

***EXTECH***<sup>®</sup>

**Software Help Manual**

**407001-PRO**

**Data Acquisition Software**

# Software Introduction

The 407001-PRO software program provides a means to collect data from compatible meters to a PC based computer/laptop. The Data can be viewed in a Data List or on a Chart and can be saved as a CSV or TXT formatted file that can be viewed in Notepad or Excel. The program is simple to use via the graphical user interface with and all major functions are located in the main window indicated with icons or in menus.

## System Requirements

Operating System: Windows 7, Windows 8.1, and Windows 10












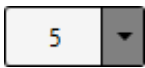
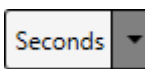

### Minimum hardware requirements

- PC with 1GHz or faster 32-bit (x86) or 64-bit (x64) processor
- 1GB RAM for (32-bit) OS or 2GB RAM for (64-bit) OS
- At least 100 MB hard disk space for the supplied software
- DirectX 9 graphics device with WDDM 1.0 or higher driver
- 800 x 600 display resolution

# Main Menu

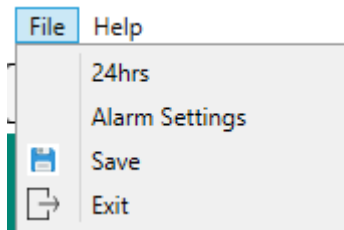


## Icons

	<b>Connect</b>	Connect COM port
	<b>Refresh</b>	Refresh COM ports
	<b>Alarms</b>	Set Alarm limits for each channel
	<b>Save</b>	Save recorded data to the PC
	<b>Open</b>	Open a saved data file
	<b>Start</b>	Start a Real-time data recording
	<b>Run</b>	Real-Time Data recording is active
	<b>Stop</b>	Stop the Real-time recording
	<b>Pause</b>	Pause the Real-time recording
	<b>Print</b>	Print the Data list or Chart
	<b>Clear</b>	Clear Data from Data List and Chart
	<b>Sample Rate</b>	Sample rate units (1, 5, 10, 15, 30)
	<b>Rate Type</b>	Seconds, Minutes, Hours
	<b>Set</b>	Enter the Sample time values

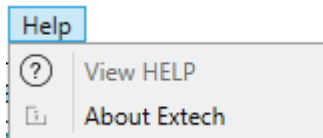
## File Menus

### File



24 / 12 hour clock setting  
Alarm Settings  
Save recorded data to the PC  
Exit the program

### Help



View Software help document  
Help About – Software version

# Operation

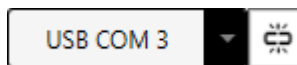
## Starting communication

Connect the 407001-USB cable to the PC USB port.  
Power on the meter and connect the RS232 port to the 407001-USB cable.  
Set the USB cable switch to the correct setting based on the chart in the cable instructions.



Double-click the 407001-PRO shortcut to start the program.

Select the USB COM port from the list.

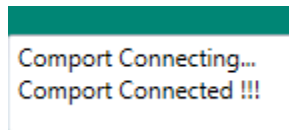


Click the COM port button to connect to meter.



If the COM port does not connect, click the  refresh button to refresh the COM port list, and try again.

A message will appear in the status window at the bottom of the 407001-PRO display, indicating that the meter is now connected.



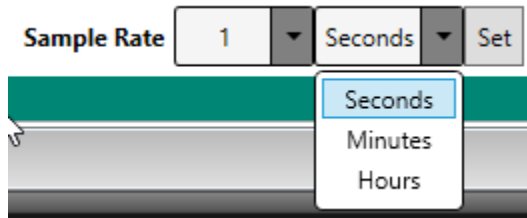
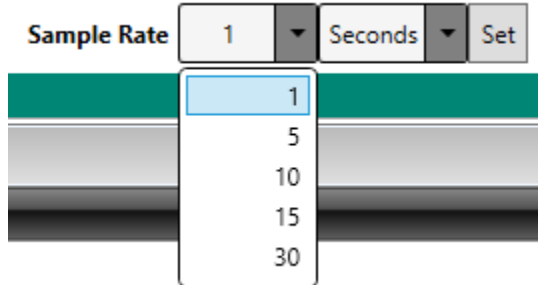
## Live Data View

Data present in this display indicates the meter is connected and is actively sending data to the software.

Channel	Value	Unit	Alarm
Ch-1	23.80	°C	
Ch-2	23.80	°C	
Ch-3	22.80	°C	

# Real-Time Data Recording

Set the **Sample Rate** before starting the recording. (Default is 5 seconds)




Click the **SET** button to enter your Sample Rate values.

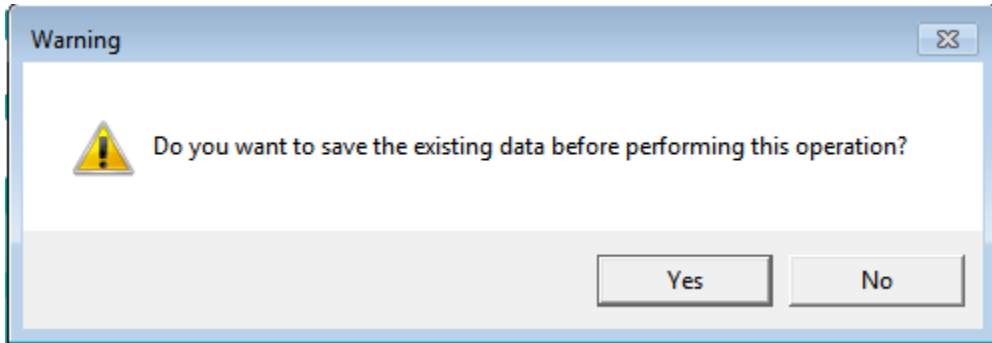


Click the **Start** button  to start the recording.


Click the **Pause** button  to pause the recording.

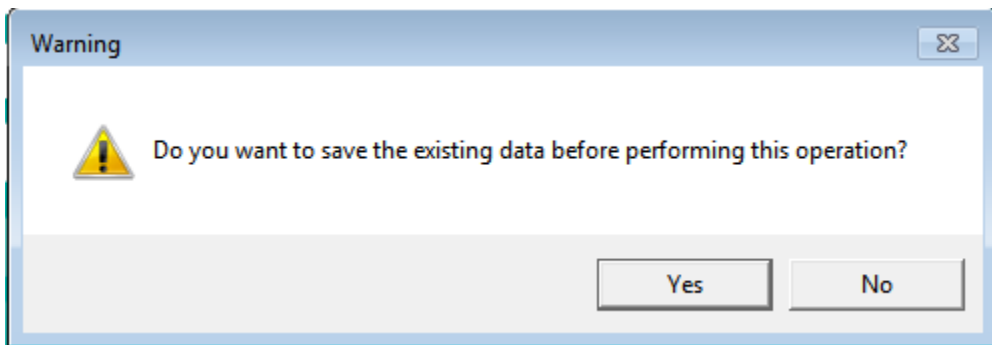
Click the **Stop** button  to stop the recording.

When the **Stop** button  is pressed, a message will appear to save the recorded data.



Click **YES** to save the data.  
Click **NO** to continue.

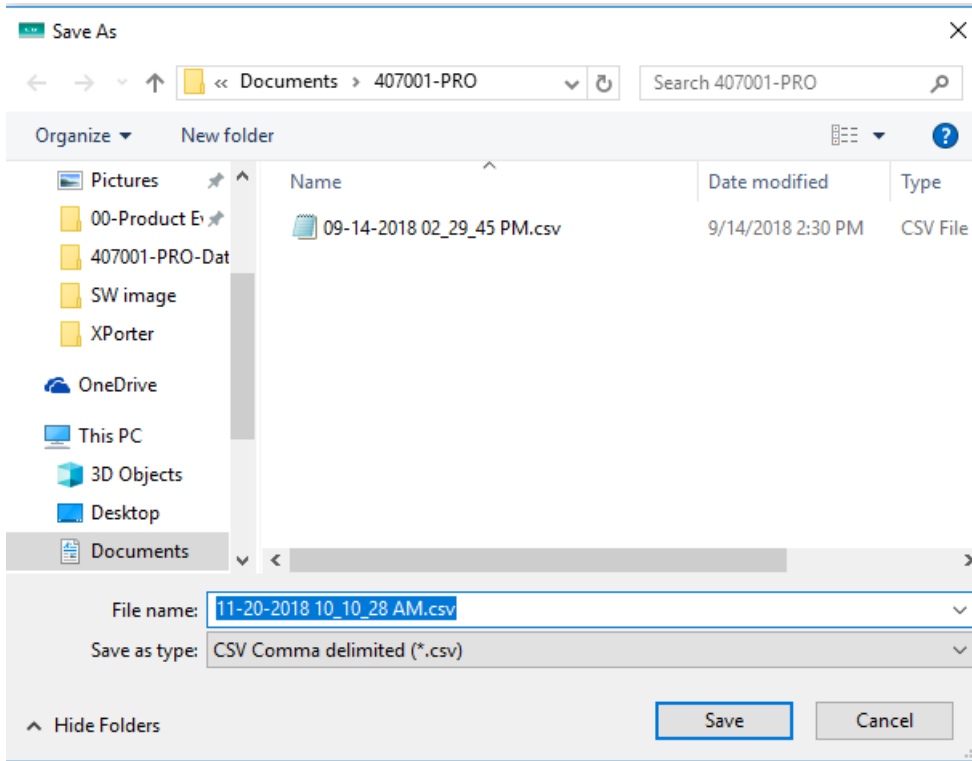
When the **Clear** button  is pressed, a message will appear to save the recorded data.



Click **YES** to save the data.  
Click **NO** to discard the recorded data from the Data List and Chart.

Click **YES** and choose the file type (csv or txt) to save your recorded data to the PC.  
The default is .csv

Select the folder location on the PC and click **Save**



The maximum size for a recorded data file is 10,000 records.



# Viewing Recorded Data

## Real-Time Data

During a Real-Time recording, view data in a **Data List** or **Chart** format.

### Data List

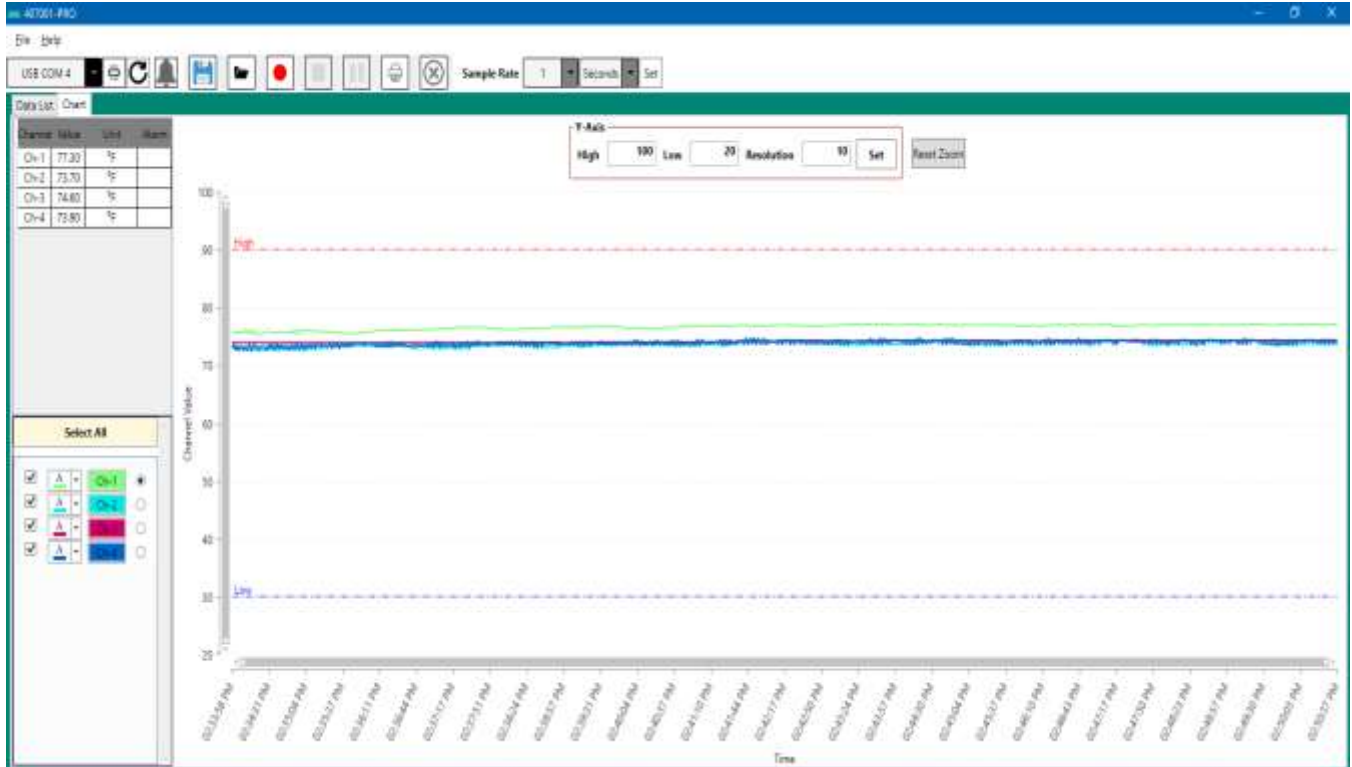
407001-PRO

File Help

USB COM 3 [Refresh] [Stop] [Alarm] [Save] [Print] [Close] Sample Rate 5 Seconds Set

Channel	Value	Unit	Alarm	Line #	Date	Time	Ala	Ch1_Value	Ch1_Uni	Ch2_Value	Ch2_Uni	Ch3_Value	Ch3_Uni
Ch-1	22.90	°C		182	11-20-2018	10:10:14 AM	H	23.10	°C	22.10	°C	22.80	°C
Ch-2	22.30	°C		181	11-20-2018	10:10:09 AM	H	23.10	°C	22.20	°C	22.80	°C
Ch-3	22.70	°C		180	11-20-2018	10:10:04 AM	H	23.10	°C	22.20	°C	22.70	°C
				179	11-20-2018	10:09:59 AM	H	23.10	°C	22.20	°C	22.70	°C
				178	11-20-2018	10:09:54 AM	H	23.10	°C	22.30	°C	22.70	°C
				177	11-20-2018	10:09:49 AM	H	23.10	°C	22.30	°C	22.70	°C
				176	11-20-2018	10:09:44 AM	H	23.10	°C	22.40	°C	22.70	°C
				175	11-20-2018	10:09:39 AM	H	23.10	°C	22.40	°C	22.70	°C
				174	11-20-2018	10:09:34 AM	H	23.10	°C	22.40	°C	22.70	°C
				173	11-20-2018	10:09:29 AM	H	23.10	°C	22.40	°C	22.70	°C
				172	11-20-2018	10:09:24 AM	H	23.10	°C	22.30	°C	22.70	°C
				171	11-20-2018	10:09:19 AM	H	23.10	°C	22.30	°C	22.70	°C
				170	11-20-2018	10:09:14 AM	H	23.10	°C	22.30	°C	22.70	°C
				169	11-20-2018	10:09:09 AM	H	23.10	°C	22.30	°C	22.70	°C
				168	11-20-2018	10:09:04 AM	H	23.10	°C	22.20	°C	22.70	°C
				167	11-20-2018	10:08:59 AM	H	23.10	°C	22.20	°C	22.70	°C
				166	11-20-2018	10:08:54 AM	H	23.10	°C	22.20	°C	22.70	°C
				165	11-20-2018	10:08:49 AM	H	23.10	°C	22.20	°C	22.70	°C
				164	11-20-2018	10:08:44 AM	H	23.10	°C	22.20	°C	22.70	°C
				163	11-20-2018	10:08:39 AM	H	23.20	°C	22.20	°C	22.70	°C
				162	11-20-2018	10:08:34 AM	H	23.20	°C	22.20	°C	22.70	°C

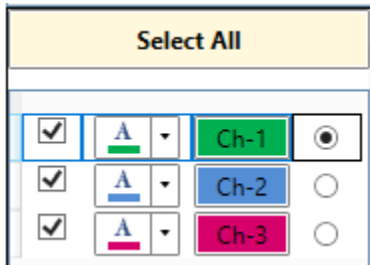
# Chart



## Chart Operation


### Select All:

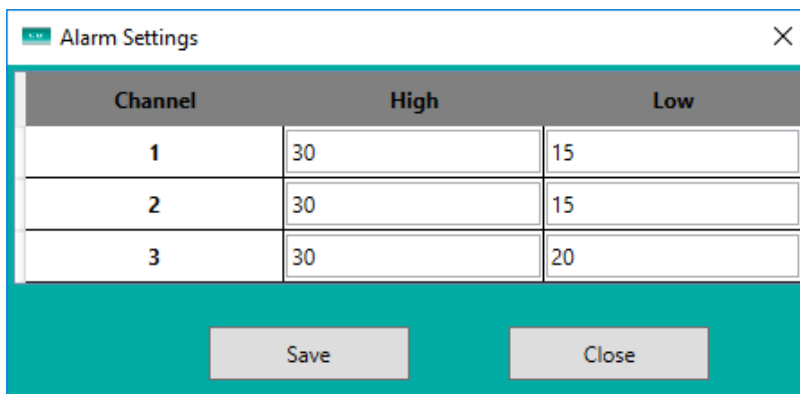
Check the boxes on the left to select the channels to appear on the chart. Select the radio button on the right to choose the channel alarm limits displayed on the chart. Change the color of the trace for each channel from the selection list.



The 'Select All' dialog box contains three rows of controls. Each row has a checked checkbox on the left, a color selection dropdown in the middle (showing a triangle and a color swatch), and a radio button on the right. The first row is for 'Ch-1' with a green color swatch and a selected radio button. The second row is for 'Ch-2' with a blue color swatch and an unselected radio button. The third row is for 'Ch-3' with a pink color swatch and an unselected radio button.

### Alarm:

Click on the Alarm icon  and enter the alarm limits for each channel. The alarm traces will appear on the chart if they are in the Y-Axis range.



The 'Alarm Settings' dialog box features a table with three columns: 'Channel', 'High', and 'Low'. Below the table are 'Save' and 'Close' buttons.

Channel	High	Low
1	30	15
2	30	15
3	30	20

### Y-Axis:

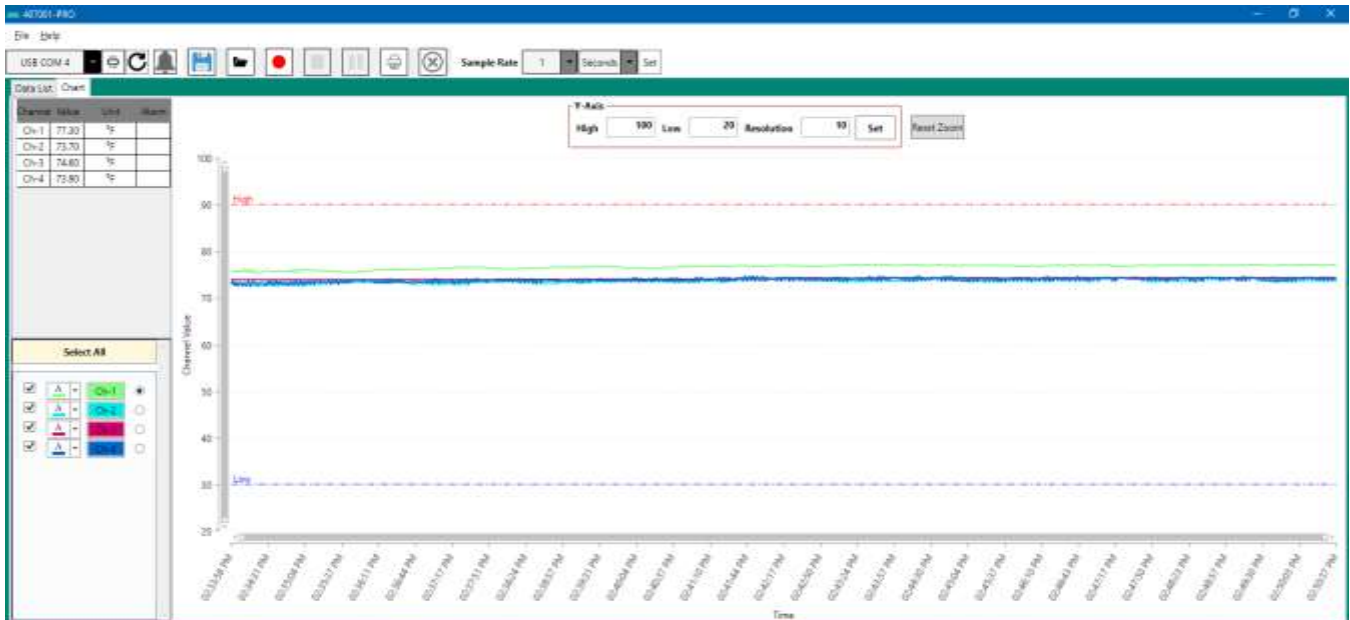
Set the high and low limits of the Y-Axis display and the Y-Axis data resolution. Click Set to enter the values.



The Y-Axis settings control includes input fields for 'High' (35), 'Low' (10), and 'Resolution' (2), followed by a 'Set' button and a 'Reset Zoom' button.


## Zoom:

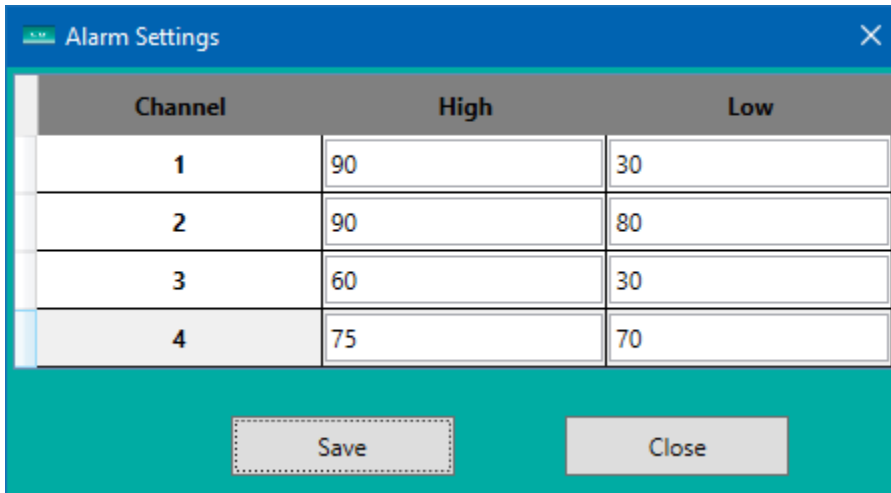
To enlarge an area of the chart for closer examination, use the left mouse button to select a portion of the data on the chart. Click the **Reset Zoom** button or double-click on the scrollbars to return to normal view.





# Alarms

Alarm Limits (High and Low) can be set for each channel.

Click on the Alarm  button to open the Alarm settings window.




The Live data display will indicate if the channel measurement is within the Alarm set limits.

Channel	Value	Unit	Alarm
Ch-1	76.60	°F	
Ch-2	73.20	°F	
Ch-3	73.30	°F	
Ch-4	73.10	°F	

- Ch-1 No icon is displayed – the measurement is within limits.
- Ch-2 Red icon is displayed – the measurement is Higher than the high limit.
- Ch-3 Blue icon is displayed – the measurement is Lower than the Low limit.
- Ch-4 No icon is displayed – the measurement is within limits.

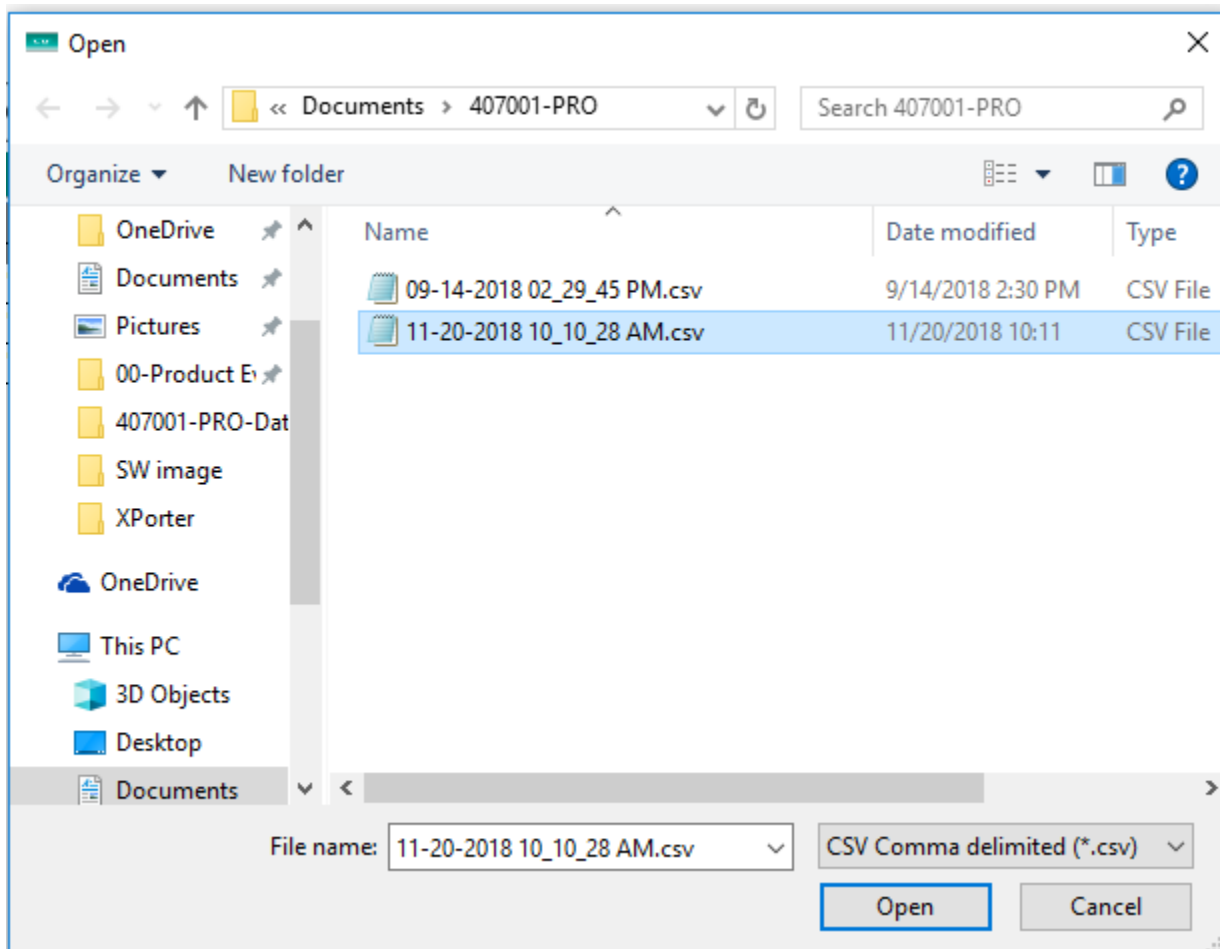
If an alarm limit is triggered, the alarm icon will be displayed, and remain on until the recorded data is cleared.

## Viewing Saved Data

Click the file open  button to open the file save dialog box.

Select the file and click **Open**.

The Data will appear in the Data List and/or the Chart view.



# Print Data

Set the Data view to either **Data List** or **Chart**.


## Data List

The Data List (ascending/descending) sort order can be changed by clicking the header sort ▲/▼ (Line # for example) in any column.

The Data List can also be filtered by clicking the header filter  in any column.

Line # ▼	Date ▼	Time ▼
182	11-20-2018	10:10:14 AM
181	11-20-2018	10:10:09 AM
180	11-20-2018	10:10:04 AM
179	11-20-2018	10:09:59 AM
178	11-20-2018	10:09:54 AM
177	11-20-2018	10:09:49 AM

Line # ▼	Date ▼	Time ▼
> 1	11-20-2018	09:55:00 AM
2	11-20-2018	09:55:04 AM
3	11-20-2018	09:55:09 AM
4	11-20-2018	09:55:14 AM
5	11-20-2018	09:55:19 AM
6	11-20-2018	09:55:24 AM

Click the **Print** button  to print the data that is currently being displayed.

# Data List - Print Preview

Print Preview
□ ×

## Print

Print

Copies:

## Settings

Print Active Sheet

Only print the active sheet

Pages:  to

Collated

1,2,3
1,2,3
1,2,3

Portrait Orientation

Letter

8.50" X 11.00"

Normal Margins

Left: 0.70" Right: 0.70"

No Scaling

Print sheet at their actual size

Row #	Date	Time	Alarm	Ch1 Value	Ch1 Unit	Ch2 Value	Ch2 Unit	Ch3 Value	Ch3 Unit
1	11-20-2010	09:55:00	Ab-H	22.80	°C	22.50	°C	22.50	°C
2	11-20-2010	09:55:04	Ab-H	22.70	°C	22.40	°C	22.50	°C
3	11-20-2010	09:55:06	Ab-H	22.70	°C	22.50	°C	22.50	°C
4	11-20-2010	09:55:11	Ab-H	22.70	°C	22.50	°C	22.50	°C
5	11-20-2010	09:55:16	Ab-H	22.80	°C	22.50	°C	22.60	°C
6	11-20-2010	09:55:21	Ab-H	22.80	°C	22.50	°C	22.60	°C
7	11-20-2010	09:55:26	Ab-H	22.80	°C	22.50	°C	22.60	°C
8	11-20-2010	09:55:31	Ab-H	22.80	°C	22.50	°C	22.60	°C
9	11-20-2010	09:55:36	Ab-H	22.90	°C	22.50	°C	22.60	°C
10	11-20-2010	09:55:41	Ab-H	22.90	°C	22.50	°C	22.70	°C
11	11-20-2010	09:55:46	Ab-H	22.90	°C	22.50	°C	22.70	°C
12	11-20-2010	09:55:51	Ab-H	23.00	°C	22.40	°C	22.70	°C
13	11-20-2010	09:55:56	Ab-H	23.00	°C	22.40	°C	22.70	°C
14	11-20-2010	09:56:01	Ab-H	23.00	°C	22.40	°C	22.80	°C
15	11-20-2010	09:56:06	Ab-H	23.00	°C	22.40	°C	22.80	°C
16	11-20-2010	09:56:11	Ab-H	23.00	°C	22.40	°C	22.80	°C
17	11-20-2010	09:56:16	Ab-H	23.10	°C	22.30	°C	22.80	°C
18	11-20-2010	09:56:21	Ab-H	23.10	°C	22.30	°C	22.80	°C
19	11-20-2010	09:56:26	Ab-H	23.10	°C	22.30	°C	22.80	°C
20	11-20-2010	09:56:31	Ab-H	23.10	°C	22.20	°C	22.70	°C
21	11-20-2010	09:56:36	Ab-H	23.10	°C	22.20	°C	22.70	°C
22	11-20-2010	09:56:41	Ab-H	23.10	°C	22.20	°C	22.70	°C
23	11-20-2010	09:56:46	Ab-H	23.10	°C	22.20	°C	22.70	°C
24	11-20-2010	09:56:51	Ab-H	23.10	°C	22.20	°C	22.70	°C
25	11-20-2010	09:56:56	Ab-H	23.10	°C	22.20	°C	22.70	°C
26	11-20-2010	09:57:01	Ab-H	23.10	°C	22.30	°C	22.60	°C
27	11-20-2010	09:57:06	Ab-H	23.00	°C	22.30	°C	22.60	°C
28	11-20-2010	09:57:11	Ab-H	23.00	°C	22.30	°C	22.50	°C
29	11-20-2010	09:57:16	Ab-H	23.00	°C	22.30	°C	22.50	°C
30	11-20-2010	09:57:21	Ab-H	23.00	°C	22.30	°C	22.40	°C
31	11-20-2010	09:57:26	Ab-H	23.00	°C	22.30	°C	22.40	°C
32	11-20-2010	09:57:31	Ab-H	23.00	°C	22.30	°C	22.40	°C
33	11-20-2010	09:57:36	Ab-H	23.00	°C	22.40	°C	22.40	°C
34	11-20-2010	09:57:41	Ab-H	23.00	°C	22.40	°C	22.30	°C
35	11-20-2010	09:57:46	Ab-H	22.90	°C	22.40	°C	22.30	°C
36	11-20-2010	09:57:51	Ab-H	22.90	°C	22.40	°C	22.30	°C
37	11-20-2010	09:57:56	Ab-H	22.90	°C	22.40	°C	22.30	°C
38	11-20-2010	09:58:01	Ab-H	22.90	°C	22.40	°C	22.30	°C
39	11-20-2010	09:58:06	Ab-H	22.90	°C	22.30	°C	22.30	°C
40	11-20-2010	09:58:11	Ab-H	22.90	°C	22.30	°C	22.30	°C
41	11-20-2010	09:58:16	Ab-H	22.90	°C	22.20	°C	22.20	°C
42	11-20-2010	09:58:21	Ab-H	22.90	°C	22.20	°C	22.20	°C
43	11-20-2010	09:58:26	Ab-H	22.90	°C	22.20	°C	22.20	°C
44	11-20-2010	09:58:31	Ab-H	22.90	°C	22.20	°C	22.20	°C

◀ 1 of 5 ▶




## Chart

### Note:

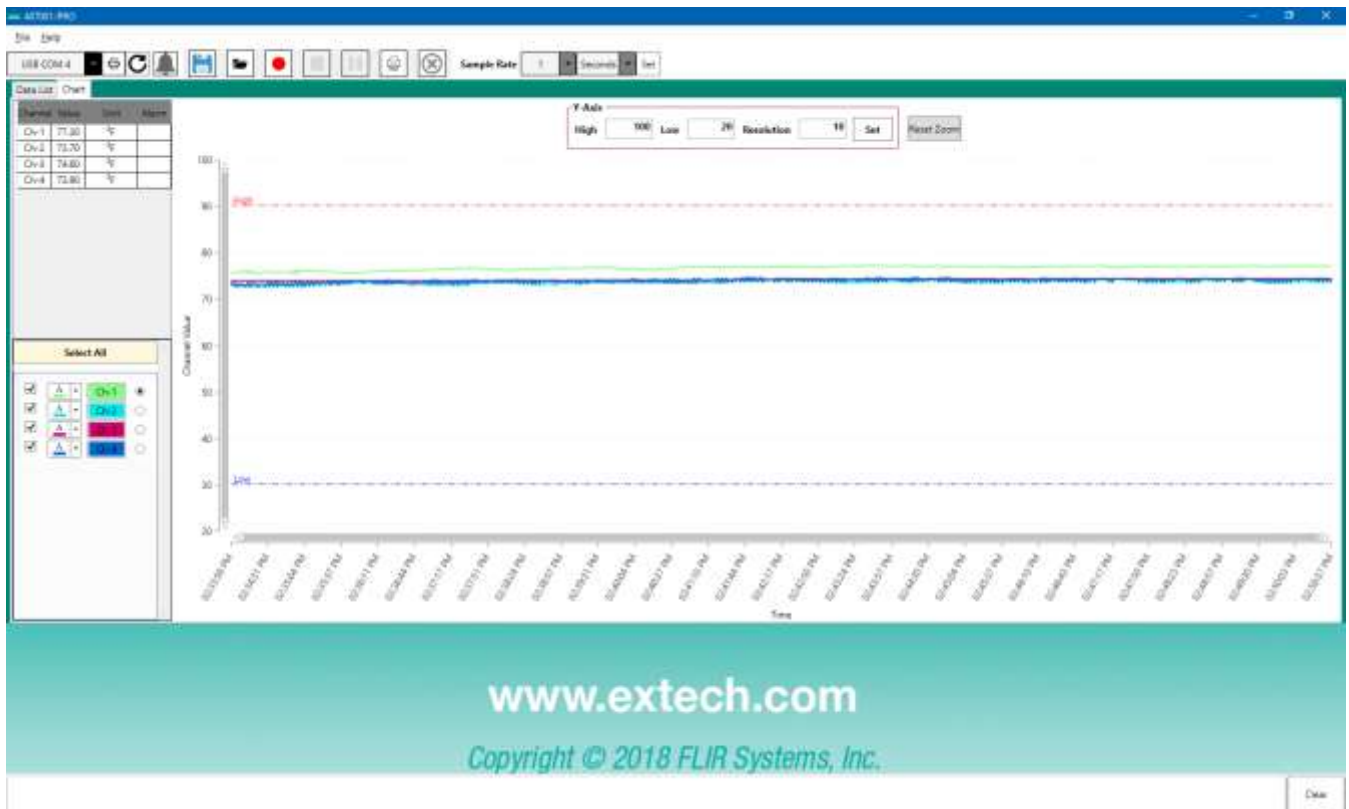
When printing a Chart, you can change the Y-Axis or select a portion of the chart using the mouse to select a box around a portion of the data trace.

The print out will be modified by your actions.

Set the printer preferences for **Landscape** mode before printing.

Click the **Print**  button to print data that is currently being displayed.

## Chart – Print Preview



## Chart - Print Preview – Control Buttons



Print Chart data currently displayed.  
(Choose Landscape mode in Printer preferences)



Zoom IN or Out on the current display



Print 100% of the page  
Print full page width of the displayed image  
Print the whole image being displayed  
Print the image in 2 pages

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# Appendix

## Data Limitations

There are multiple meter models that can be used with this software. Some have certain limitations with regard to data output.

### **EN300**

This meter cannot log faster than a 5 second rate.

### **SD500**

This meter cannot log faster than a 5 second rate.

### **SD700**

This meter cannot log faster than a 5 second rate.

### **SDL900**

The data is not able to identify if this is an AC type magnet. It will display a DC magnet for either N (north) or S (south) polarity.

## Meter Model and Cable Settings

Meter Model:	Meter Description:	RS232 Cable:	407001-USB Cable:	RS232 Protocol:
407026	Light meter	UPCB-01	Switch Position 1	Version 1
407112	Vane - Anemometer	UPCB-01	Switch Position 1	Version 1
407113	Vane - Anemometer	UPCB-01	Switch Position 1	Version 2
407114	Vane - Anemometer	UPCB-01	Switch Position 1	Version 1
407117	Mini Vane - Anemometer	UPCB-01	Switch Position 1	Version 1
407119	Hot wire - Anemometer	UPCB-02	Switch Position 2	Version 2
407123	Hot wire - Anemometer	UPCB-01	Switch Position 1	Version 1
407227	pH/mV/Temperature	UPCB-01	Switch Position 1	Version 1
407303	Conductivity	UPCB-01	Switch Position 1	Version 1
407401	Dual Thermometer	UPCB-01	Switch Position 1	Version 1
407412	Anemometer	UPCB-01	Switch Position 1	Version 1
407428	IR thermometer	UPCB-01	Switch Position 1	Version 1
407445	Temp / RH meter	UPCB-01	Switch Position 1	Version 1
407495	Pressure meter	UPCB-01	Switch Position 1	Version 1
407510	DO meter	UPCB-01	Switch Position 1	Version 1
407768	Sound meter	UPCB-02	Switch Position 2	Version 2
407777	Moisture meter	UPCB-01	Switch Position 1	Version 1
407820	Torque meter	UPCB-01	Switch Position 1	Version 1
407850	Vibration meter	UPCB-01	Switch Position 1	Version 1
407860	Vibration meter	UPCB-01	Switch Position 1	Version 2
407907	RTD meter	UPCB-01	Switch Position 1	Version 1
407910	Diff Pressure meter	UPCB-01	Switch Position 1	Version 2
461880	Vibration / Tach	UPCB-02	Switch Position 2	Version 2
461960	Tach - panel	UPCB-02	Switch Position 2	Version 2
475055	Force gauge	UPCB-01	Switch Position 1	Version 2
407119A	Hot wire - Anemometer	UPCB-02	Switch Position 2	Version 2
42525A	IR thermometer	UPCB-02	Switch Position 2	Version 2
EN300	5 in 1 Environmental meter	UPCB-02	Switch Position 2	Version 2
HD Series Meters	All	UPCB-02	Switch Position 2	Version 2
SC600	Scale	UPCB-02	Switch Position 2	Version 2
SD200	temp	UPCB-02	Switch Position 2	Version 2
SD500	Temp/RH	UPCB-02	Switch Position 2	Version 2
SD700	Temp/RH/pressure	UPCB-02	Switch Position 2	Version 2
SD800	Temp/RH/CO2	UPCB-02	Switch Position 2	Version 2
SDL Series Meters	ALL	UPCB-02	Switch Position 2	Version 2