

**FINNA**  
SENSORS**KILNSCOUT**  
**SOFTWARE USER MANUAL****Finna Sensors**

5690 DTC Blvd Suite 550E  
Greenwood Village, CO 80111  
720-963-6512

[techsupport@finnasensors.com](mailto:techsupport@finnasensors.com)

**This guide applies to the following versions:**

**Software:** KilnScout v. 1.45.0.0 and newer  
**Hardware Models:** 80-600-205



# KilnScout Software User Manual

Rev #: 11.5.21

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## 1. OVERVIEW

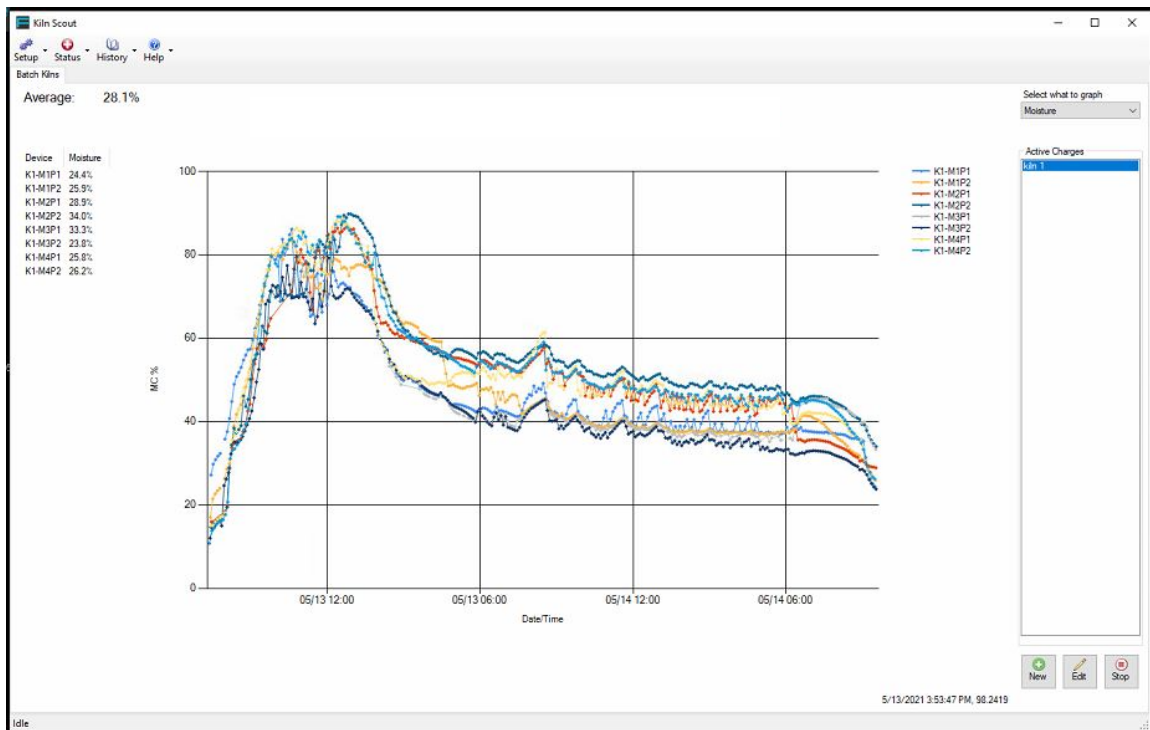
KilnScout software is used to monitor and control the KilnScout sensors and hubs. The software is loaded on a local PC with a network connection to hub(s) mounted on the exterior of the kiln(s). The KilnScout software is typically setup to communicate with the kiln control PLC. This allows the kiln control system to use the moisture measurements to make decisions on shut down.

Typical method of starting up KilnScout software:

- Apply power to the KilnScout computer.
- Boot-Up
- Start KilnScout software

## 2. MAIN SCREEN

(Figure 1 - Main Screen)



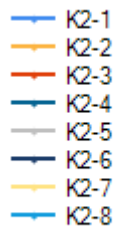
Once KilnScout software has started, the main screen appears. It displays live measurement data for each of the registered sensors. The data is updated as fresh information is pulled from the hubs. The X-axis represents time, while the Y-axis represents the moisture content value.

Only one kiln is displayed at a time. To select a different kiln, click the appropriate charge number from the list on the right-hand side of the screen.

The text on the bottom left-hand corner of the screen displays system status (either Reading Hubs or Idle) Moisture values are updated as data is retrieved from the various hubs.

The average value for the kiln charge is displayed in the upper left corner of the main screen.

*(Figure 2 - Measurement Data)*



*(Figure 3 – sensor detail)*

Mousing over a sensor will pop up a screen that provides all the details for that sensor.

**Recent Data:**

 Alias: K2-1 Device: 029DC53A  
 Date: 9/16/2013 11:49:42 AM

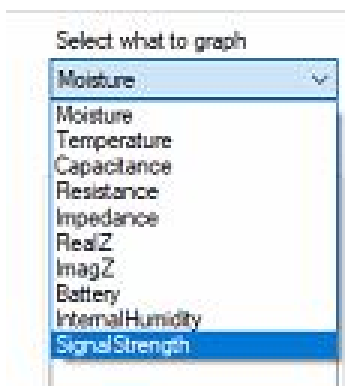
 MC: 15.6% Cap: 1,116.4pF R: 69.77kOhm  
 Temperature: 168.8°F

 Seq Id: 71 Int. Humidity: 53% Battery: 6.42VDC Signal Strength: 99%  
 Flags:

Alias	User-friendly name
Device	Unique serial number for the sensor
Date	Time stamp of most recent data
MC	Moisture content
Cap	Capacitance
R	Resistance
Temperature	Temperature (F or C)
Seq Id	Record ID (rolling # from 0-255)
Int. Humidity	Humidity inside the box
Battery	Battery voltage
Signal Strength	Percentage (0-100)
Flags	Error messages displayed here

(Figure 4 – main screen selection)

The upper right corner has a pull-down to switch the graph content.



Each sensor transmits the 10 items above. Selecting 'temperature', for example, will show the temperature reading of each sensor throughout the

kiln charge. This data can be helpful to determine air flow and other related performance of the kiln. Other selections are helpful in troubleshooting suspect readings.

### 3. STARTING A NEW CHARGE / EDITING AN EXISTING CHARGE

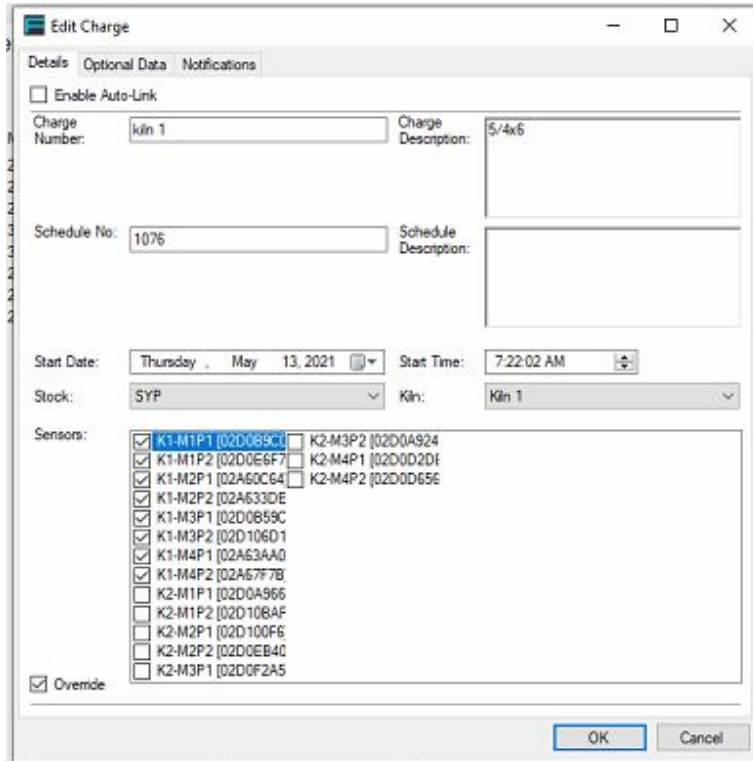
(Figure 5 – New/Edit Charge)



The lower right-hand area contains controls to Stop, Edit and Start a kiln charge. If the user has integration to a PLC, these controls are not used as charges are started and stopped automatically.

Selecting “New” or “Edit” opens a kiln charge page.

(Figure 6 – New/Edit Charge)



If the user does not have integration to a PLC, information on the charge must be entered prior to starting the charge. The auto-link selection turns on/off integration to a PLC (Note: system must have been integrated at startup for this feature to work)

The sensor section displays all the available wireless sensors in the system. The user should select the appropriate sensors for the kiln. Once a sensor has been selected, it cannot be used on any other kiln.

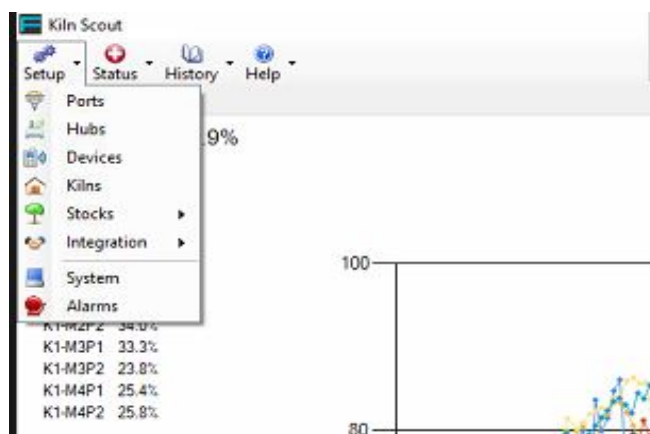
If a sensor is missing from the list, it has probably been registered to a different kiln/charge. Users can deselect it from that kiln/charge to make it available.

On the Optional Data tab at the top of the edit screen, users can input Handheld Moisture Meter MC% data and Planer Mill MC% data. This information can later be viewed in charge history to compare the numbers across all systems.

The Notifications tab allows users to set up an automated email once a target MC% or a minimum temperature is reached on the KilnScout System. The box in the upper left-hand corner must be checked and an email entered the system to receive automated charge information.

## 4. SETUP

(Figure 7 – Setup)

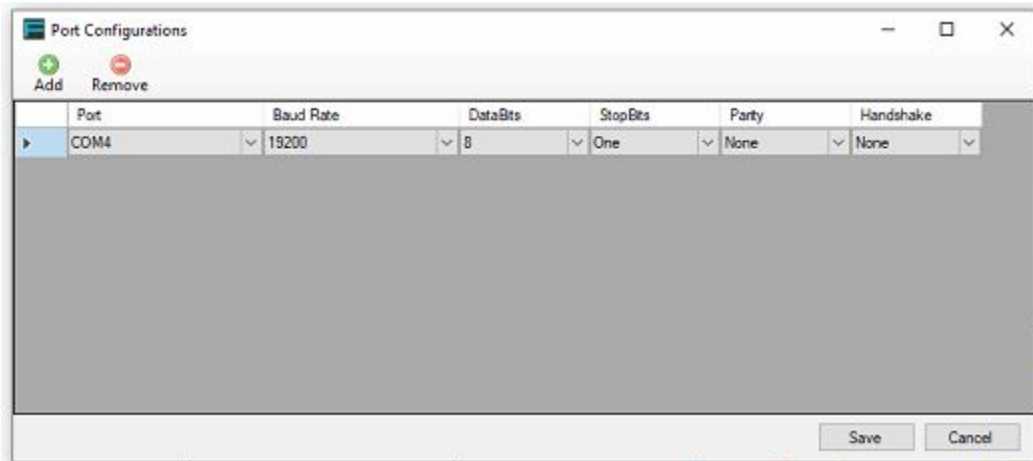




Setup is configured during the startup phase. As a rule, these items should not need to be altered often.

- Ports: Choose PC ports for communication with the system

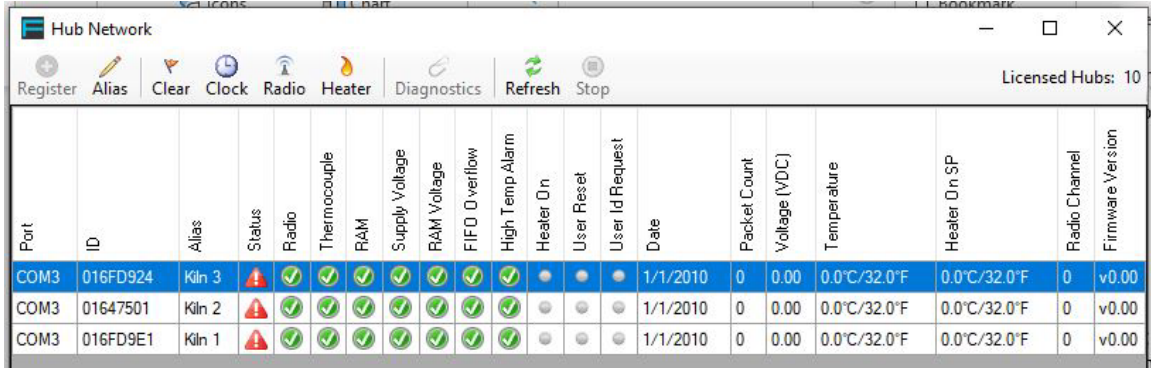
(Figure 8 – Port Configuration)



Choose the correct COM Port by using the pull down on the Port configuration screen. The system will not communicate with the PC if the incorrect COM Port is chosen. To remove a COM Port, click to highlight the desired port and click remove. Once the correct COM Port is chosen, click save to exit. The Baud Rate speed will always be 19200 for communication between the KilnScout Hub and the KilnScout PC.

- Hubs: Register hubs on the network

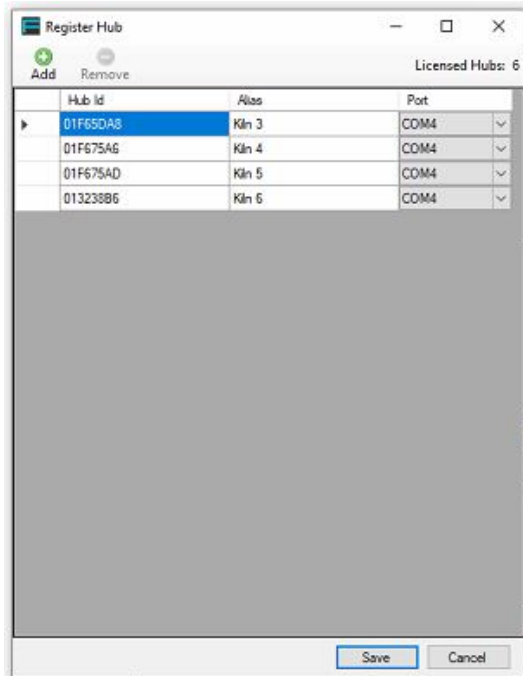
(Figure 9 – Hub Network)



Port	ID	Alias	Status	Radio	Thermocouple	RAM	Supply Voltage	RAM Voltage	FIFO Overflow	High Temp Alarm	Heater On	User Reset	User Id Request	Date	Packet Count	Voltage (VDC)	Temperature	Heater On SP	Radio Channel	Firmware Version
COM3	016FD924	Kiln 3	<span style="color: red;">!</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1/1/2010	0	0.00	0.0°C/32.0°F	0.0°C/32.0°F	0	v0.00
COM3	01647501	Kiln 2	<span style="color: red;">!</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1/1/2010	0	0.00	0.0°C/32.0°F	0.0°C/32.0°F	0	v0.00
COM3	016FD9E1	Kiln 1	<span style="color: red;">!</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1/1/2010	0	0.00	0.0°C/32.0°F	0.0°C/32.0°F	0	v0.00

Once the correct COM Port is chosen, the system will start communicating and recognizing the hubs connected to the system. Users can test the connection, view, register and edit the hubs in the Hub Network selection under the Status Menu.

(Figure 10 – Hub Network)

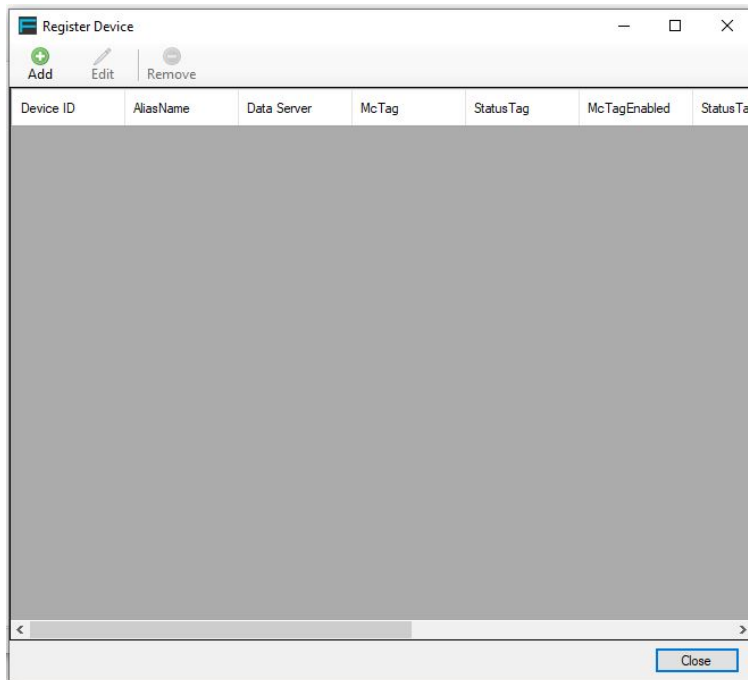


Hub Id	Alias	Port
01F65DA8	Kiln 3	COM4
01F675A6	Kiln 4	COM4
01F675AD	Kiln 5	COM4
013238B6	Kiln 6	COM4

In the Setup Menu under the hubs tab, if a hub card in the moisture system were to fail, this window allows you to change the Hub ID of the existing registered hub card to accommodate the replacement. This feature also allows users to edit the Alias for each hub. Hub aliases are typically "Kiln" and a number. Ex. Kiln 1, Kiln 2, Kiln 3...

- **Devices: Register sensors on the network. Link to PLC tags (if available)**

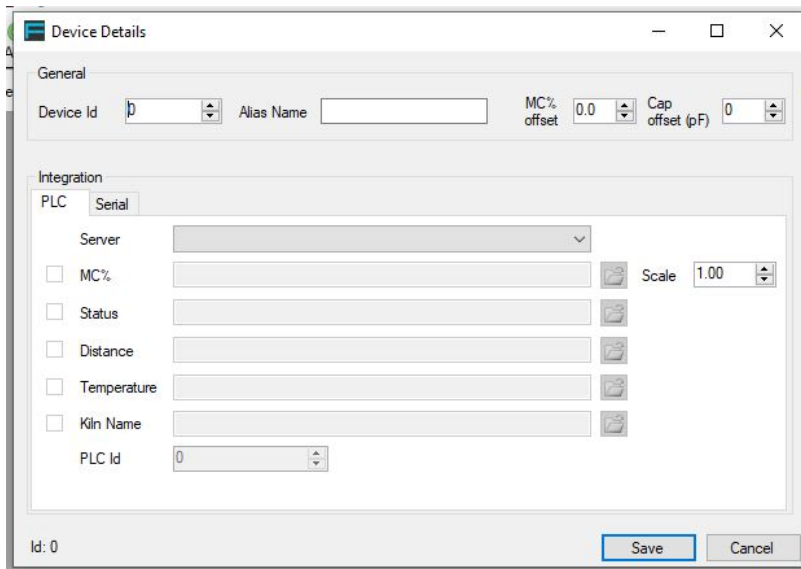
(Figure 11 – Devices)



Devices, or moisture cards, are assigned to each measurement point inside of the kiln. This menu option allows users to set up each measurement device by adding devices, editing devices and removing devices. When adding a device, the device ID is required. The ID for each device is located on a label on each measurement card. The Alias Name is typically the kiln number that the device is associated with and the measurement point inside of the kiln. For example, K4MP3 would be measurement point 3 located inside of kiln 4. The MC% offset is used to fine tune each device if the user knows that it is

reading higher or lower than it should. The Cap. Offset is used in wired systems only and is to make an offset for the capacitance of the coaxial cable between each In Kiln Junction box and the Measurement Hub.

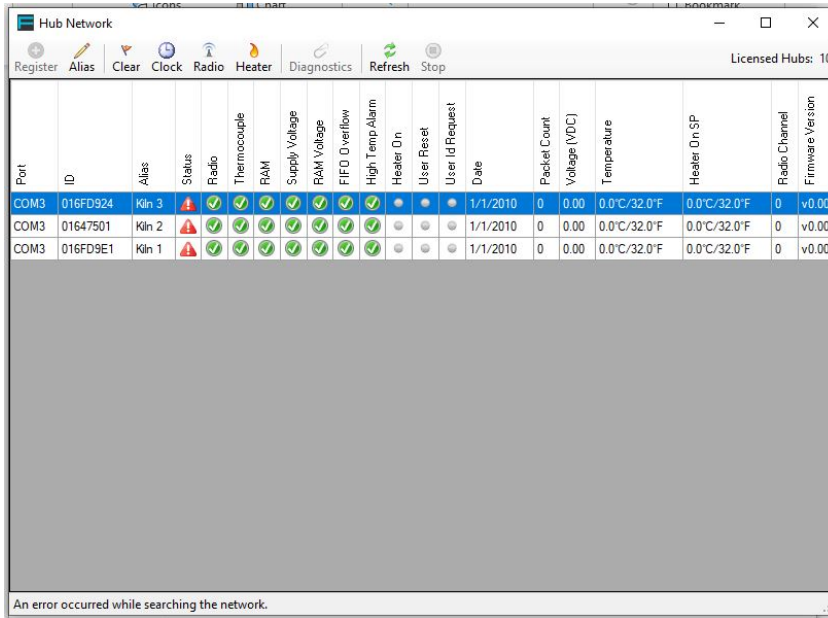
(Figure 11 – Device Setup)



The lower part of the window allows users to integrate a PLC either on a network or by serial communication. For PLC's on a network, a network server will be chosen and tags assigned to MC%, Status, Distance, Temperature and Kiln Name. All features do not have to be integrated during this step. For the features that are to be integrated, be sure to check the box to the left of the feature to enable it. Also verify that the scaling of the MC% is correct by checking the MC% display on the Kiln Control PC.

- Kilns: Register kilns on the network. Link to PLC tags (if available)

(Figure 12 – Hub Registration)



Port	ID	Alias	Status	Radio	Thermocouple	RAM	Supply Voltage	RAM Voltage	FFD Overflow	High Temp Alarm	Heater On	User Reset	User ID Request	Date	Packet Count	Voltage (VDC)	Temperature	Heater On SP	Radio Channel	Firmware Version
COM3	016FD324	Kiln 3	⚠	✅	✅	✅	✅	✅	✅	✅	⚪	⚪	⚪	1/1/2010	0	0.00	0.0°C/32.0°F	0.0°C/32.0°F	0	v0.00
COM3	01647501	Kiln 2	⚠	✅	✅	✅	✅	✅	✅	✅	⚪	⚪	⚪	1/1/2010	0	0.00	0.0°C/32.0°F	0.0°C/32.0°F	0	v0.00
COM3	016FD9E1	Kiln 1	⚠	✅	✅	✅	✅	✅	✅	✅	⚪	⚪	⚪	1/1/2010	0	0.00	0.0°C/32.0°F	0.0°C/32.0°F	0	v0.00

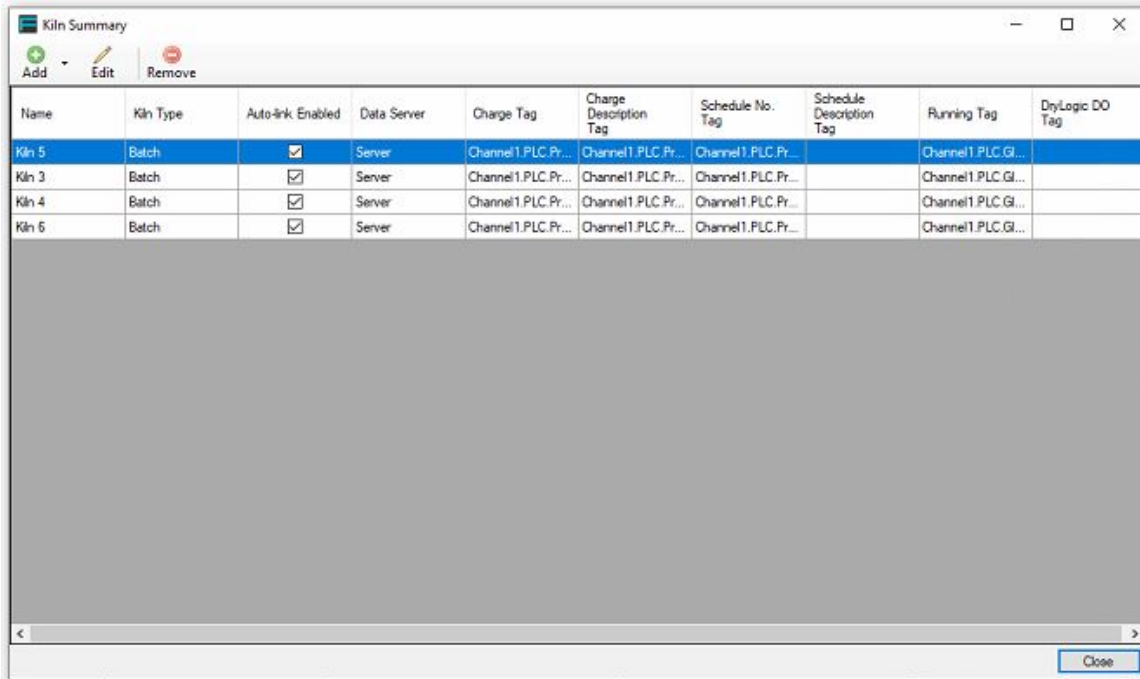
An error occurred while searching the network.

Kilns (Hubs) are registered on the network in the Status menu option. Choose Status then Hub Network on the pull down. Each recognized device and corresponding information will display in the window. Click on an unregistered hub in the charted information to highlight it. To register the hub, click the Register button in the top left of the screen. Once a hub is registered users can then assign each hub an alias (Kiln Name), clear the flags (alarms) on each device, set the date and time for each hub, set each hub's radio channel, determine the heater on set point, view hub diagnostics (view received measurement card transmissions on the selected hub and the card's related data), refresh the hub list, and stop searching the hub network for hubs.

Once Kilns are registered on the network, users can then go back to the Setup Menu and edit each kiln. Highlight the kiln to be edited and click the Edit icon at the top of the screen. Once the Edit icon is chosen, a window will appear that gives users the option to edit the name of the kiln, choose the devices associated with that particular kiln, and integrate the kiln with the PLC. If PLC communication is desired, it

must be enabled, and the appropriate tags assigned to each feature. Once the settings for the kiln are as desired, click save to exit.

(Figure 13 – Kiln Setup)



Name	Kiln Type	Auto-link Enabled	Data Server	Charge Tag	Charge Description Tag	Schedule No. Tag	Schedule Description Tag	Running Tag	DryLogic DO Tag
Kiln 5	Batch	<input checked="" type="checkbox"/>	Server	Channel1.PLC.Pr...	Channel1.PLC.Pr...	Channel1.PLC.Pr...		Channel1.PLC.GI...	
Kiln 3	Batch	<input checked="" type="checkbox"/>	Server	Channel1.PLC.Pr...	Channel1.PLC.Pr...	Channel1.PLC.Pr...		Channel1.PLC.GI...	
Kiln 4	Batch	<input checked="" type="checkbox"/>	Server	Channel1.PLC.Pr...	Channel1.PLC.Pr...	Channel1.PLC.Pr...		Channel1.PLC.GI...	
Kiln 5	Batch	<input checked="" type="checkbox"/>	Server	Channel1.PLC.Pr...	Channel1.PLC.Pr...	Channel1.PLC.Pr...		Channel1.PLC.GI...	

- Stocks: Modify Stocks, New Template, and Template Manager

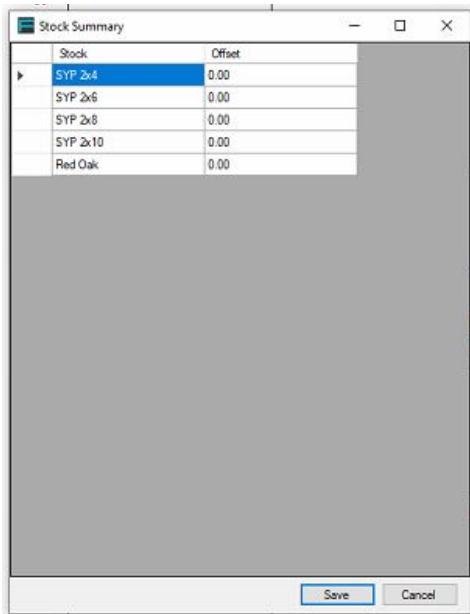
(Figure 14 – Stocks)



In the Modify Stocks Tab, this feature allows the user to set up or modify each product that is dried in the kiln. This menu allows the user to edit the name of the stock and assign each stock an MC% offset to accurately use their system. A large offset is not recommended, but an

offset of up to 5% is typically ok. For situations that may need a larger offset, contact Finna Sensors Technical Support.

(Figure 15 – Modify Stock)

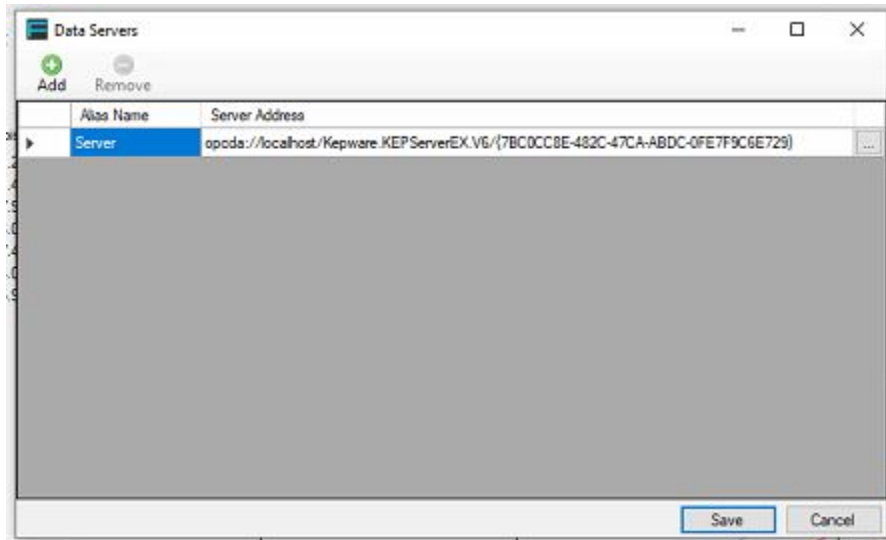


- Integration: Setup data servers, schedules and MC models.

(Figure 16 – Integration)



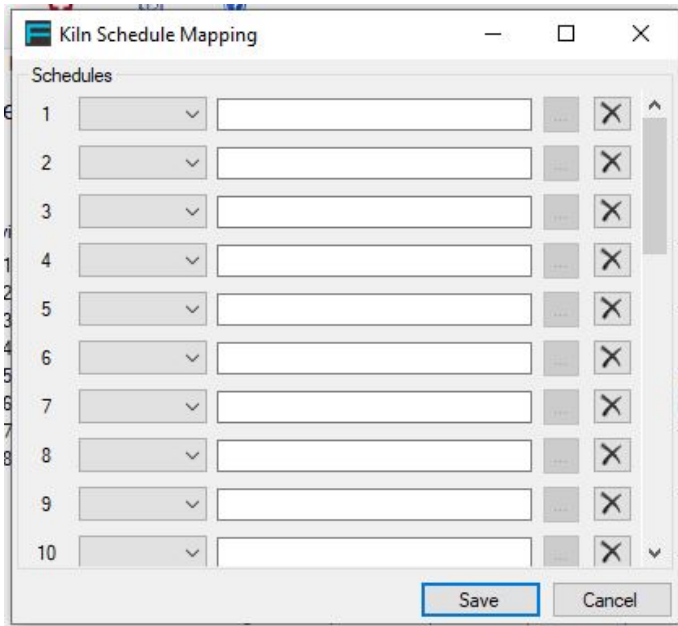
(Figure 17 – Data Servers)



In the Integration Menu, users can add and set up the desired server in which to use for PLC communication. To add a server, select the Data Server Tab under the Integration Menu in Setup. A window will appear. Click Add. Once Add is selected a server will appear in the window below the menu options. Double Click the word Server under Alias to edit the name of the server. Click the ellipses to the right of the chosen server to browse for the server address of a Local Machine, Remote Machine or a Custom Remote Machine. Once the desired machine is located in the browser, choose OK. To remove an added server, select it from the list of servers by clicking on the very left box in the chart. Once the correct server is highlighted, click remove. Select Save to exit and save changes or cancel to exit without saving.

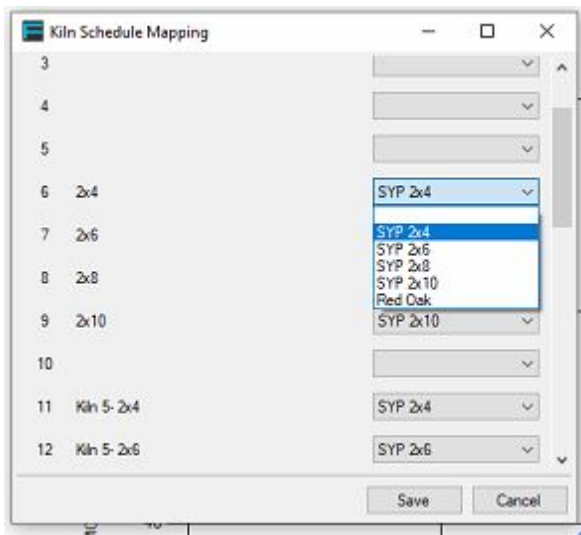


(Figure 18 – Schedule Configuration)



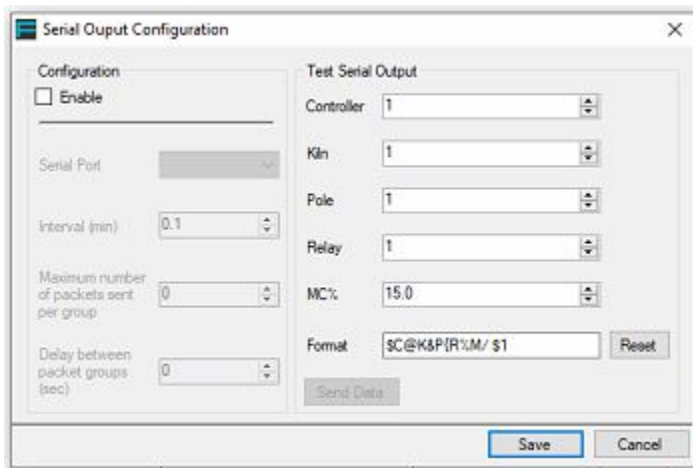
In the Schedule Configuration Tab, users select the server and the appropriate PLC tag assigned to each schedule. Up to 30 schedules can be assigned to PLC tags in this menu. Use the black “x” button to delete a schedule and its information.

(Figure 19 – Schedule vs Stock)



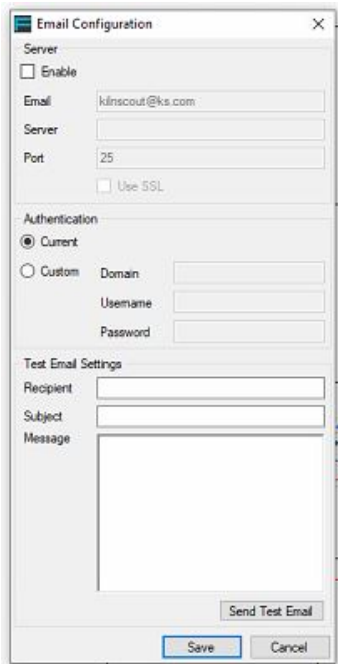
The Schedule Vs Stock Tab allows users to assign each stock to a schedule stored in the PLC. Schedules will display in the left column with the data description assigned to them in the integrated PLC. Users can then assign the appropriate stock to each assigned schedule. Select Save to exit and keep the changes made in this window or select Cancel to close without saving.

(Figure 20 – Serial Output)



By selecting the Serial Output Tab, users can setup serial communication with a direct link to the PLC. Serial Output must be enabled in the Serial Output Configuration window for serial communication to work. Users will need to assign a separate Serial Port used on the KilnScout PC for serial communication. Do so by using the pull down to select the appropriate COM Port. The interval of how often information is sent can also be set in this menu by using the scroll wheel next to the label “Interval”. The amount of information can also be set by adjusting the “Maximum number of packets sent per group” option. The amount of time between each packet of information can also be adjusted by changing the value labeled “Delay between packet groups”. The right section of this tab allows users to setup the format in which the serial information is sent. Once the user settings are as desired, a serial output test can then be performed by selecting “Send Data”.

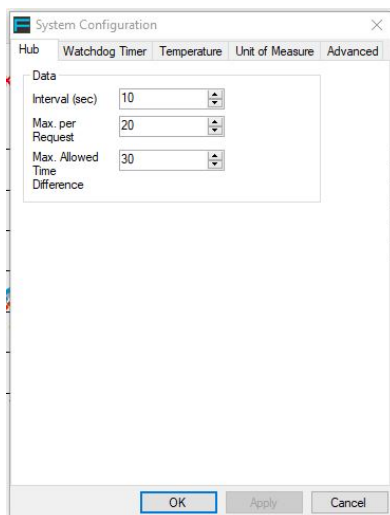
(Figure 21 – Email Configuration)



To setup an email server to be notified of alarms associated with the KilnScout system, use the Email Server tab located under Integration.

- **System:** Configures system for card communication and measurement.

(Figure 22 – System)



Under the System tab users have access to settings that control the hub communication, a Watchdog Timer, Temperature settings, Unit of Measure and other advanced options.

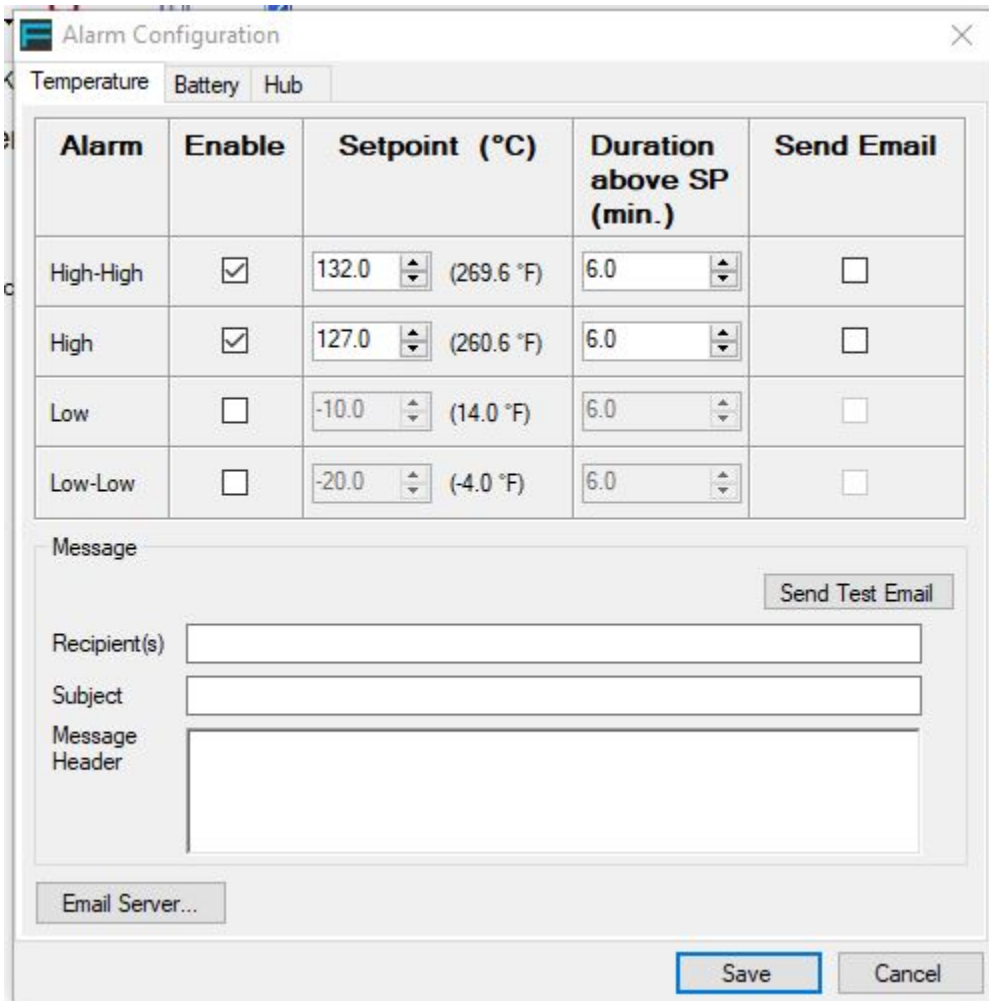
Under the Hub tab the interval (time) in which the hubs communicate with the PC can be set or adjusted by changing the value located next to Interval. The Max per Request feature allows the user to choose how much information is sent from the hubs to the PC at one time. The Max Allowed Time Difference is used to set the delay on how long the system will wait before sending more packets of information.

The Watchdog Timer tab is used to set up a constant line of communication between the KilnScout PC and the PLC. This line of communication is to ensure the Kiln PLC is getting information from the KilnScout system and will cause the Kiln PLC to override the moisture system information if it sees that there is no communication. To use this feature, assign the appropriate server and tag name then enable the feature by selecting the box labeled Enable. Click Apply to save the settings for the Watchdog Timer.

The Unit of Measure tab is used to toggle the system between standard and metric scales. Choose the desired measurement system and click apply to save the desired changes. Once the changes are applied, click OK to exit.

- **Alarms:** Setup email notification if a set temperature is exceeded over a certain time, low battery voltage alarms and Hub alarms

(Figure 23 – Alarms)



The screenshot shows the 'Alarm Configuration' window with the 'Temperature' tab selected. It contains a table of alarm settings and a message configuration section.

Alarm	Enable	Setpoint (°C)	Duration above SP (min.)	Send Email
High-High	<input checked="" type="checkbox"/>	132.0 (269.6 °F)	6.0	<input type="checkbox"/>
High	<input checked="" type="checkbox"/>	127.0 (260.6 °F)	6.0	<input type="checkbox"/>
Low	<input type="checkbox"/>	-10.0 (14.0 °F)	6.0	<input type="checkbox"/>
Low-Low	<input type="checkbox"/>	-20.0 (-4.0 °F)	6.0	<input type="checkbox"/>

Below the table is a 'Message' section with a 'Send Test Email' button, input fields for 'Recipient(s)', 'Subject', and 'Message Header', and an 'Email Server...' button. At the bottom are 'Save' and 'Cancel' buttons.

When opening the alarms setting window, the settings for the Temperature Alarms are displayed. Users may choose to enable four separate temperature thresholds and are described as High-High, High, Low, and Low-Low. To enable each threshold's alarm make sure to check the enabled box for each. Each alarm's threshold can be set by entering the desired alarm's temperature value in the scroll wheel to the right of the enable box. The Duration above SP column allows users to determine how long it takes for the system to alarm once the temperature rises above the setpoint.

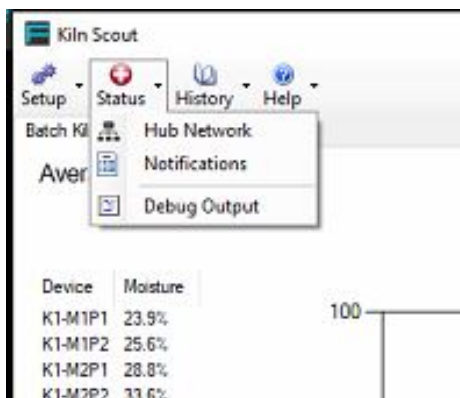
The battery Tab in the Alarms setting window allows users to set a voltage value that will cause the system to alarm once the batteries in the KilnScout system start to become weak due to age and use. To use this alarm, be sure to enable it by checking the enable box. To adjust the setpoint, determine the voltage value desired for alarm and adjust the Setpoint scroll wheel. The Duration above feature determines the length of time allowed at the set value before an alarm is triggered on the system.

The Hub Tab allows users to turn off specific alarms associated with the hubs attached to the system. Users can enable/disable alarms for Communication, High Temperature, Thermocouple, RAM, RAM Voltage, Supply Voltage, FIFO Overflow, and Radio. This menu also allows for the time duration to be set before alarming the Communication and Supply Voltage alarms.

Choose Save to exit the Alarm Menu and save changes to the system. Choose Cancel to exit without saving.

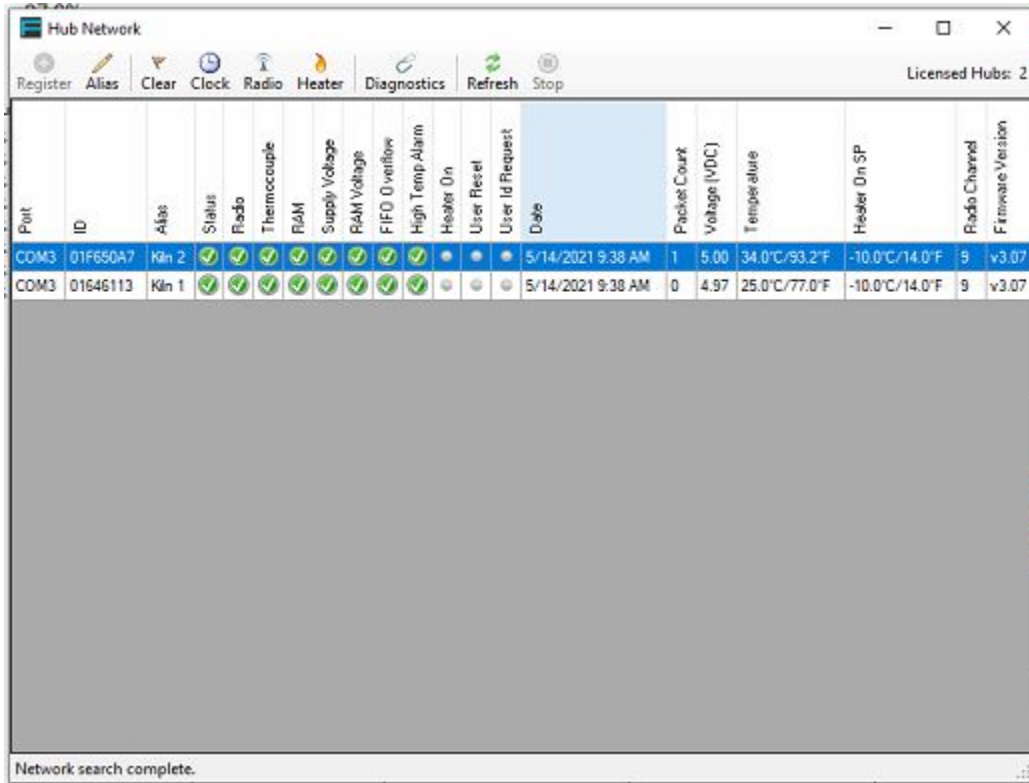
## 5. STATUS

(Figure 24 – Status)



The Status button is useful to check the performance of the hub network. In the case that sensors stop transmitting, this is the first place to look.

(Figure 25 – hub network)



Port	ID	Alias	Status	Radio	Thermocouple	RAM	Supply Voltage	RAM Voltage	FIFO Overflow	High Temp Alarm	Heater On	User Reset	User Id Request	Date	Packet Count	Voltage (VDC)	Temperature	Heater On SP	Radio Channel	Firmware Version
COM3	01F650A7	Kiln 2	✓	✓	✓	✓	✓	✓	✓	✓	•	•	•	5/14/2021 9:38 AM	1	5.00	34.0°C/93.2°F	-10.0°C/14.0°F	9	v3.07
COM3	01646113	Kiln 1	✓	✓	✓	✓	✓	✓	✓	✓	•	•	•	5/14/2021 9:38 AM	0	4.97	25.0°C/77.0°F	-10.0°C/14.0°F	9	v3.07

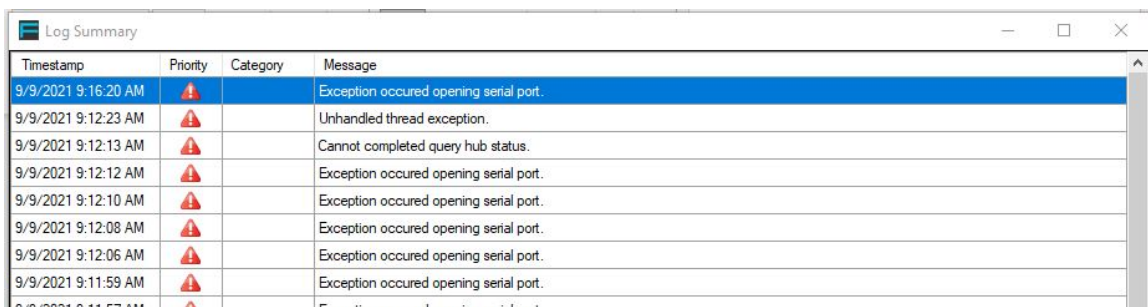
Network search complete.

Figure 25 shows the hub network status. This is the window that is displayed after selecting Hub Network under the Status Menu. From here, users can Register hubs when they are seen by the Moisture PC by highlighting the hub and clicking the Register button. Once a hub is registered and selected, the alias can be edited with the icon at the top labeled Alias. The flag icon labeled clear, is to clear the alarms on a selected hub. The clock icon is used to set the date and time on the selected hub. The radio icon is used to set the radio channel on the selected hub. The heater icon is to modify the setpoint for the built-in heater on the hub card. The Diagnostics icon, when selected will open a new window that will show each transmission that the selected hub is receiving from the measurement cards or wireless devices. The Refresh icon will refresh the list of hubs recognized by the KilnScout PC. The following status items are monitored on the Hub Network screen:

Port	Port chosen for communication on the KilnScout PC
ID	Unique serial number for the hub
Alias	
Status	Green = registered, Red = registered but not online, Yellow = not registered
Radio	Status indicator (Green = OK)
Thermocouple	Status indicator (Green = OK)
RAM	Status indicator (Green = OK)
Supply Voltage	Status indicator (Green = OK, Red = voltage is too high/low)
RAM Voltage	Status indicator (Green = OK)
FIFO Overflow	Green = OK, Red = memory full / lost packets
High Temp Alarm	Green = OK, Red = temperature greater than 176F
Heater On	Green = On, Grey = Off
User Reset	Green = power lost to hub, Grey = power OK
User ID Request	Green = remote hub button pushed, Grey = OK
Date	Current date/time in hub
Packet Count	Number of records in the hub
Voltage (VDC)	Actual voltage to the hub. Should be around 5 VDC
Temperature	Actual hub temperature
Heater On SP	Set point for heater (default = 14F)
Radio Channel	Hub channel (default = 9)
Firmware Version	Software version on hub PCB

- The Notification Tab under the Status Menu will open a window titled Log Summary. Here users will see any alarms associated with the system and will also be notified when a successful connection to each hub has been made.

(Figure 26 – Notifications)

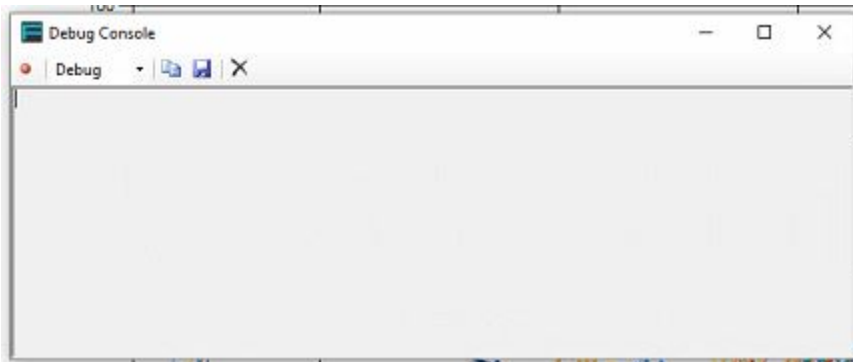


Timestamp	Priority	Category	Message
9/9/2021 9:16:20 AM	High		Exception occurred opening serial port.
9/9/2021 9:12:23 AM	High		Unhandled thread exception.
9/9/2021 9:12:13 AM	High		Cannot completed query hub status.
9/9/2021 9:12:12 AM	High		Exception occurred opening serial port.
9/9/2021 9:12:10 AM	High		Exception occurred opening serial port.
9/9/2021 9:12:08 AM	High		Exception occurred opening serial port.
9/9/2021 9:12:06 AM	High		Exception occurred opening serial port.
9/9/2021 9:11:59 AM	High		Exception occurred opening serial port.



- The Debug Output tab is used by Finna Sensors staff to record any software issues Users may be instructed to turn on the debug console by Finna Sensors as a troubleshooting tool.

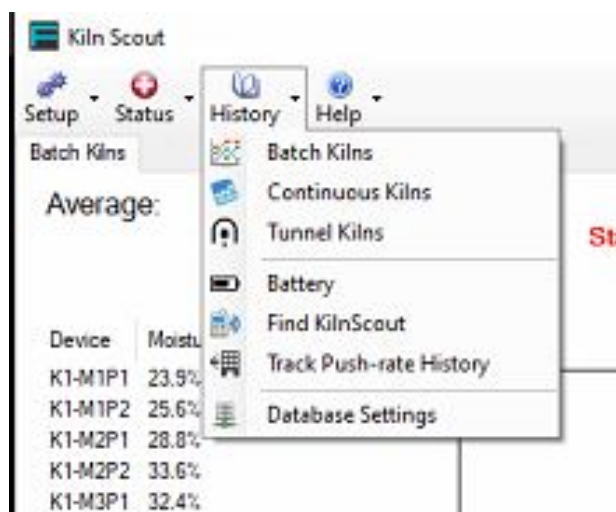
(Figure 27 – Debug Console)



## 6. HISTORY

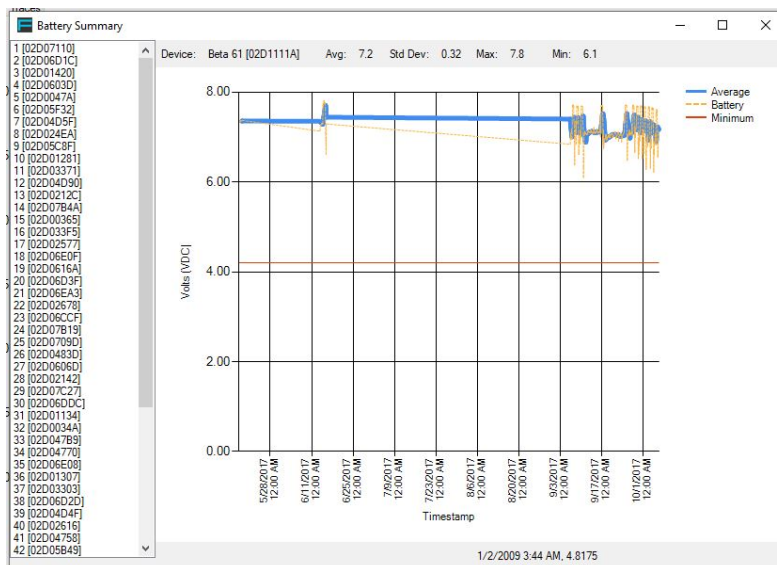
Under the History Menu Users will see tabs labeled Batch Kilns, Continuous Kilns, Tunnel Kilns, Battery, Find KilnScout, Track Push-rate History, and Database settings.

(Figure 28 – History)



- By selecting the Batch Kilns tab, a window will open that will display each charge from the batch kilns associated with the KilnScout system.
- By selecting the Continuous Kilns tab, a window will open that will allow users to select a time frame for a custom report generated from the database.
- Selecting the Tunnel Kilns tab, like the Continuous tab, will open a window that will allow users to select a time frame for a custom report generated from the database.
- The Battery Tab opens a window that allows users to select a KilnScout device on the left-hand side of the screen while graphing the battery strength history on the right.

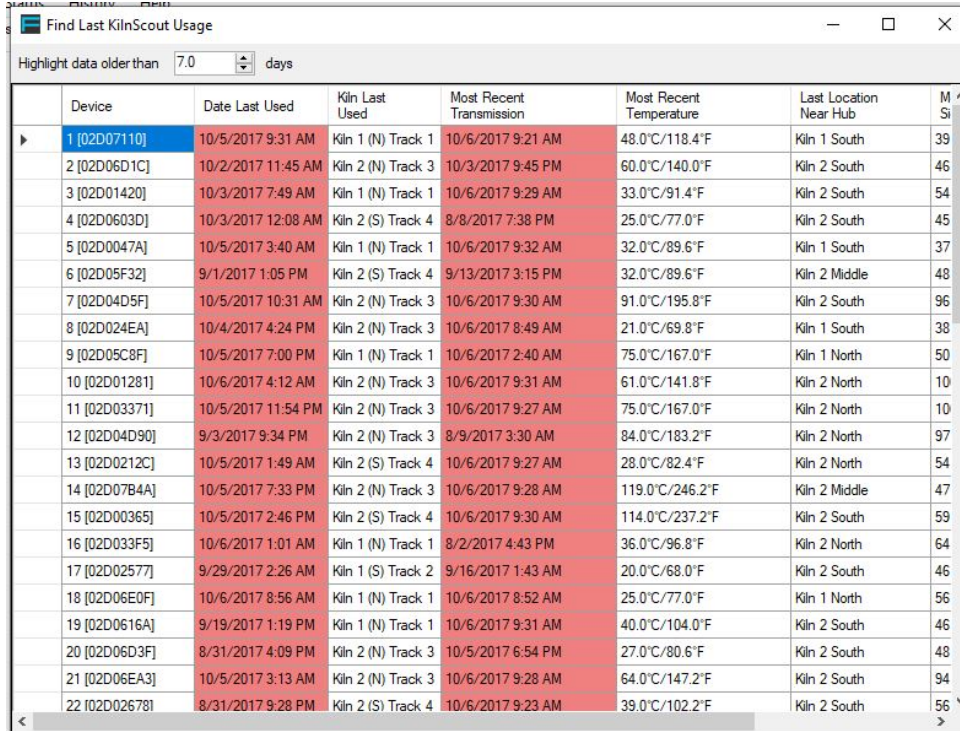
(Figure 29 – Battery History)



- The Find KilnScout Tab allows users to go back and look at the most recent transmission from each device. This is important feature for wireless systems to try to help locate misplaced devices. Through this feature, users can view the device, the time and date in which it last transmitted, the temperature and the signal strength. Through

this information, users can have a general idea of where a lost device might be located.

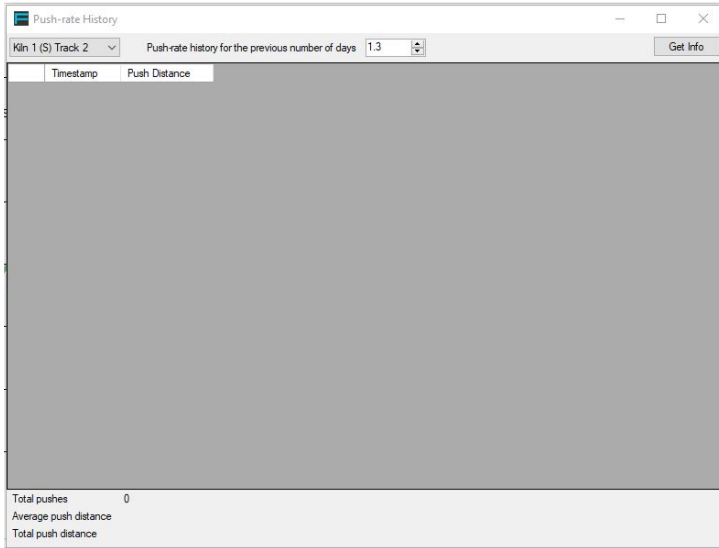
(Figure 30 – Find KilnScout)



Device	Date Last Used	Kiln Last Used	Most Recent Transmission	Most Recent Temperature	Last Location Near Hub	M Si
1 [02D07110]	10/5/2017 9:31 AM	Kiln 1 (N) Track 1	10/6/2017 9:21 AM	48.0°C/118.4°F	Kiln 1 South	39
2 [02D06D1C]	10/2/2017 11:45 AM	Kiln 2 (N) Track 3	10/3/2017 9:45 PM	60.0°C/140.0°F	Kiln 2 South	46
3 [02D01420]	10/3/2017 7:49 AM	Kiln 1 (N) Track 1	10/6/2017 9:29 AM	33.0°C/91.4°F	Kiln 2 South	54
4 [02D0603D]	10/3/2017 12:08 AM	Kiln 2 (S) Track 4	8/8/2017 7:38 PM	25.0°C/77.0°F	Kiln 2 South	45
5 [02D0047A]	10/5/2017 3:40 AM	Kiln 1 (N) Track 1	10/6/2017 9:32 AM	32.0°C/89.6°F	Kiln 1 South	37
6 [02D05F32]	9/1/2017 1:05 PM	Kiln 2 (S) Track 4	9/13/2017 3:15 PM	32.0°C/89.6°F	Kiln 2 Middle	48
7 [02D04D5F]	10/5/2017 10:31 AM	Kiln 2 (N) Track 3	10/6/2017 9:30 AM	91.0°C/195.8°F	Kiln 2 South	96
8 [02D024EA]	10/4/2017 4:24 PM	Kiln 2 (N) Track 3	10/6/2017 8:49 AM	21.0°C/69.8°F	Kiln 1 South	38
9 [02D05C8F]	10/5/2017 7:00 PM	Kiln 1 (N) Track 1	10/6/2017 2:40 AM	75.0°C/167.0°F	Kiln 1 North	50
10 [02D01281]	10/6/2017 4:12 AM	Kiln 2 (N) Track 3	10/6/2017 9:31 AM	61.0°C/141.8°F	Kiln 2 North	10
11 [02D03371]	10/5/2017 11:54 PM	Kiln 2 (N) Track 3	10/6/2017 9:27 AM	75.0°C/167.0°F	Kiln 2 North	10
12 [02D04D90]	9/3/2017 9:34 PM	Kiln 2 (N) Track 3	8/9/2017 3:30 AM	84.0°C/183.2°F	Kiln 2 North	97
13 [02D0212C]	10/5/2017 1:49 AM	Kiln 2 (S) Track 4	10/6/2017 9:27 AM	28.0°C/82.4°F	Kiln 2 North	54
14 [02D07B4A]	10/5/2017 7:33 PM	Kiln 2 (N) Track 3	10/6/2017 9:28 AM	119.0°C/246.2°F	Kiln 2 Middle	47
15 [02D00365]	10/5/2017 2:46 PM	Kiln 2 (S) Track 4	10/6/2017 9:30 AM	114.0°C/237.2°F	Kiln 2 South	59
16 [02D033F5]	10/6/2017 1:01 AM	Kiln 1 (N) Track 1	8/2/2017 4:43 PM	36.0°C/96.8°F	Kiln 2 North	64
17 [02D02577]	9/29/2017 2:26 AM	Kiln 1 (S) Track 2	9/16/2017 1:43 AM	20.0°C/68.0°F	Kiln 2 South	46
18 [02D06E0F]	10/6/2017 8:56 AM	Kiln 1 (N) Track 1	10/6/2017 8:52 AM	25.0°C/77.0°F	Kiln 1 North	56
19 [02D0616A]	9/19/2017 1:19 PM	Kiln 1 (N) Track 1	10/6/2017 9:31 AM	40.0°C/104.0°F	Kiln 2 South	46
20 [02D06D3F]	8/31/2017 4:09 PM	Kiln 2 (N) Track 3	10/5/2017 6:54 PM	27.0°C/80.6°F	Kiln 2 South	48
21 [02D06EA3]	10/5/2017 3:13 AM	Kiln 2 (N) Track 3	10/6/2017 9:28 AM	64.0°C/147.2°F	Kiln 2 South	94
22 [02D02678]	8/31/2017 9:28 PM	Kiln 2 (S) Track 4	10/6/2017 9:23 AM	39.0°C/102.2°F	Kiln 2 South	56

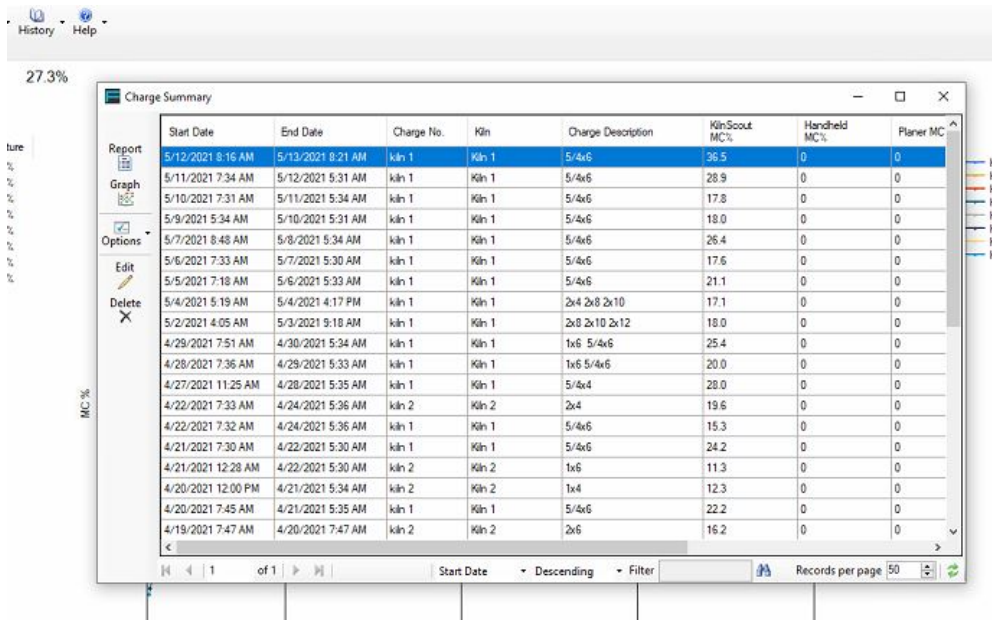
- The Track Push-rate Tab allows users to see the push-rate of a continuous or a tunnel kiln. The system will time stamp a push, track the distance of the push, note the number of pushes for the charge and average the distance of each push.

(Figure 31 – Track Push-rate History)



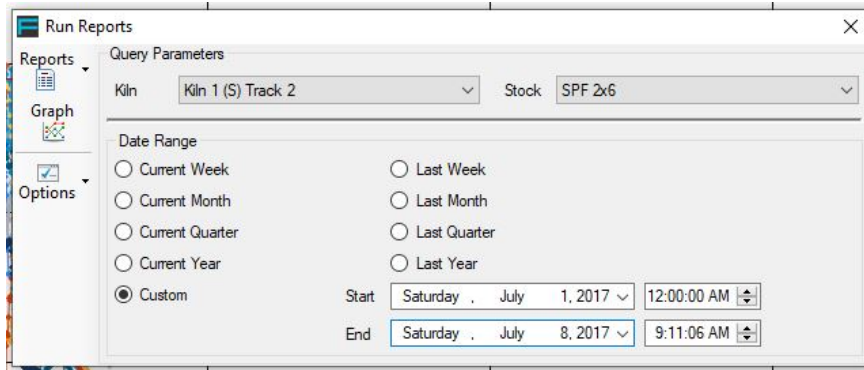
- The Database Settings Tab is used to set the file location in which KilnScout writes to and reads from. Settings in this tab should not be changed after commissioning the system unless coordinated with a Finna Sensors representative.

(Figure 32 – History, Batch Kilns)



Operators can select the type of kiln from the “History” main menu pull down. Selecting Batch Kilns will generate a screen of historical charges. Users can sort by any of the columns. Additionally, there is a filter section at the bottom of the screen to search specific items. On the left-hand side are menu options.

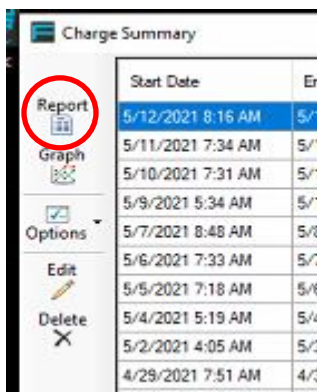
(Figure 33 - History; Continuous Kilns, Tunnel Kilns)



Selecting Continuous or Tunnel Kiln will generate a window that will allow users to select a preset or custom time frame in which to generate a report from. Once a time frame has been selected, users can then select to see a report for MC%, a report for the Heat Treat Cycle or an interactive graph for the chosen interval. When viewing the graph, users have the option to plot along the X-axis based on time or distance.

## a) Report

(Figure 34 – Report)

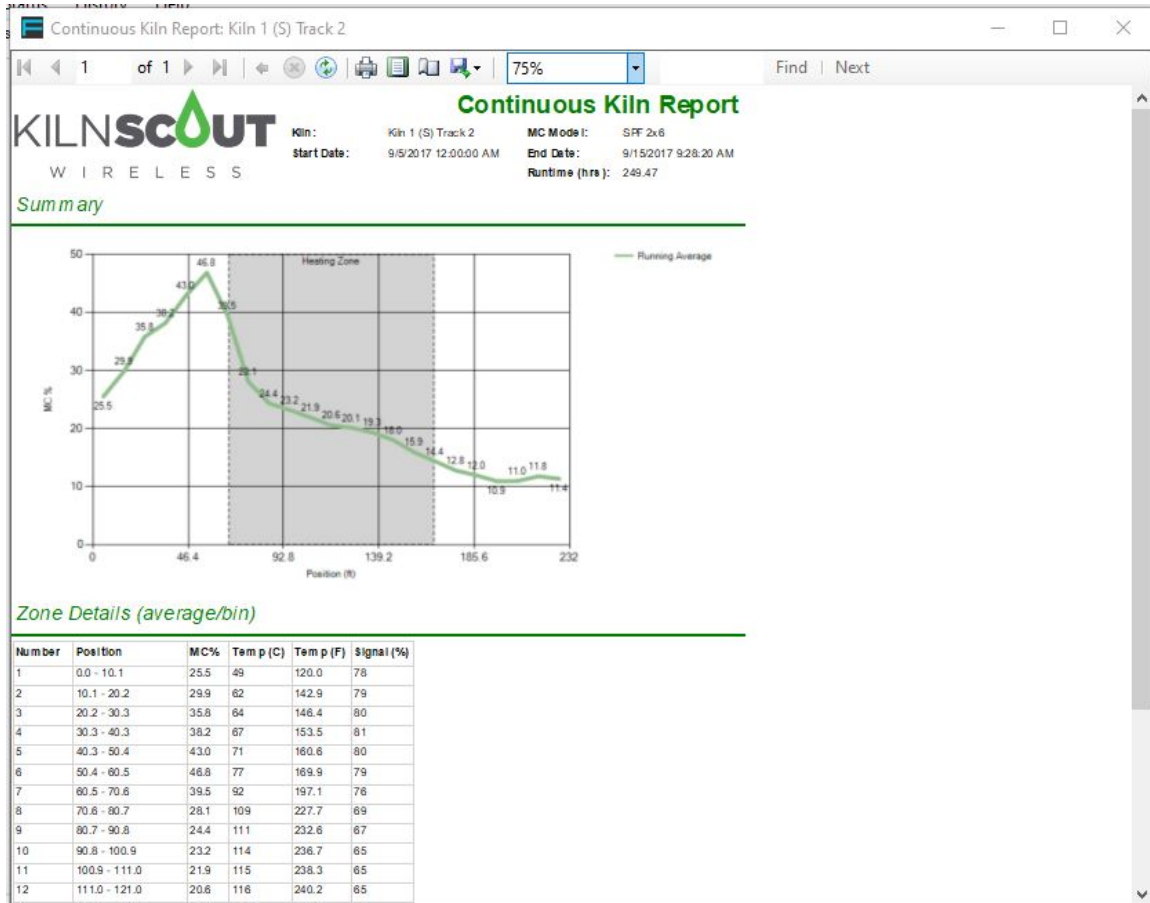


Generates a charge report for a single charge.

(Figure 35 – Batch Kiln Charge Report)

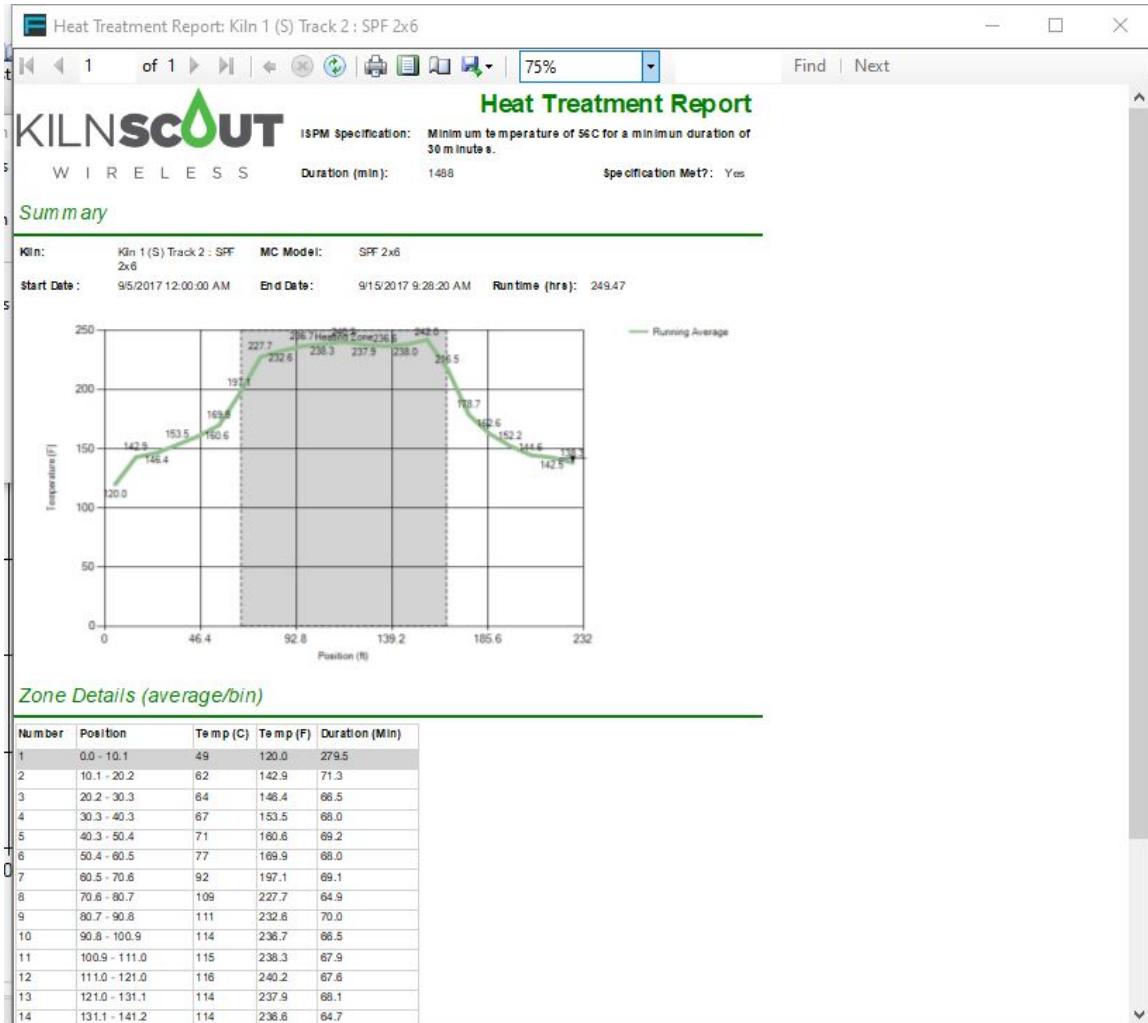


(Figure 36 – Continuous Kiln MC% Report)





(Figure 37 – Continuous Kiln Heat Treat Report)



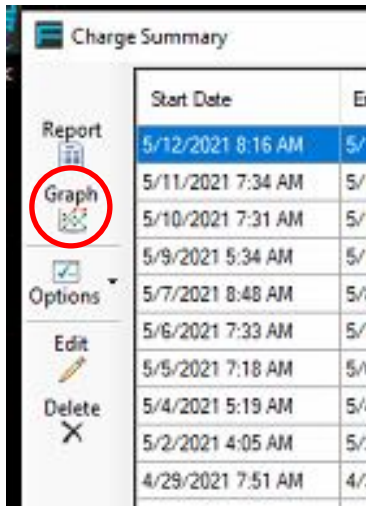
## Features

- Charge details including start date, end date, schedule number, run time, kiln number and moisture model used.
- Graphs displaying key sensor data.
- Device details show the last transmission received by the hub for each device.
- Report can be saved, emailed, printed or exported to excel/word.

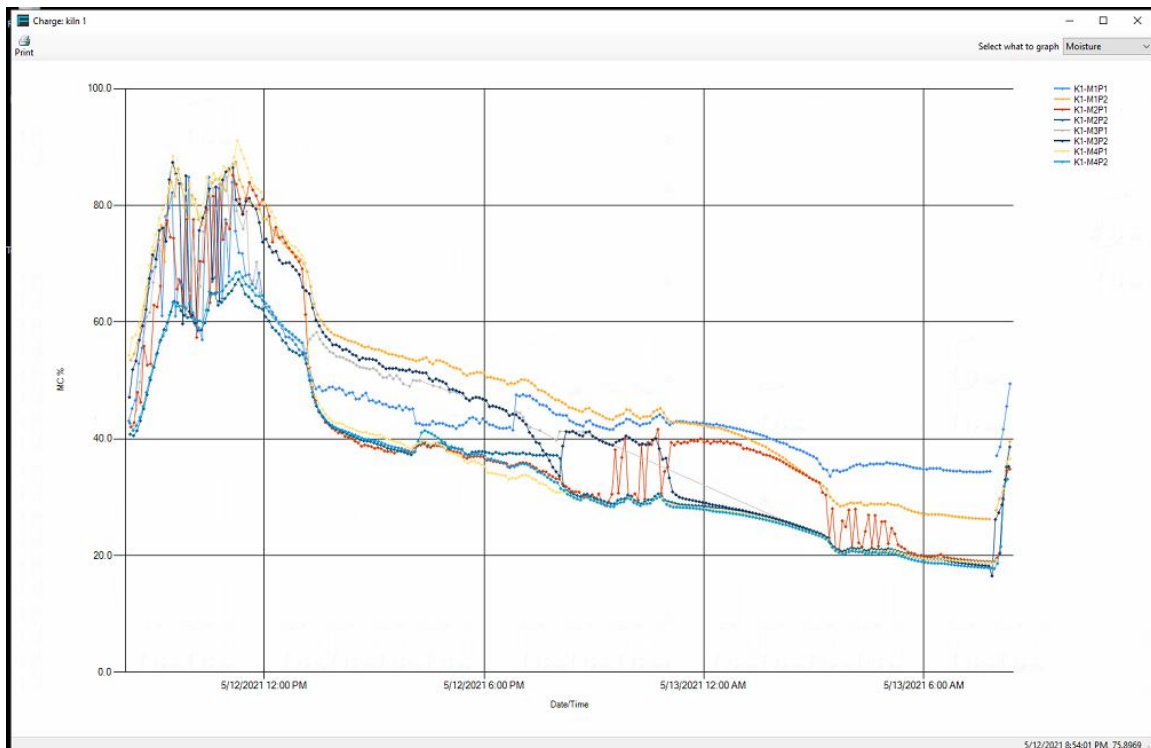


## b) Graph

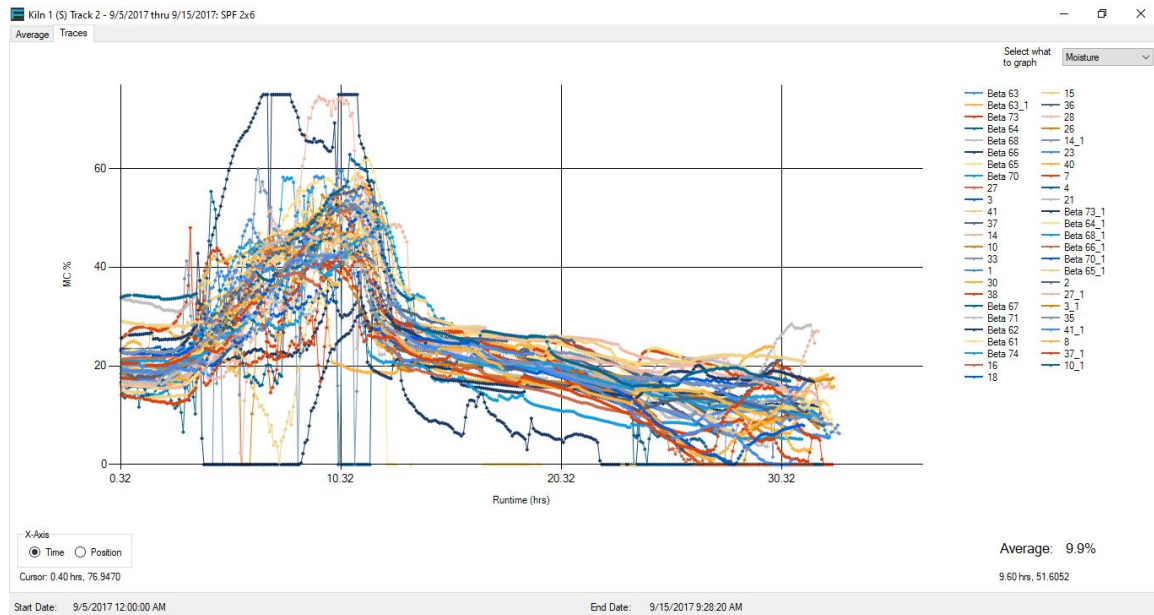
(Figure 38 – Graph Batch Kiln)



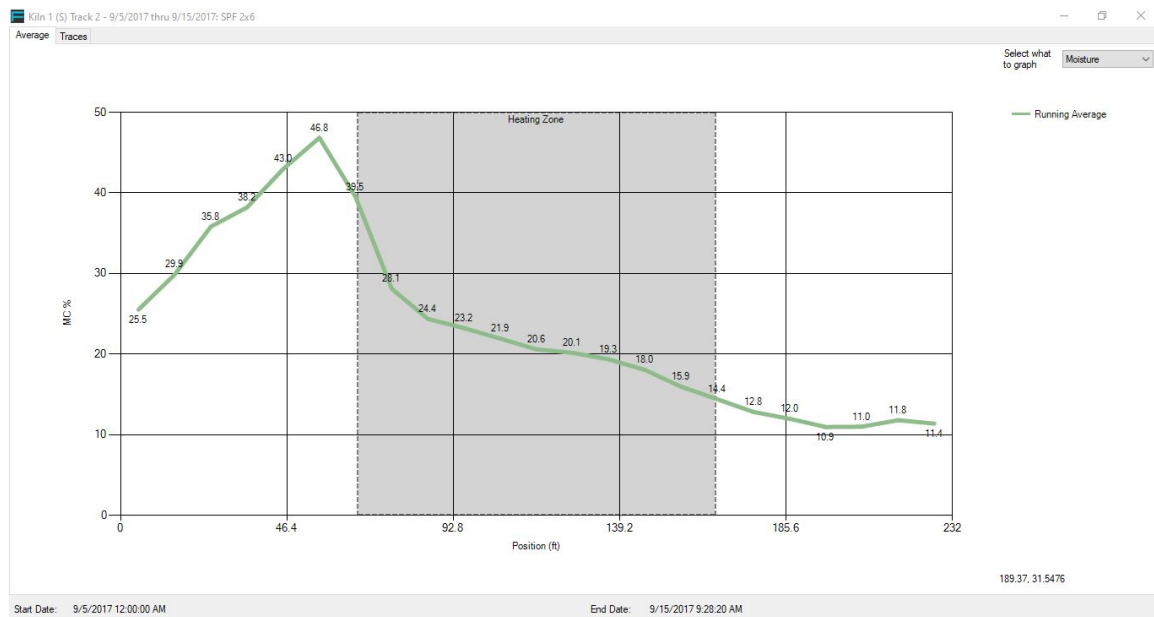
(Figure 39 – Charge Graph Batch Kiln)



(Figure 40 – Continuous Kiln Moisture Traces Graph; X=Time)



(Figure 41 – Continuous Kiln Moisture Average Graph; X=Position)



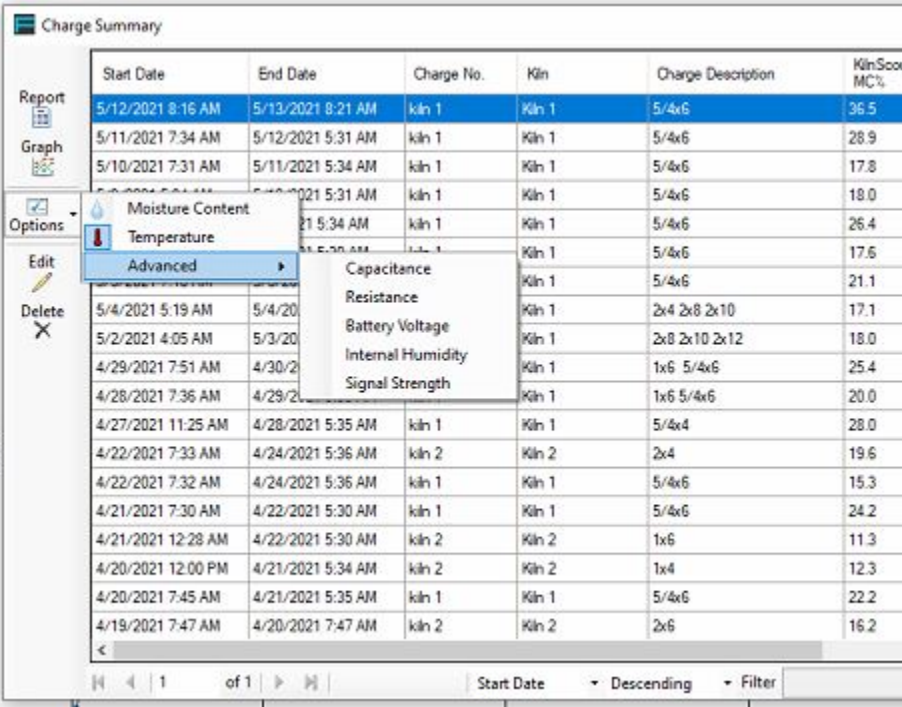
Figures 39-41 show the interactive graph that is available for kiln charges. Users can zoom in on specific data or choose alternative items to graph (moisture, temperature, capacitance, resistance, battery, box internal humidity). Once a selection has been made, the graph can be printed for further analysis.

Features:

- remove sensors from the graph by right-clicking the list and deselecting the appropriate sensor
- Change data displayed by using the pull-down in the top right-hand corner.
- Zoom by right-clicking the graph, then highlight, “zoom”. This will allow a user to select a certain area of the graph to zoom
- Location information (date, time and value) is located in the bottom right side of the screen.

### c) Options

(Figure 42 – Charge Summary Options)



The screenshot shows the 'Charge Summary' window with a table of kiln charges. A context menu is open over the table, listing various data points that can be graphed. The 'Advanced' option is currently selected in the menu.

Start Date	End Date	Charge No.	Kiln	Charge Description	KilnScout MC%
5/12/2021 8:16 AM	5/13/2021 8:21 AM	kin 1	Kiln 1	5/4x6	36.5
5/11/2021 7:34 AM	5/12/2021 5:31 AM	kin 1	Kiln 1	5/4x6	28.9
5/10/2021 7:31 AM	5/11/2021 5:34 AM	kin 1	Kiln 1	5/4x6	17.8
5/10/2021 5:31 AM	5/11/2021 5:31 AM	kin 1	Kiln 1	5/4x6	18.0
5/10/2021 5:34 AM	5/11/2021 5:34 AM	kin 1	Kiln 1	5/4x6	26.4
5/10/2021 5:34 AM	5/11/2021 5:34 AM	kin 1	Kiln 1	5/4x6	17.6
5/4/2021 5:19 AM	5/4/2021 5:19 AM	kin 1	Kiln 1	5/4x6	21.1
5/2/2021 4:05 AM	5/3/2021 4:05 AM	kin 1	Kiln 1	2x4 2x8 2x10	17.1
4/29/2021 7:51 AM	4/30/2021 7:51 AM	kin 1	Kiln 1	2x8 2x10 2x12	18.0
4/28/2021 7:36 AM	4/29/2021 7:36 AM	kin 1	Kiln 1	1x6 5/4x6	25.4
4/28/2021 7:36 AM	4/29/2021 7:36 AM	kin 1	Kiln 1	1x6 5/4x6	20.0
4/27/2021 11:25 AM	4/28/2021 5:35 AM	kin 1	Kiln 1	5/4x4	28.0
4/22/2021 7:33 AM	4/24/2021 5:36 AM	kin 2	Kiln 2	2x4	19.6
4/22/2021 7:32 AM	4/24/2021 5:36 AM	kin 1	Kiln 1	5/4x6	15.3
4/21/2021 7:30 AM	4/22/2021 5:30 AM	kin 1	Kiln 1	5/4x6	24.2
4/21/2021 12:28 AM	4/22/2021 5:30 AM	kin 2	Kiln 2	1x6	11.3
4/20/2021 12:00 PM	4/21/2021 5:34 AM	kin 2	Kiln 2	1x4	12.3
4/20/2021 7:45 AM	4/21/2021 5:35 AM	kin 1	Kiln 1	5/4x6	22.2
4/19/2021 7:47 AM	4/20/2021 7:47 AM	kin 2	Kiln 2	2x6	16.2

Context Menu Options:

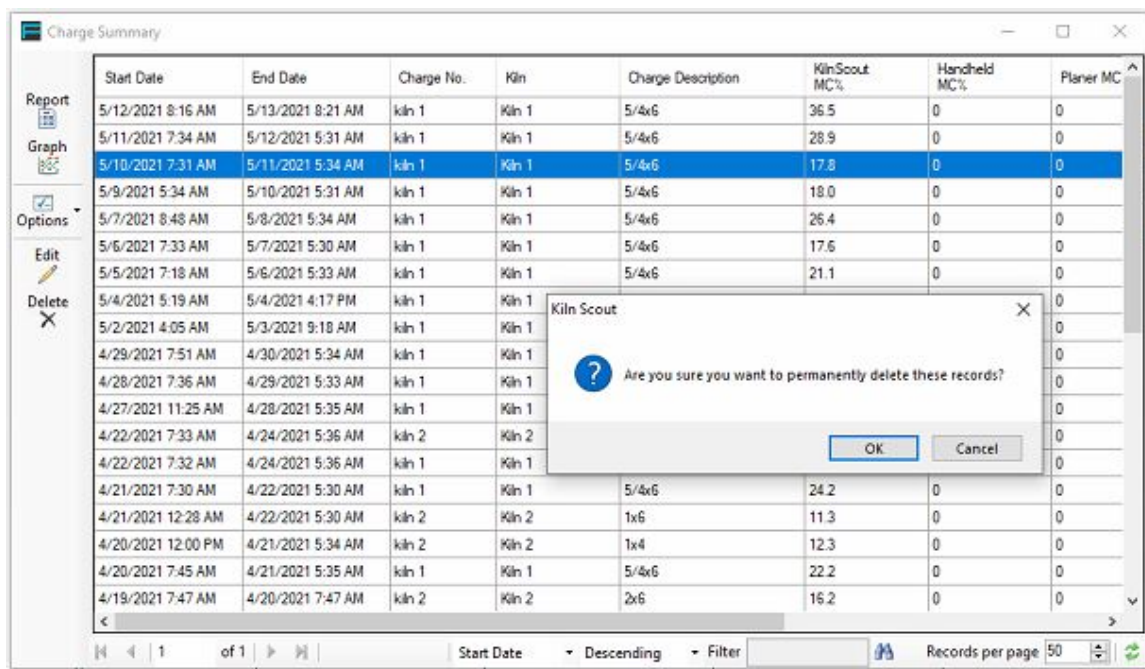
- Moisture Content
- Temperature
- Advanced
- Capacitance
- Resistance
- Battery Voltage
- Internal Humidity
- Signal Strength

The options button enables users to show/hide graphs on a charge report. To add an item to the charge report, the user must highlight the feature. To deselect, simply highlight the item and press the left mouse button. Once an item has been selected, it will now show up on the charge report (See 'Report')

**d) Edit-** Use this feature to edit a charge after it has completed. This is the same menu as described in section 3 of the software user manual.

### e) Delete

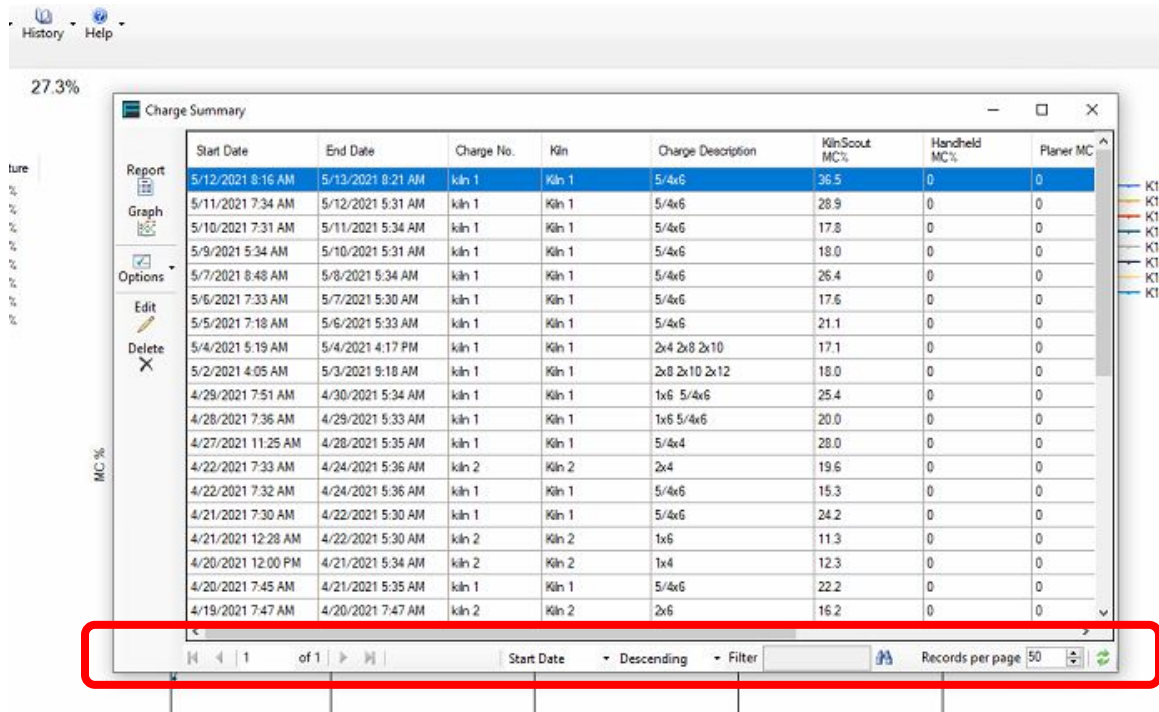
(Figure 43 – Delete a Charge)



Deleting a charge will **permanently** delete the selected records.

## f) Page Controls

(Figure 44 – Charge Summary Controls)



Start Date	End Date	Charge No.	Kiln	Charge Description	KilnScout MC%	Handheld MC%	Planer MC%
5/12/2021 8:16 AM	5/12/2021 8:21 AM	kin 1	Kiln 1	5/4x6	36.5	0	0
5/11/2021 7:34 AM	5/12/2021 5:31 AM	kin 1	Kiln 1	5/4x6	28.9	0	0
5/10/2021 7:31 AM	5/11/2021 5:34 AM	kin 1	Kiln 1	5/4x6	17.8	0	0
5/9/2021 5:34 AM	5/10/2021 5:31 AM	kin 1	Kiln 1	5/4x6	18.0	0	0
5/7/2021 8:48 AM	5/8/2021 5:34 AM	kin 1	Kiln 1	5/4x6	26.4	0	0
5/6/2021 7:33 AM	5/7/2021 5:30 AM	kin 1	Kiln 1	5/4x6	17.6	0	0
5/5/2021 7:18 AM	5/6/2021 5:33 AM	kin 1	Kiln 1	5/4x6	21.1	0	0
5/4/2021 5:19 AM	5/4/2021 4:17 PM	kin 1	Kiln 1	2x4 2x8 2x10	17.1	0	0
5/2/2021 4:05 AM	5/3/2021 9:18 AM	kin 1	Kiln 1	2x8 2x10 2x12	18.0	0	0
4/29/2021 7:51 AM	4/30/2021 5:34 AM	kin 1	Kiln 1	1x6 5/4x6	25.4	0	0
4/28/2021 7:36 AM	4/29/2021 5:33 AM	kin 1	Kiln 1	1x6 5/4x6	20.0	0	0
4/27/2021 11:25 AM	4/28/2021 5:35 AM	kin 1	Kiln 1	5/4x4	28.0	0	0
4/22/2021 7:33 AM	4/24/2021 5:36 AM	kin 2	Kiln 2	2x4	19.6	0	0
4/22/2021 7:32 AM	4/24/2021 5:36 AM	kin 1	Kiln 1	5/4x6	15.3	0	0
4/21/2021 7:30 AM	4/22/2021 5:30 AM	kin 1	Kiln 1	5/4x6	24.2	0	0
4/21/2021 12:28 AM	4/22/2021 5:30 AM	kin 2	Kiln 2	1x6	11.3	0	0
4/20/2021 12:00 PM	4/21/2021 5:34 AM	kin 2	Kiln 2	1x4	12.3	0	0
4/20/2021 7:45 AM	4/21/2021 5:35 AM	kin 1	Kiln 1	5/4x6	22.2	0	0
4/19/2021 7:47 AM	4/20/2021 7:47 AM	kin 2	Kiln 2	2x6	16.2	0	0

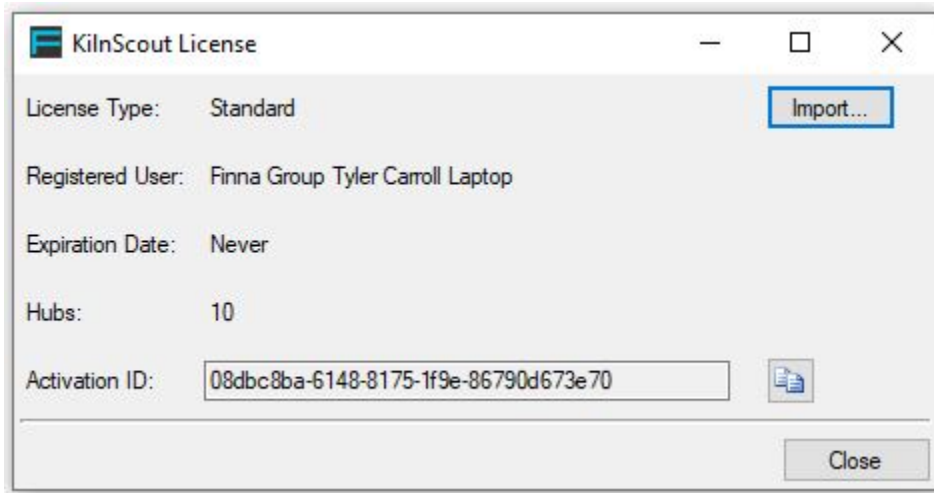
The bottom of the screen contains controls for operators to use to page forward or backward. Users can also filter, as well as refresh the data. Additionally, the number of reports per page can be personalized.

## 7. Help

Two tabs are located in the Help menu; the License tab and the About tab.

- The License Tab is used by Finna Sensors personnel to issue a KilnScout license to the software user. Each license is allowed a specific number of registered hubs and must be issued a new license to be able to add additional hubs to the KilnScout System. The KilnScout License will be installed on the KilnScout PC by a representative of Finna Sensors prior to shipping the KilnScout System.

(Figure 45 –License)



- The About section provides the software information. This is useful information to provide a Finna Sensors technician for troubleshooting.

(Figure 46 –About)





# KilnScout Software User Manual

Rev #: 11.5.21