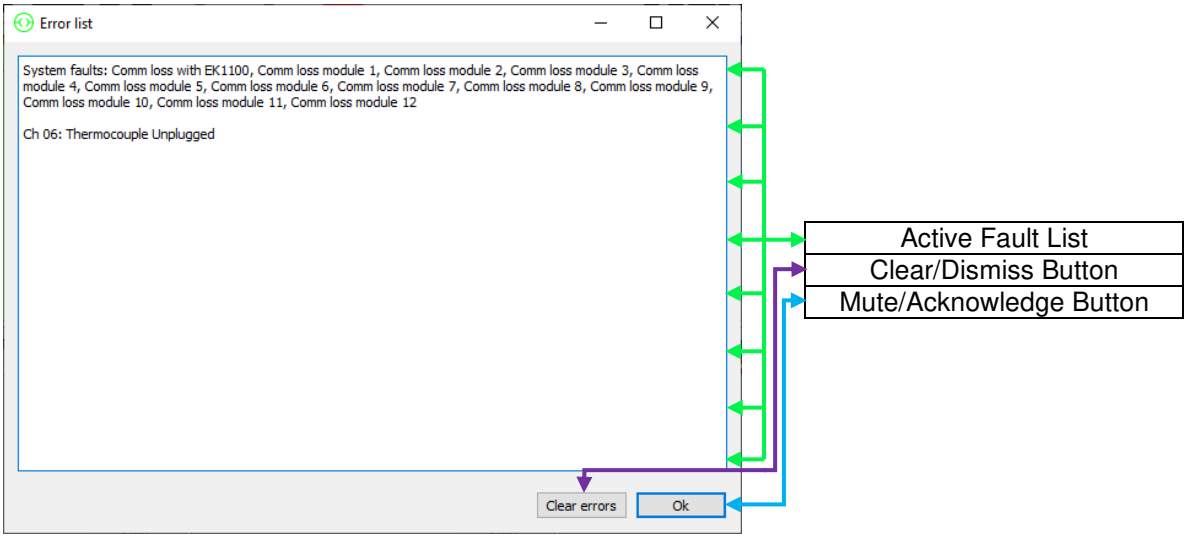


Figure 38: The Error List/Fault Window

Error/Fault List: All faults that are currently affecting either specific channels or the entirety of the system, will appear in this list and stay until the cause of the fault is resolved and then the error cleared from this list. 'Channel' and 'System' faults are explored in detail in Section 4 'Fault Types' on page 49.

'Clear Errors' Button: Once the cause of a fault has been corrected by the operator, they can then use this button to attempt to clear the fault and return the channel to the whichever state they require it to be in.

'Ok' Button: this button is dual purpose in nature. It acts to both 'acknowledge' the faults and close the 'Error List' window, while simultaneously 'Muting' the audible alarm.

2. Clearing Faults

When a fault occurs, it will either require an operator to address and clear it, or automatically clear itself, depending on the fault and just how the system has been affected. Clearing faults from the system that require operator intervention can be accomplished in a few simple steps.

1. Click on the 'View Errors'/ 'Fault Indicator' button to open the 'Error List/Fault' window.
2. Observe the 'Error List' to determine what fault has occurred, and once you are ready to address the issue, press the 'Ok' button to acknowledge the fault, muting the 'Audible Alarm'.

PLEASE NOTE: The 'Audible Alarm' will remain on until the 'Ok' button in the 'Error List/Fault' window is pressed, muting it. If a new fault occurs at any time, for any reason, the 'Audible Alarm' will sound again, to alert the operator to the new issue. The operator will then have to press the 'Ok' button again, to acknowledge and mute the new fault.

3. Perform repairs, adjust settings, or address the channel configuration issues, as indicated by the fault.
4. Once you are confident the issue has been resolved, and if the fault is not of the 'Auto-Clearing' variety, click on the 'View Errors'/ 'Fault Indicator' button  to re-enter the 'Error List/Faults' window.
5. Next, click the 'Clear errors' button at the bottom of the window to clear the active fault and dismiss/close the 'Error List/Faults' window.

If you were successful in resolving the fault, the 'View Errors'/ 'Fault Indicator' button  should disappear from the 'Title Bar' (if there are no other active faults affecting the system) and your channels should now either back to the state/color they were prior to the fault occurring. If they entered a 'Paused' state due to a fault, the channel (s) affected will now be yellow and awaiting operator input to 'Resume' their cycles.

If you were unsuccessful in resolving the fault, the 'View Errors'/ 'Fault Indicator' button  will remain in the 'Title Bar' and the 'Audible Alarm' will sound once more, alerting the operator to the unresolved issue. Attempt your repairs/changes once more and try to clear the fault again.

3. Changing The Audible Alarm

Should you ever desire to change the sound of the audible alarm to something of your preference, this can be accomplished by following the few steps outlined below.

1. Ensure the HEAT VIEW computer application is not running.
2. Choose a sound you would prefer to hear when the 'Audible Alarm' is activated. This sound file must be in .MP3 format.
3. Rename your MP3 sound file to "Alarm.mp3"
4. Navigate to the install directory for the HEAT VIEW computer application. By default, it should be in C:\HeatView.
5. Replace the "Alarm.mp3" file in this location as well as in the SRC subfolder (C:\HeatView\SRC) with your new "Alarm.mp3"
6. Restart your computer.
7. Launch the HEAT VIEW computer application.
8. Pressing 'Start' on a channel that does not have a temperature reading will be the quickest way to generate a fault and test that your new alarm audio was installed correctly.
9. Enjoy you new 'Audible Alarm'.

14. Faults – A Detailed Guide

This section is a comprehensive guide to understanding all the faults that currently exist within the computer application and controller code, for a standard configuration HEAT VIEW controller and will be universal to almost all configurations of the HEAT VIEW Control System.

If you possess a custom configuration of the controller, with faults unique to your application or are using a SAFE version of this controller, refer to the documentation provided to you with your system to find information about faults specific to your configuration. If you are unsure of which documentation you need to refer to, please contact your authorized HEAT VIEW distributor and provide them with the Serial Number of your controller so they effectively facilitate your request and forward you the proper documentation.

4. Fault Types

HEAT VIEW Controllers have two core 'Fault' types:

System Faults: are faults that are affecting the controller's physical hardware components or communication to the controller. System faults generally are critical in nature and not usually something an operator can resolve on their own. Always reference the list of faults in found further in Section 15 for information on how to proceed if you encounter a 'System Fault'. In the 'Error List' these faults are always proceeded by the text "System Faults" followed by the name of the fault.

Channel Faults: are faults that are related to the function, status, and programmed process variables of individual channels. These faults exist specifically to inform an operator of a channel specific issue, that with the right knowledge, they can resolve and dismiss, themselves. Depending on the cause of the fault, channel faults can occur while a channel is in a 'Running', 'Paused', or even, 'Stopped' state. In the 'Error List' these faults are always proceeded by the text "Channel XX:" (where XX is the channel number)

The tables in the following sections will detail the fault name as it appears in the computer application, differentiate between whether it is a channel or system fault, types of channels affected, which run states the fault can occur during as well as the effect is has on that run state, general information about how the how the controller detected the fault, known factors that cause the fault to occur, and the most common solutions to resolve it.

Most faults are broken down in their own individual table and, in most cases, its own subsection of this manual, for operator convenience. The last subsection of this guide will be a collection of faults that are near singular in both cause, and solution, so if you do not see your fault listed in the Table of Figures, please refer to Section X to find the fault you're looking for.

Please check the HEAT VIEW website regularly for updates to both the software and this manual, as this section will be updated each time a new, universal, fault scenario is added to the HEAT VIEW Control System.

TAKE NOTE: HEAT VIEW Controllers have been equipped with thermocouple boards that filter and eliminate welding noise and signal interference, that would otherwise cause erratic fluctuations in a thermocouple's temperature reading. To this end, these thermocouple boards are fitted with isolation modules to electrically isolate all channels from one another. Meaning, in the event of a thermocouple related issue, you cannot use a 'Jumper' plug/wire to force a channel to use the temperature reading of a separate, properly functioning channel, to avoid a less desirable looking chart and continue running.

The use of a 'Jumper' compromises this electrical isolation, forcing the channels to split and share the temperature reading, effectively invalidating the Channel Control Temperature for both. As a result, both channels temperature reading will drop to anywhere from 30-50% lower than the current, actual temperature of the channel the reading was jumped from and cause the system to enter a faulted state. This WILL negatively affect your heat cycle, both in terms of control accuracy and data recorded to the chart.

5. Thermocouple Unplugged

‘Thermocouple Unplugged’ or ‘Thermocouple Open’ – Channel Fault		
Channels Affected	**States Affected**	
Any channel	Running	
Information	**Common Cause(s)**	**Solution(s)**
No valid temperature reading present. The system is not registering any signal input from a thermocouple. This fault is the only fault that will always cause channels to switch from ‘Running’ to ‘Paused’ and cannot be dismissed until either a valid, stable thermocouple reading is present, or the channel is ‘Stopped.’ A channel cannot be started without having a valid, stable thermocouple reading. Master-slave configurations cannot ‘Resume’ from their ‘Paused’ state, following this fault occurring somewhere in the configuration, until all instances of this fault affecting channels in the configuration have been addressed and dismissed. Trying to start a channel without a thermocouple reading will cause this fault to immediately appear.	The thermocouple is physically unplugged or not connected to the workpiece, console, or controller. A lead has come free of a thermocouple plug. The thermocouple cable is damaged or burnt. The thermocouple is plugged into the wrong channel. The thermocouple attached to the workpiece has failed.	Inspect all thermocouple leads and connection points, starting at the workpiece and working back towards the controller until you find the disconnect. Fix broken or loose leads on thermocouple plug. If damaged beyond repair, replace the ‘Triple Cable Set’ running to the workpiece or run a separate thermocouple wire to the controller. Plug the thermocouple into the correct channel. Attach a new thermocouple to the workpiece.

6. System Faults

The following list of faults are system specific and have to do with either the physical hardware of the controller or the controllers source code/operations. These faults affect the entire controller and not just a specific channel type or state. It's possible that these may be resolved by an operator but generally 'System' faults require the assistance and intervention of a HEAT VIEW technician to resolve.

I. Could not init Database!

'Could not init Database!' – System Fault		
Information	**Common Cause(s)**	**Solution(s)**
This fault indicates that the system cannot store/log any data on the controller until this is solved.	Something on the controller is corrupt.	Contact you Heat View distributor for support.

II. Bad Database File

'Bad Database File' – System Fault		
Information	**Common Cause(s)**	**Solution(s)**
This fault indicates that the system cannot store/log any data on the controller until this is solved.	Something on the controller is corrupt.	Contact you Heat View distributor for support.

III. Failed to write temperatures to DB

'Failed to write temperatures to DB' – System Fault		
Information	**Common Cause(s)**	**Solution(s)**
This fault indicates that the system cannot store/log any data on the controller until this is solved.	Something on the controller is corrupt.	Contact you Heat View distributor for support.

IV. RTC Battery is Dead

'RTC Battery is Dead' – System Fault		
Information	**Common Cause(s)**	**Solution(s)**
This fault indicates that the battery used to keep the clock correct in the controller is dead.	Battery has gotten old and gone flat	Speak to your Heat View distributor about installing a replacement. They can guide you to the location it needs to be installed. It takes a CR1220 battery.

15. Databases & Reports

While connected to ta recorder, the computer software will database all the temperatures to a local file for generating reports. These reports can be generated both while a cycle is running if necessary, or more commonly, once a cycle has ended.

Whenever the computer application is connected to a recorder it will generate a record of the temperatures and store it locally on the connected computer in a 'Database' specific to the controller. Into this 'Database' the computer application will record multiple pieces of information about the cycle, with primary focus being on the temperature data along with the current date and time stamps.

This temperature data is captured and recorded to the database at an interval specified by an operator in the 'System Settings' window under the 'Chart Sample Interval' option discussed in Section 1.

All of this data captured and stored by the computer can then be viewed, enhanced with any additional information and details the operator may feel is relevant to how the heat cycle progressed and finally converted into a PDF file that can then be stored for quality control purposes and/or provided to your clients as proof that the heat cycle was completed successfully.

The following sections will show you where to find your locally stored 'Databases' as well as detail the features of, as well as instruct you in the use of, the 'Report' window.

1. The Report Window

When it is time to create a 'Report' for a heat cycle, the 'Report' window can be opened by clicking the 'Report' button on any channel in all 3 views available for the 'Main Screen'. This button is also the only button available on the 'Main Screen' when not connected to a controller so that an operator can generate reports using their computer at any time.

Figure 39 below highlights the 6 functional zones of the 'Report' window. The sections that follow will break these zones down further and detail their functions.

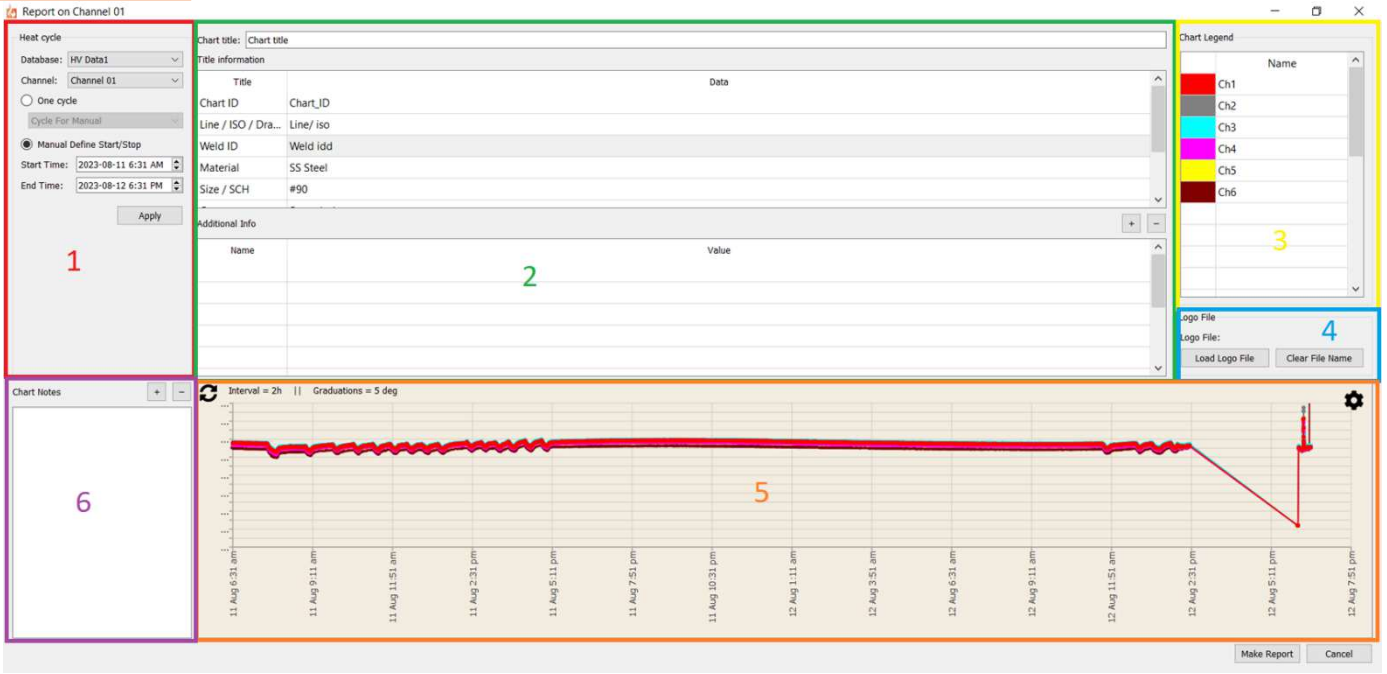


Figure 39: The Report Window - Zones

I. Heat Cycle Selection Options

Zone 1 of the 'Report' window – Figure 40 on the next page – is where an operator selects the recorder – and by extension 'Database' where the cycle information is stored – that was used to record the heat cycle they are generating a report for. Selecting a specific channel from the drop-down menu will make the 'Report' window load all cycles associated with that channel into a list of available options to choose from.

This zone also offers the option select all the data for the channel between two date and times. If you did not start and stop a cycle it will not appear in the heat cycles drop down menu. So, you can manually enter the start and end times and the system will generate the chart based on all the data in the local database during these times.

Do not forget to click apply to set this as the data to be shown on the chart in the report window.

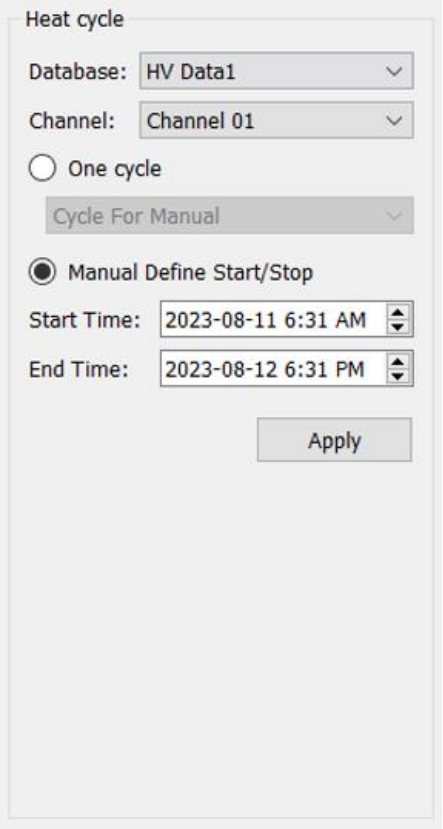


Figure 40: The Report Window - Heat Cycle Selection Options

Database: Any HEAT VIEW Recorder that has been connected to your computer will have generated an associated and identically named 'Database' for ease of navigating and searching for cycle data in the 'Report' Window. Picking a recorder/database from the drop-down list of available databases will give the operator access to any heat cycle data stored in the database.

Channel: Once a controller has been selected, the operator must pick a channel from the drop-down list that they wish to find an associated heat cycle for. If looking to make a report on an entire 'Master-Slave' configuration of channels, the operator needs only select the channel that was the 'Master' channel in the configuration to populate all data relevant to the cycle.

One Cycle: This is the default selected option for searching through cycles associated to both the recorder/database and channel selected above. It allows the operator to select a single, complete entry from the database via the drop-down list to generate a report on. If the operator did not set a 'Cycle Name' heat cycle is stored according to its recorded start and stop date and time.

Manual define Start/Stop: If you did not start and stop a cycle or you want to add extra time to the cycle, you can simply define the start the stop time of data you want to see on the report here.

Apply Button: Once options in the above zone have been selected, clicking the 'Apply' button will populate the requested data into the 'Report' window. Any changes made to this zone after the initial import of data must also be applied using this button.

II. Report Information

Zone 2 of the 'Report' window is where an operator can enter and record specific data relevant to the heat cycle but not captured by the temperature controller for obvious reasons. All data entered in the fields shown in Figure 41 on the next page become persistent data.

This means that if the operator closes the 'Report' window or even the HEAT VIEW application entirely, the next time they open the application and/or the 'Report' window, the data they entered previously will still be populated in these fields. This prevents operators from constantly having to re-enter the same information repeatedly when generating reports for multiple cycles all containing data from the same job/location/po number etc.

The upper section of this zone are the most requested fields from customers. Thus, they are auto generated and can be modified. The lower half of this zone is where an operator can add as many additional data fields as they may require and customize them to their needs.

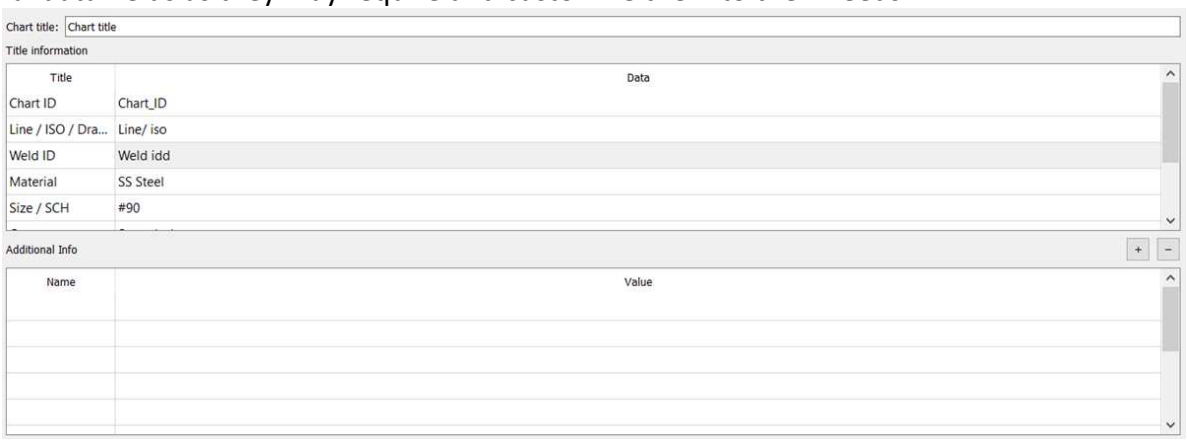


Figure 41: The Report Window - Report Information

Chart ID/ LINE/ISO/DRAWING / Weld ID and so on: Based on customer feedback early on, these fields were most frequently entered. When the final report underwent a redesign, these fields were added as defaults and given a dedicated position within the main page of the PDF created when generating a report. If you want other items in your report simply edit these. Then when you generate a report with these new values, they will be stored on your computer for the next time you generate a report.

Additional Info: The data fields in this section do not appear on the main page of the PDF report generated, but instead appear on the second page of the report as a list of nay supplemental data the operator felt compelled to include.

[+] Button: This button allows an operator to add additional fields to the bottom of the list.

[-] Button: This button allows an operator to remove an entire row from the list of additional information. To do this, first click the row you wish to remove to highlight it in blue, then click the **[-]** button to remove it from the list.

Name/Value Fields: this is where an operator can designate additional data fields of their choosing. For example, they could enter 'Operator:' in the 'Name' field and then type the operators name into the 'Value' field. The options/combination are limitless.

III. Chart Legend

Zone 3 of the 'Report' window is where you can edit the labels on the on the legend of the chart. This is not stored over a power cycle and will default to the channel name the next time you open the report window or change the cycle shown on the chart.

IV. Report Logo Customization

Zone 4 of the 'Report' window allows a customer or operator to upload their own company logo into the HEAT VIEW computer applications report generator. This logo then replaces the 'HEAT VIEW' logo that appears in the top right corner of the PDF report. Figure 42 below shows this zone in a little clearer detail.

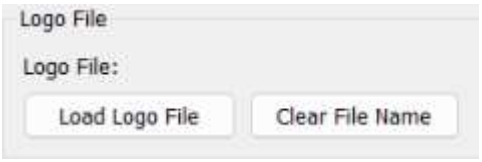


Figure 42: The Report Window - Report Logo Customization

'Logo File:' : This is a text field that will list the name of the logo file uploaded once and operator or customer has done so, enabling them to quickly verify that their logo has been applied to the program before generating their PDF file.

Load Logo File Button: This button will open the File Explorer, Navigate to the folder where you Logo file is located and click 'Open' to upload it to the HEAT VIEW Computer application.

Clear File Name Button: In the event that you want to change or remove the logo that appears on the final report, clicking this button will delete the currently uploaded logo and defaulting the system back to the standard HEAT VIEW logo.

V. Chart Data & Additional Controls

Zone 5 of the 'Report' window – Figure 43 below – is where the visual representation or 'Chart' data from a heat cycle will appear once a heat cycle has been selected via the options outlined in Section I on page 55. The key elements of this chart are the same as discussed in Section III starting on page 33.

One key difference being, if an operator uses the click-and-drag zoom function on this version of the chart data, the now zoomed section of data will be the chart that appears in the PDF report.

This feature was added so that operators could run cycles that potentially lasted days at a time, have them get stored in one single continuous database entry, but still have the option of zooming in to break the large, minimally detailed chart, into shorter, much high detail charts without having to use the 'Break Cycle' function detailed further down.

This section of the manual only discusses the features specific to this zone, for information specifically about the chart, and the features universal to both the one available on the 'Main Screen' as well as the

'Report' window, please refer to Section III starting on page 33.

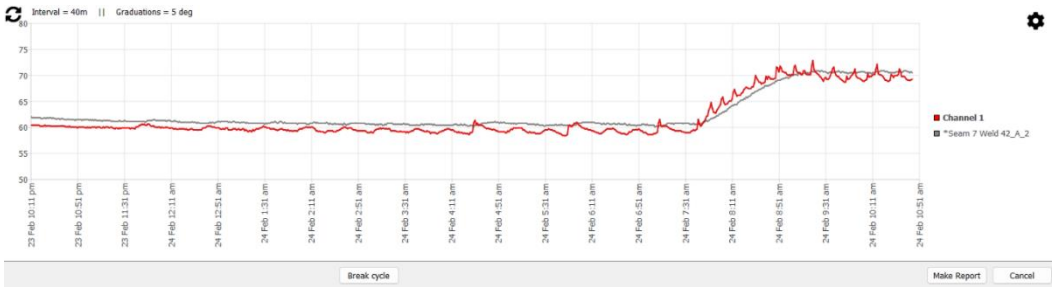


Figure 43: The Report Window - Chart Data & Additional Controls

Make Report Button: Once an operator is satisfied that they have all the relevant data input into the 'Report' window and are ready to create the PDF version of the report, clicking this button will open the 'File Explorer' window and ask the operator to name the file and choose a location to save this report. Clicking 'Save' in the 'File Explorer' window will finalize this process, closing the 'Report' window and automatically opening the PDF file for the operator to view. This button is greyed out if no heat cycle data has been loaded from a database.

Cancel Button: This button can be used to close the 'Report' window at any time. It does not however delete in the Information fields. That data is persistent and must be cleared by the operator.

VI. Chart Notes

Zone 6 of the 'Report' window shown in Figure 44 below is where any chart notes the operator entered during the heat cycle will appear. The operator can use this section of the 'Report' window to add, modify, or delete notes for a heat cycle before generating the PDF report. This zone functions identically to how it does in the 'Main Screens' chart which was covered in detail in Section I on page 31.

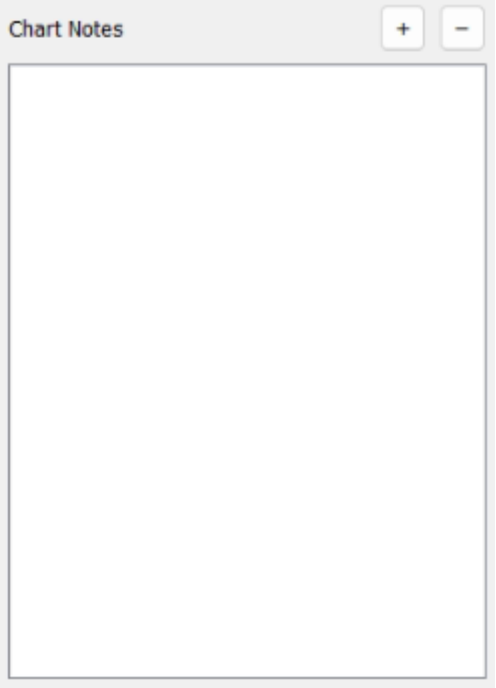


Figure 44: The Report Window – Chart Notes

VII. Uploading Chart Data from the Recorder

If the green light is on, on the side of the recorder it means that the recoder will log the temperature of all the connected thermocouples that are currently plugged in (so the green LED is on above the TC block) every minute. This data is stored permanently and can be uploaded from the controller at any point. To do this, simply connect to the recorder and press on the 'Get backup report' button in the 'Title Bar'. This will bring up the recall screen shown in the image below.

The process to upload the requested data is simply as follows:

1. Select the channels you want to recall the data for.
2. Select the start date and time.
3. Select the end date and time.
4. Click the 'Upload file' button and wait for all the data to be completed. Once all the data is uploaded, a message on the bottom of the window will let you know.

Here is a description of all the buttons in this window:
Toggle Ch xx-xx Buttons: These buttons were added here as a convenience to quickly select or deselect channels in groups of 6.

Select All or Select None Buttons: These buttons will either select all 24 channels or deselect them all.

Star or End Date and time: These entry fields will allow you to select which dates and times want data for.

Upload file Button: This button starts the process of uploading the data from the recorder.

Close Button: This exits this screen.

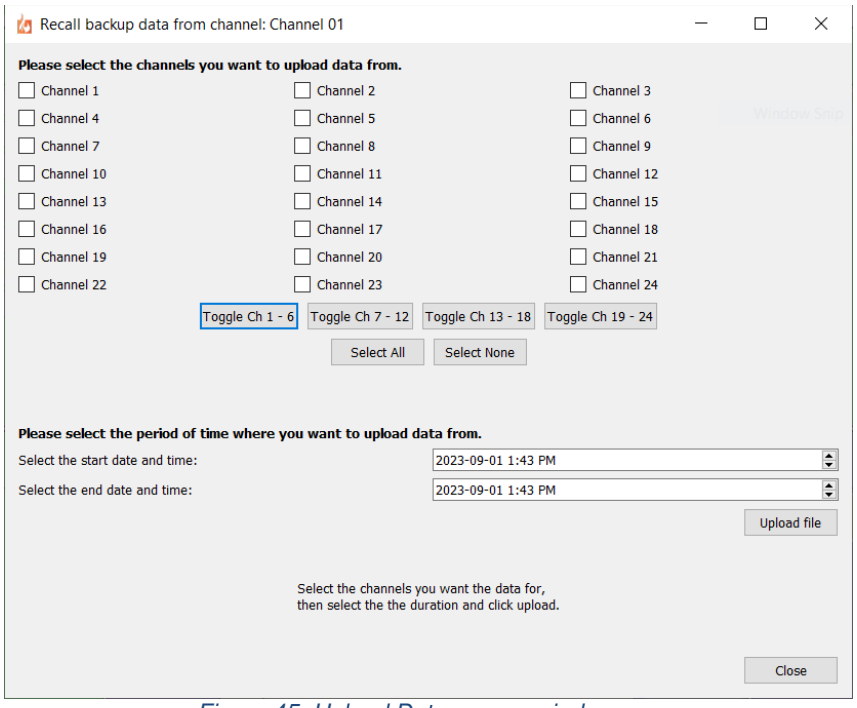


Figure 45: Upload Data pop-up window

Once the data has been uploaded from the controller, it will be stored in your local database and merged with all the other data recorded from the recorder to make seemless charts.