



## Lignomat netKCS – model MP32 – Operator Manual

Lignomat Kiln Control System

Overall Kiln Status
Stop
Probes
Overrides
Schedule
History
Samples
Settings
Graphical View

Individual Kiln Status

Change Setup Pause Rest

Kiln	Charge	Schedule	Operator	Final MC	Status
1	RO.12.22 RO Winter Ru	5 DM- 6/4 Northern Red Oak	cody	8.0	Running

Fans - Auto

Direction	Speed %	Rem Time
B	50	2:47 / 3:00

Temperature °F

Desired	Active	Inactive
110.0	71.8	74.0
Zone2	71.7	73.8

Internal desired Temp:73.1

EMC %

Desired	Active	Inactive
19.0	9.5	9.5

Internal desired EMC:10.5

MC #	1	2	3	4	5	6	7	8	Manual Avg
%	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	53.7
Species	1	1	1	1	1	1	1	1	
Active	X								

Elapsed Time

Total	0d 00:12
Heating	0d 00:12
Warming	0d 00:00
Drying	0d 00:00
Conditioning	0d 00:00
Cooling	0d 00:00
Heat Treatment	0d 00:00

Regulators - Auto

Heat	Auto	On
Vent	Auto	Off
Spray	Auto	Off
Steam Pressure	0	



## **DESCRIPTION OF SCREENS AND MENUS**

### **Overall Kiln Status (OKS)**

Displays overall kiln status for all kilns configured and connected to the MP32.  
To see Individual Kiln Status page click on the kiln number.

#### **Menu options:**

**Schedules** - this where you create drying schedules and backup schedules to a local device.

**Histories** – view histories and download to a local device.

**Settings** – setup email alerts,

- steam optimization

- fan rate

- edit species list – add new wood species with respective A/B correction factors

- review activity log when troubleshooting

- manage kiln operators - add & remove operators, changes passwords.

- manage IP scales

- manage Authorization Tokens for desktop software.

**Kiln Charges** - Until all kilns have been started atleast once this will return to OKS page. Once all kilns have been started at least once this page will show current information at a glance as well as estimated time of completion for each kiln.

**FAQ** – Description of controller operation and functions, terminology, software version.

## Individual Kiln Status (IKS)

### Menu options:

**Overall Kiln Status** – return to OKS page.

**Start** - To start kiln enter (1) charge number, (2) charge description and (3) select schedule from the schedule library, (4) Enter password and choose start.

Optional features:

- Enable dump schedule, if there is a defined dump schedule for this kiln (see Kiln Settings), selecting this will enable the dump for the starting charge.
- Use avg MC Override if selected this will progress a schedule based on loss per day and initial MC instead of time/or sensor based progression.
- Charge Details, saved details about this charge used to display in the Kiln Charges page.

**Stop** - Enter password and hit [Stop] button to stop the kiln

**Probes** - Activate or deactivate MC probes - also select wood species for each MC probe.

**Overrides** - Manual overrides for controller outputs: fans, heat, vents, spray.

This is similar to manual control switchboard.

**Schedule** - Displays current schedule - any changes will only affect currently running schedule

**History** – default is graphics history display.

- Choose History lets you open history from one of the previous charges.
- Download will save current history file to a local device in a zipped, comma separated format.
- Other views: select a display group from available selection or click on Edit to create your own display group.
- Click on the Legend item to turn individual trace off or on.
- Grid - numerical values - useful for troubleshooting
- Timing - set history recording interval and offset

**Samples** – used in conjunction with sample weight scale to calculate average MC content.

## Settings – per kiln settings

- Transmitters – enter serial numbers for EMC and MC transmitters
- Hardware – reads and displays kiln controller hardware configuration
- Energy Conservation – manages kiln fan speed based on the utility power meter high/low limit
- Rest Schedule – setup kiln rest schedule and rest parameters
- Dump Schedule – setup heat dump schedule and dump parameters
- Settings – Displays advanced settings. Master password is required to change these. These allow you to fine tune kiln controller by enabling or disabling certain interlocks, adjusting regulators PID values and other kiln parameters.

**WARNING: Only change these settings if you understand their application.  
Improper settings can cause adverse kiln operation and can result in damage to the lumber.**

**Graphical View** - displays graphical approximation of the kiln and current kiln values

**Individual Kiln Status** - displays current kiln status, charge info, list of errors and brief description

- Fans status
- Temperature
- EMC
- MC probes
- Elapsed Time for each schedule segment
- Regulators status
- **Errors** - displays current list of errors and brief description

\*\*\*\*\*

## KILN OPERATIONS

Any changes to the kiln operation require operator password.

It is recommended to use 'Return to OKS' button or 'Cancel Changes' button to return to the main menu. Avoid using browser Back button.

### First things to do - from the OKS – Overall Kiln Status:

1) Operators - assign and create name and password for each kiln operator as desired

Master password is required to complete this step. Refer to MP32 Setup and Configuration instructions.

2) Schedule - create drying schedule(s)

To create new schedule click **Edit** on an **Undefined** schedule line.

Next, choose drying **schedule type** from available list

This opens schedule editor. Enter:

- **Schedule name**

- **Temperature Gain** ( degrees/hour )

Edit the schedule as needed;

When done, enter **password** and click **Save Changes**

This schedule is now saved in schedule library.

### Starting a kiln:

Click [ **Start** ] button from the IKS

(1) Enter **Charge Number**

(2) Enter **Charge Description**

(3) Select a **Schedule**

(4) Enter **Final MC %**

(5) Enter **Password**

(6) Click **Start**

Additional options: (7) Enable Heat Dump schedule and (8) Enable Average MC Override feature.

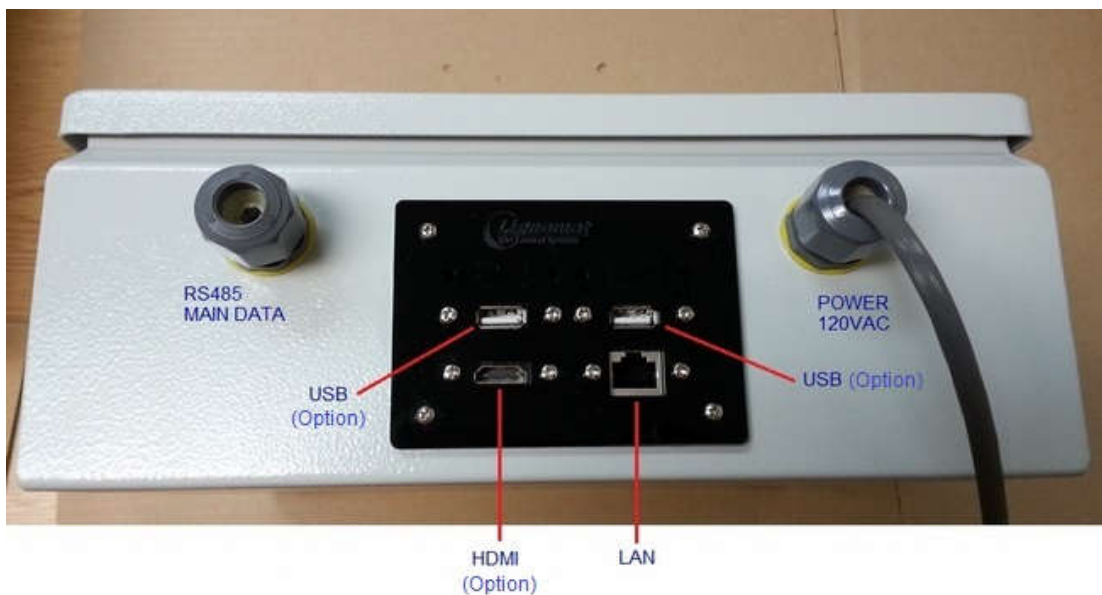


## LIGNOMAT MP32 SETUP & CONFIGURATION GUIDE

### 1. CONNECT HARDWARE

**1a.** Place each MP32 unit in a suitable dry location.

Connect the Network Cable, and RS485 Cable, once all connections are made start the MP32 by connecting the power cable to an outlet. (highly recommended is a small 300W to 450W UPS). See recommended accessories for recommendations.



**1b.** LAN side

Connect Ethernet cable (Cat5, Cat5e, Cat5) to local network.

A network Router or Wireless Access Point must be connected at some point to provide DHCP service.

**1c.** KCU/KCM/PCM side - RS485

Daisy-chain up to 32 PCM and connect to the MP32.

If more than 32 kilns then additional MP32 is required. Repeat the above steps.

Refer to the attached diagram for wiring to MP32.

KCU/KCM/PCM main data bus cable connects to the green 5-pin connector inside the MP32.

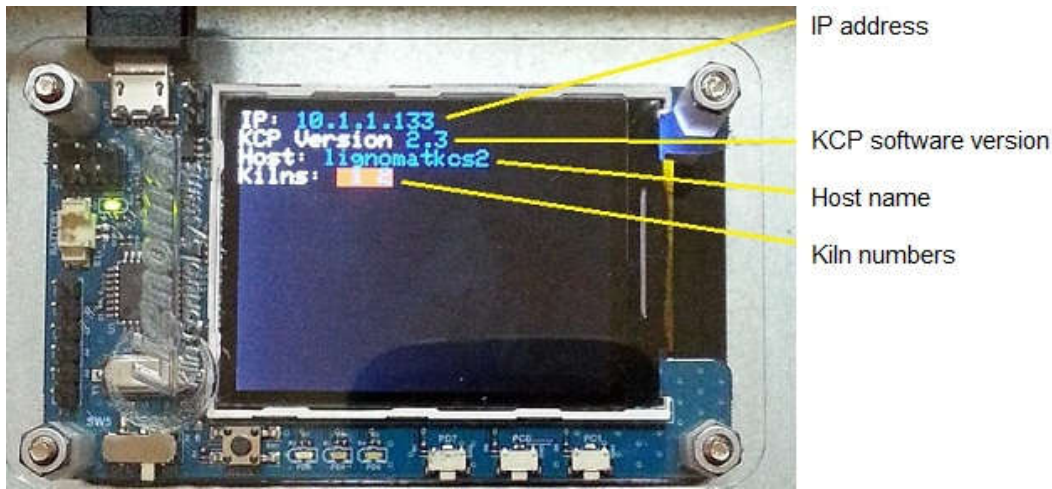
## 2. CONFIGURE SOFTWARE AND REMOTE ACCESS

This step is done in order to make sure everything is connected and that the network works.

Power up the MP32. Keep in mind that MP32 is a computer and it needs **up to 2 minutes** to complete its boot up sequence.

Once MP32 is connected to your local network and router has issued an IP address to it, the MP32 is accessible from any computer or mobile device on your local network.

IP address will be displayed upon MP32 boot up.



To access MP32 simply enter the displayed host name or IP address in a web browser.

Enter “[HTTP://lignomatks2](http://lignomatks2)” in the address bar, or

[HTTP://xxx.xxx.xxx.xxx](http://xxx.xxx.xxx.xxx) where xxx.xxx.xxx.xxx is the IP address shown on the MP32 screen.

(Note: Address will change based on hostname of your KCS...)

It may take a few minutes for the router to pickup new device (MP32). If you get "Page not found" or similar messages just wait a few more minutes for routing table update, then try again. (If you are still having trouble please see below troubleshooting section.

### ACCESS FROM OUTSIDE LOCAL NETWORK

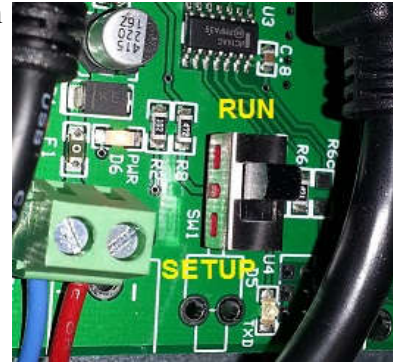
To access MP32 and kilns remotely from outside the local network one must setup a VPN. It is up to the individual owner of the MP32 to properly setup and maintain the VPN in order to keep it secure and prevent any unauthorized access to local network and kilns.

A third party software may also be used for remote access, such as TeamViewer, Logmein, etc.

## 2b. Setup Mode

To access the setup mode slide the Run/Setup selector switch down or towards the bottom of the box for setup and up or toward the fan for run.

Then reset by pressing the reset button ( you should see the LED to the right turn off and it will reboot after all communication has completed.( note this can take up to 1 minute)



Once in the Setup Mode you will be able to set the initial settings for the MP32.

### MP32 Setup page

Lignomat Kiln Control System		
Setup Mode		
Temperature Unit	F	<button>Change</button>
New Master Password	<input type="text"/>	<button>Change</button>
Kiln List: 1, 2, 3	Kiln ID 4 <input type="text"/> Kiln Name 4 <input type="text"/> IP Addr <input type="text"/> <input checked="" type="radio"/> Kiln <input type="radio"/> PreDryer <input type="radio"/> IP_DKC	<button>Add Kiln</button> <button>Remove Kiln</button>
Time	2017-04-17 08:16 <button>Set Date from current PC</button>	
Max Steam PSI	100 <input type="text"/>	<button>Update</button>
Current IP address	10.1.1.33 fc00::21e:6ff:fe30:64ad	
Auto Charge Numbers	Initial Number: <input type="text"/> ( blank = not used ) <button>Set Auto Number</button>	
Reboot	<button>Reboot</button>	
Restore settings from a file	<button>Upload</button> <button>Browse...</button> No file selected. <input type="checkbox"/> : Schedules only	

Email Settings		<button>Save Email Settings</button>
Mail host(SMTP):	<input type="text"/>	
Port(usually 25):	<input type="text"/>	
Username:	<input type="text"/>	
Password:	<input type="text"/>	
Use TLS:	<input type="checkbox"/>	
From address (required by some hosts):	<input type="text"/>	
Enter test email address:	<input type="text"/>	<button>Send a Test Email</button>

The setup page refreshes periodically to verify current settings. It is possible to try and save settings as the page is refreshing. When this happens changes may not show after page has been refreshed. Please attempt the change again if you don't see your change after page was refreshed.



Set “**Master Password**” use something you will remember, and keep this in a secure place

Set “**Temperature Unit**” as desired

Set “**Kiln List**” add or remove kilns (one at a time)

Kiln ID: for kilns this is the hardware address aka kiln number as set on the KCU/KCM.

For predryers this is the hardware address of the DCM/KDM in the first zone.

Kiln Name: kiln number – may or may not be the same as kiln ID.  
Typically used for predryers.

Example: 5-zone predryer, split to 3 + 2 zones: DCM #1-5  
PD#1: Kiln ID=1 (1<sup>st</sup> DCM, zone 1, S=1), Kiln Name=1  
PD#2: Kiln ID=4 (1<sup>st</sup> DCM, zone 4, S=4), Kiln Name=2

IP Addr: for DKC based controllers and future applications

**Time:**

If the time is off from current PC by more than 1 hour, choose to set Date from current PC.

**Max Steam PSI:**

Enter steam pressure in PSI to represents 100%. Must be equal or less than steam sensor rating.

**Auto Charge Numbers:**

**Blank:** If this box is left blank auto charge numbers will not be used.

**Set:** If you would like to use Automatically assigned charge numbers for each kiln run please enter the initial numeric only value in this box. When kilns are started they will get assigned the next available charge number.

**Restore settings from file:**

If you have previously backed up controller settings you can restore them by uploading configuration file. Click “Browse” to find the settings file (zip file) and then click “Upload” button. (Note: this will overwrite any current settings)

## Email Settings:

To use the email settings the MP32 must be connected to a network with outbound Internet access. You may want to setup a new company email account for the MP32 just like you would for a person. Username and password may or may not be required. Please contact your IT department or your Internet service provider for any questions on the settings.

Alternatively you may also register for a new Gmail address and configure using the settings available from Gmail configuration. See example below:

Kiln List: 1, 3, 4, 6, 8	<input type="radio"/> PreDryer <input type="radio"/> Kiln	<input type="button" value="Add Kiln"/> <input type="button" value="Remove Kiln"/>
Time	2017-01-10 11:37 <input type="button" value="Set Date from current PC"/>	
Max Steam PSI	<input type="text" value="300"/>	<input type="button" value="Update"/>
Current IP address	10.1.1.148 fc00::21e:6ff:fe30:147e	
Auto Charge Numbers	Initial Number: <input type="text"/> ( blank = not used ) <input type="button" value="Set Auto Number"/>	
Reboot	<input type="button" value="Reboot"/>	
Restore settings from a file	<input type="button" value="Upload"/> <input type="button" value="Browse..."/> No file selected. <input type="checkbox"/> : Schedules only	

Email Settings		<input type="button" value="Save Email Settings"/>
Mail host(SMTP):	<input type="text" value="smtp.gmail.com"/>	
Port(usually 25):	<input type="text" value="587"/>	
Username:	<input type="text" value="@gmail.com"/>	
Password:	<input type="password" value="....."/>	
Use TLS:	<input checked="" type="checkbox"/>	
From address (required by some hosts):	<input type="text" value="@gmail.com"/>	
Enter test email address:	<input type="text"/>	<input type="button" value="Send a Test Email"/>

## 2c. Exiting Setup Mode

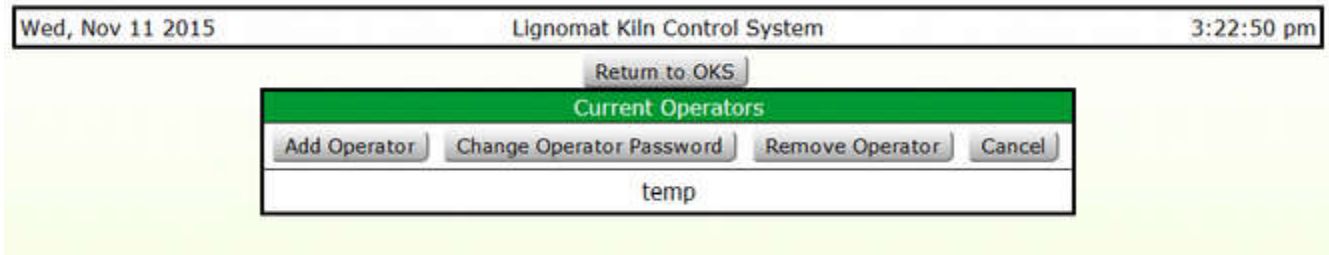
Once all configuration settings have been changed to desired values switch the Run/Setup switch back to Run, then push the Reboot button or power cycle the MP32. (Note: messages for page cannot be displayed or a search box may show up temporarily while the MP32 is rebooting. Please wait for 1-2 minutes after a power cycle then try accessing the MP32.

In a web browser enter “[HTTP://lignomatks1](http://lignomatks1)” in the address bar. (Note: Address ends with a number)  
Or [HTTP://xxx.xxx.xxx.xxx](http://xxx.xxx.xxx.xxx) with the IP address of the unit that is shown on the attached screen

Overall Kiln Status - OKS							
Lignomat Kiln Control System							
<div>Schedules</div> <div>Histories</div> <div>Settings</div> <div>Kiln Charges</div> <div>FAQ</div>							
Overall Kiln Status							
Kiln	Charge #	Schedule #	Started	Elapsed	Avg MC	Final MC	Description
1		0		0d 00:00	0.0	0.0	
3		0		0d 00:00	0.0	0.0	
4		5	2017-01-04	2d 05:12	5.7	1.0	
6		0		0d 00:00	0.0	0.0	
8		0		0d 00:00	0.0	0.0	

## 2d. Run Mode configuration

First, from the Overall Kiln Status (OKS) go to *Settings*, and then to *Operators*.  
Add at least 1 operator to the MP32, using the Master Password



The screenshot shows the Lignomat Kiln Control System interface. At the top, there is a status bar with the date 'Wed, Nov 11 2015', the system name 'Lignomat Kiln Control System', and the time '3:22:50 pm'. Below this, there is a 'Return to OKS' button. The main content area is titled 'Current Operators' and contains four buttons: 'Add Operator', 'Change Operator Password', 'Remove Operator', and 'Cancel'. Below these buttons, there is a text input field containing the word 'temp'.

Return to the *OKS* page  
Select *Settings*

It is recommended to add a check to the *tooltip* option and a check to *Send Alerts*.

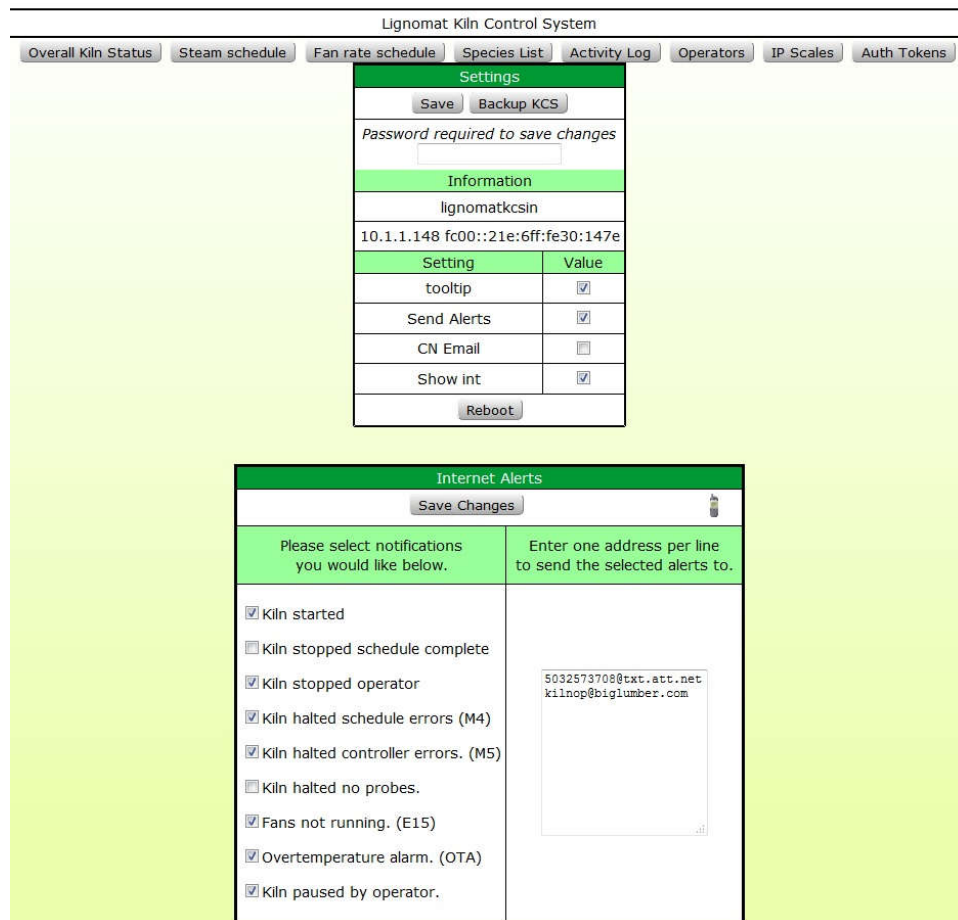
**Tooltip:** this will give additional hints while using the site.

**Send Alerts:** if not checked no alerts will be sent.

*Save* using the user password

In the Internet Alerts section enter phone numbers or email addresses that alerts will be sent to. (Note: to send as an SMS, enter the number@gateway IE an AT&T subscriber would enter #####@txt.att.net there is a short list of carrier gateways listed by hovering over the phone icon.)

*Save changes* using user password.



The screenshot shows the Lignomat Kiln Control System interface with the 'Settings' and 'Internet Alerts' sections visible. The 'Settings' section has a 'Save' button and a 'Backup KCS' button. Below these buttons, there is a text input field labeled 'Password required to save changes'. The 'Information' section shows the system name 'lignomatksin' and the IP address '10.1.1.148 fc00::21e:6ff:fe30:147e'. The 'Setting' table has the following data:

Setting	Value
tooltip	<input checked="" type="checkbox"/>
Send Alerts	<input checked="" type="checkbox"/>
CN Email	<input type="checkbox"/>
Show int	<input checked="" type="checkbox"/>

Below the table is a 'Reboot' button. The 'Internet Alerts' section has a 'Save Changes' button. Below this button, there are two columns. The left column is titled 'Please select notifications you would like below.' and contains a list of checkboxes with the following labels: 'Kiln started', 'Kiln stopped schedule complete', 'Kiln stopped operator', 'Kiln halted schedule errors (M4)', 'Kiln halted controller errors. (M5)', 'Kiln halted no probes.', 'Fans not running. (E15)', 'Overtemperature alarm. (OTA)', and 'Kiln paused by operator.'. The right column is titled 'Enter one address per line to send the selected alerts to.' and contains a text input field with the following text: '5032573708@txt.att.net' and 'kilnop@biglumber.com'.

## 2e. Configure transmitters

From the OKS page select the kiln number

From the IKS select:

**Settings** then **Transmitters**

Lignomat Kiln Control System	
Kiln Transmitter Serial Numbers	
<input type="button" value="Save Changes"/> <input type="button" value="Cancel Changes"/>	
Password required for changes <input type="text"/>	
Probe	Serial Number
EMC A	<input type="text" value="20010"/>
EMC B	<input type="text" value="20011"/>
MC 1	<input type="text" value="20012"/>
MC 2	<input type="text" value="20013"/>
MC 3	<input type="text" value="20014"/>
MC 4	<input type="text" value="20015"/>
MC 5	<input type="text" value="20016"/>
MC 6	<input type="text" value="20017"/>
MC 7	<input type="text" value="20018"/>
MC 8	<input type="text" value="20019"/>
MC 9	<input type="text" value="0"/>

## 2f. Starting a kiln charge

Note: To start a kiln at least one schedule must be defined.

From the OKS page select the kiln number.  
Select **Start** button.

Enter the charge info, select drying schedule and other info are needed. Enter operator password and then hit the **Start** button.

Lignomat Kiln Control System	
<input type="button" value="Return to IKS"/>	
Start Kiln # 1	
<input type="button" value="Start"/> <input type="button" value="Cancel"/>	
Password required to start kiln. <input type="text"/>	
Charge #	<input type="text" value="5678"/>
Description	<input type="text" value="Red Oak I"/>
Schedule	<input type="text" value="Curr Sched"/>
Dump Schedule	<input type="checkbox"/> :Enable Dump
Final MC	<input type="text" value="1.0"/>
Avg MC Override	<input type="checkbox"/> :Use Avg MC Override Starting Avg MC (%) <input type="text"/> MC Loss/ Day (%) <input type="text"/>
Charge Details	Species: <input type="text" value="Wood Group 1"/> Thickness: <input type="text" value="6"/> /4 Board Feet: <input type="text" value="5000"/>

### 3. BACKING UP CONTROLLER SETTINGS

Periodic backup of the MP32 controller is highly recommended. This will help restore settings if the controller needs to be replaced with new one. Backup file can also be used for diagnostics and troubleshooting if delivered to Lignomat tech support.

1. From Overall Kiln Status select **Settings**

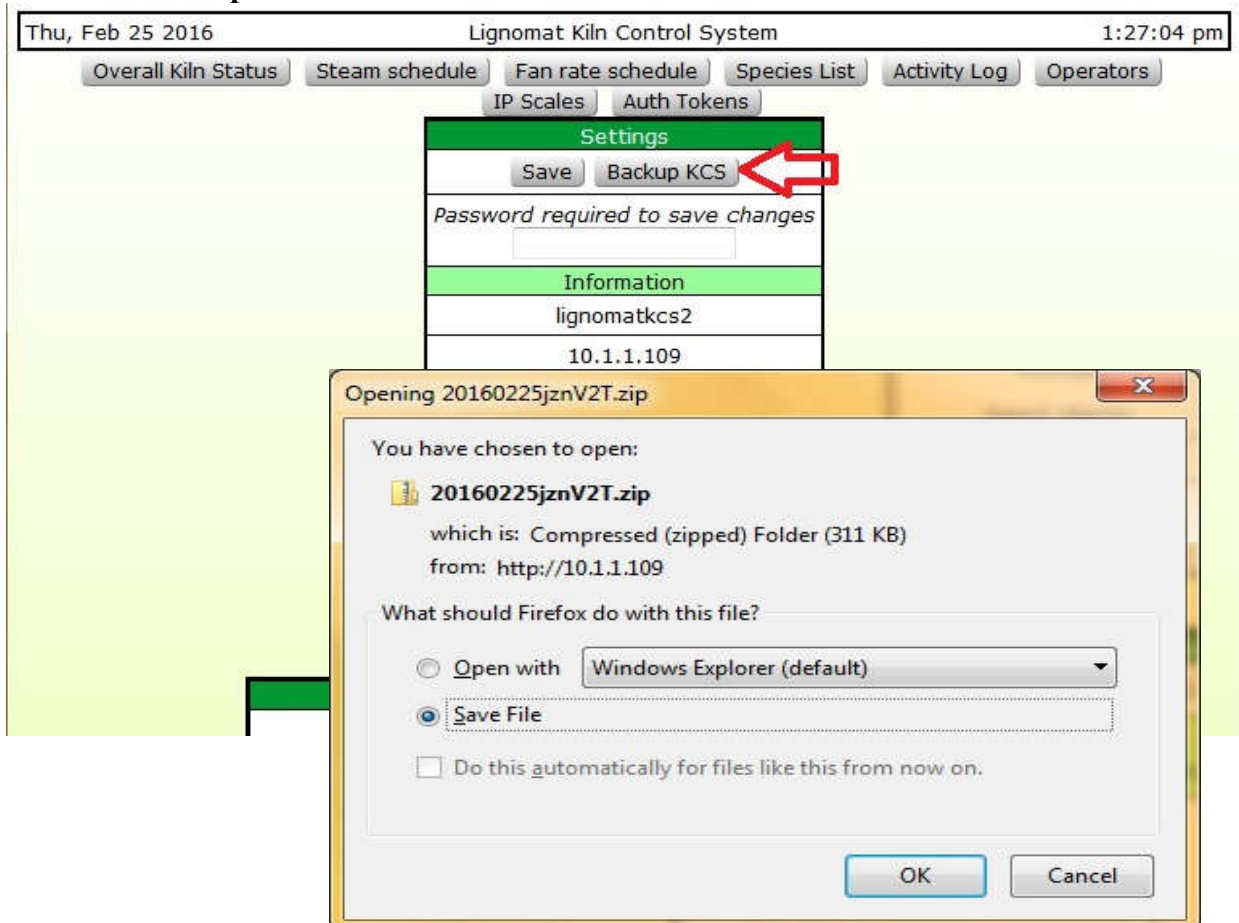


Thu, Feb 25 2016 Lignomat Kiln Control System 1:26:14 pm

Schedules Histories **Settings** Kiln Charges FAQ

Kiln	Charge #	Schedule #	Started	Elapsed	Avg MC	Final MC	Description
1	17a	1	2016-02-17	1d 20:29	48.2	1.0	USvsCN probe
3		0		0d 00:00	54.2	0.0	
4	Testing	1	2015-11-13	36d 02:28	24.0	1.0	Testing

2. Click on **Backup KCS**.



Thu, Feb 25 2016 Lignomat Kiln Control System 1:27:04 pm

Overall Kiln Status Steam schedule Fan rate schedule Species List Activity Log Operators

IP Scales Auth Tokens

**Settings**

Save Backup KCS

Password required to save changes

Information

lignomatkcs2

10.1.1.109

Opening 20160225jznV2T.zip

You have chosen to open:

20160225jznV2T.zip

which is: Compressed (zipped) Folder (311 KB)

from: http://10.1.1.109

What should Firefox do with this file?

☐ Open with Windows Explorer (default)

☒ Save File

☐ Do this automatically for files like this from now on.

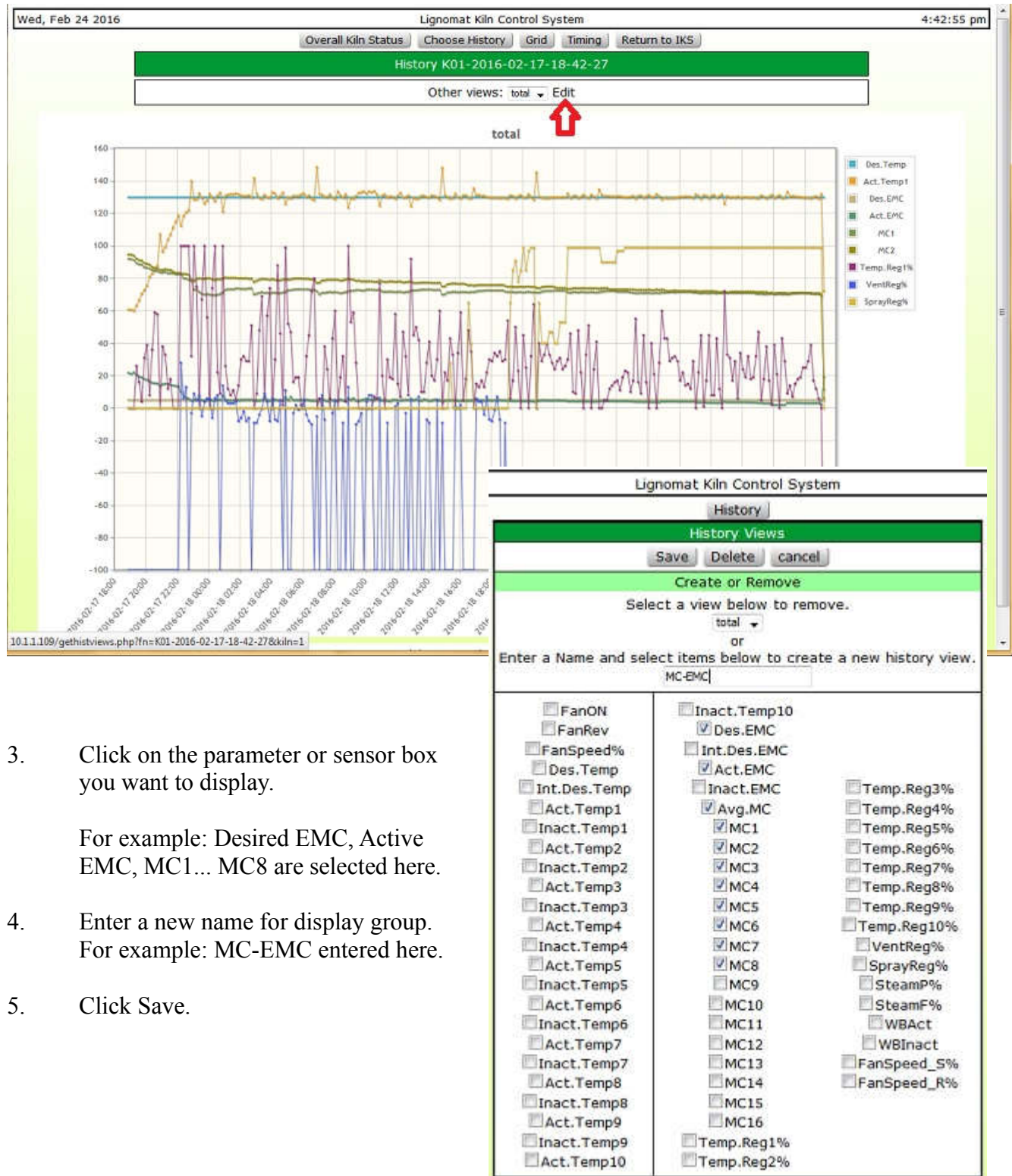
OK Cancel

3. Save File to a location on your PC backup folder or similar location.



#### 4. CREATING CUSTOM HISTORY VIEW

1. From IKS select History  
History graph with the most recent History View (Display Group) will be shown.
2. Click “Edit” to bring up display group editor.

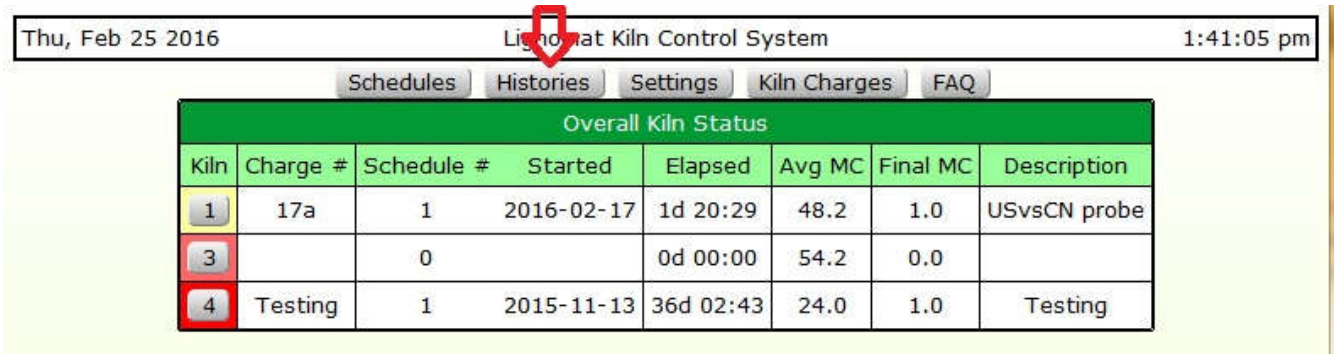


## 5. DOWNLOADING HISTORY

History files can be downloaded for data analysis, troubleshooting and archiving. Histories are downloaded in a Zip file containing history data and charge info for individual kiln. Data is in tab delimited format and it can be easy imported in a spread sheet.

For troubleshooting purpose email Zip files from relevant kilns to Lignomat tech support.

1. From Overall Kiln Status select **Histories**

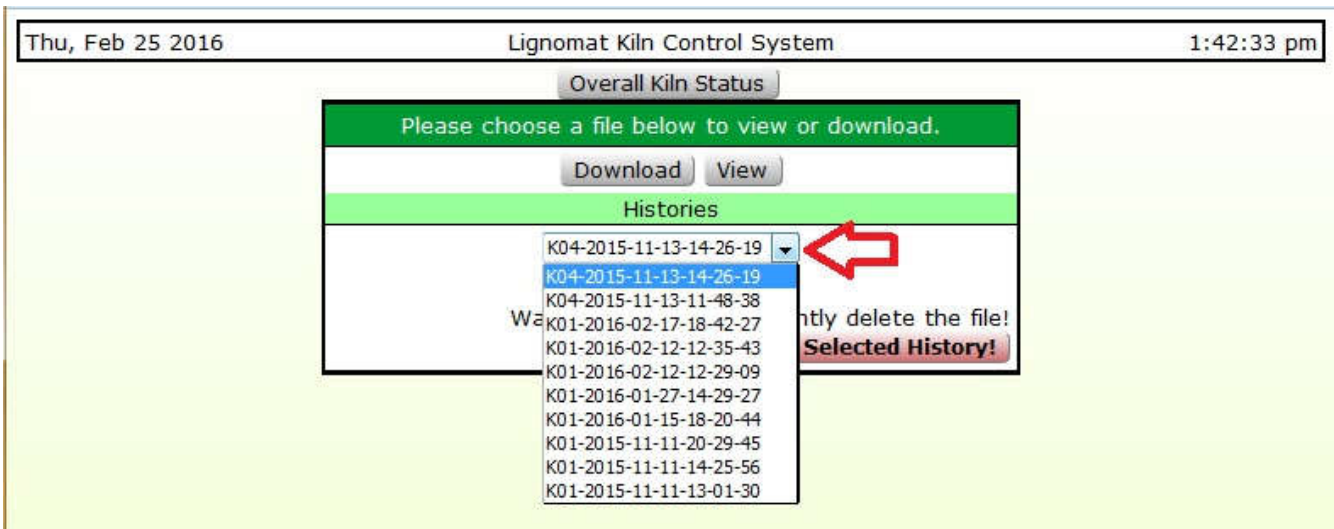


Thu, Feb 25 2016 Lignomat Kiln Control System 1:41:05 pm

Schedules Histories Settings Kiln Charges FAQ

Kiln	Charge #	Schedule #	Started	Elapsed	Avg MC	Final MC	Description
1	17a	1	2016-02-17	1d 20:29	48.2	1.0	USvsCN probe
3		0		0d 00:00	54.2	0.0	
4	Testing	1	2015-11-13	36d 02:43	24.0	1.0	Testing

2. Expand kiln histories list (see arrow below) and select kiln history to download.



Thu, Feb 25 2016 Lignomat Kiln Control System 1:42:33 pm

Overall Kiln Status

Please choose a file below to view or download.

Download View

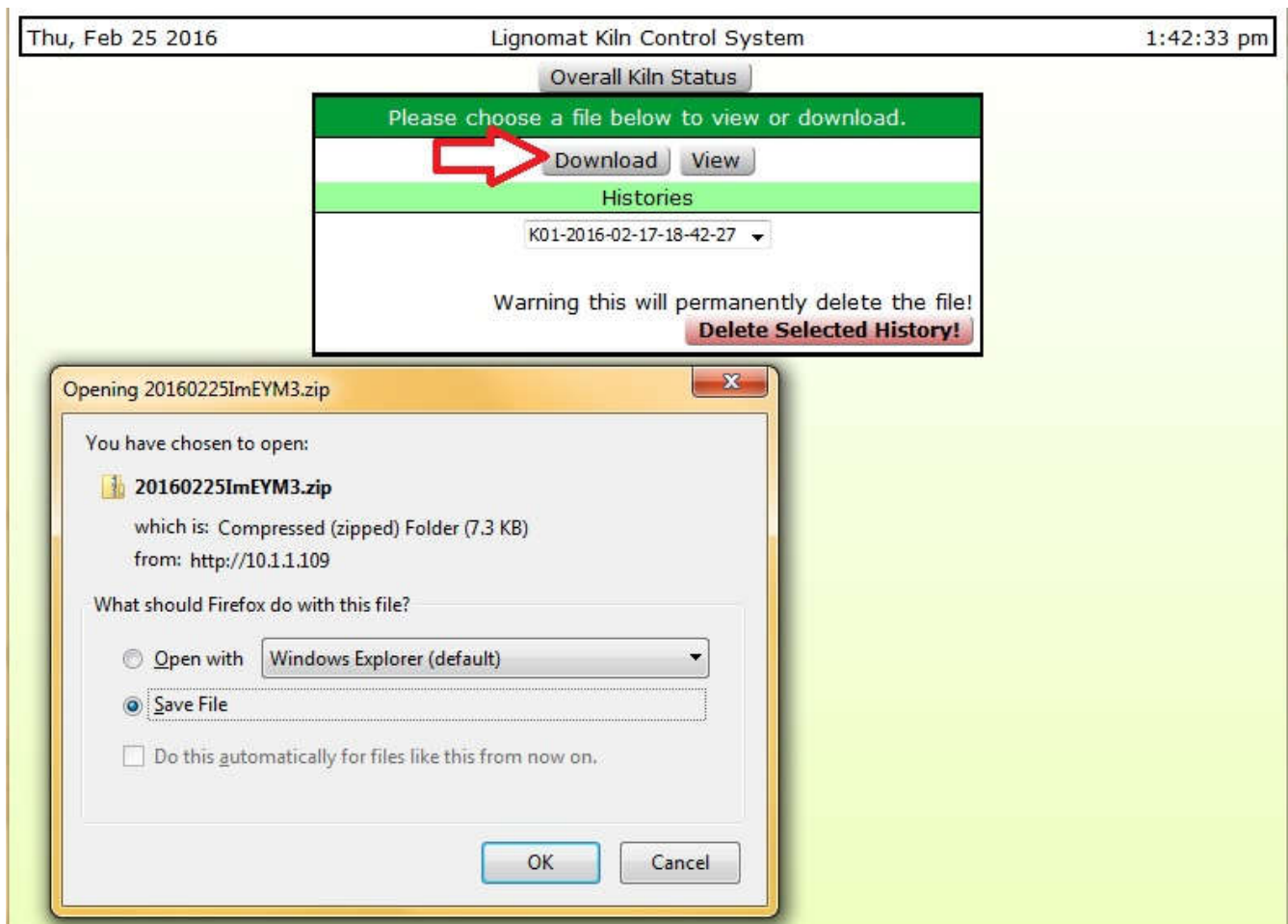
Histories

W K04-2015-11-13-14-26-19  
K04-2015-11-13-11-48-38  
K01-2016-02-17-18-42-27  
K01-2016-02-12-12-35-43  
K01-2016-02-12-12-29-09  
K01-2016-01-27-14-29-27  
K01-2016-01-15-18-20-44  
K01-2015-11-11-20-29-45  
K01-2015-11-11-14-25-56  
K01-2015-11-11-13-01-30

ntly delete the file!  
Selected History!



3. Click on Download button then OK to Save File to a location on your PC.



Attach the downloaded file to email message and send to Lignomat tech support: [support@lignomat.com](mailto:support@lignomat.com)

## 6. TROUBLESHOOTING

If after several minutes with the MP32 turned on and connected to the network you are unable to access the web page try the following:

Scan the network to determine the IP address of the MP32, typing <http://<ipaddress>> into your browser will also access the web page.

A possible option is to use NetScanTools Basic. A free network scanner to discover the MP32 host name and IP address.

Video about setting up MP32 is also posted on YouTube. Link:  
<https://youtu.be/XneOBb9dVVU>

## 7. SYSTEM REQUIERMENTS

### Browsers supported:

<u>Browsers for computers</u>	<u>Min. version</u>
Chrome	42
Edge	14
Firefox	52
Opera	29
Safari	10.1
IE	(not supported)

<u>Browsers for mobile devices</u>	<u>Min. version</u>
Android Webview	42
Chrome	42
Edge	All
Firefox	All
Safari	10.1
IE phone	(not supported)
Opera	(not supported)

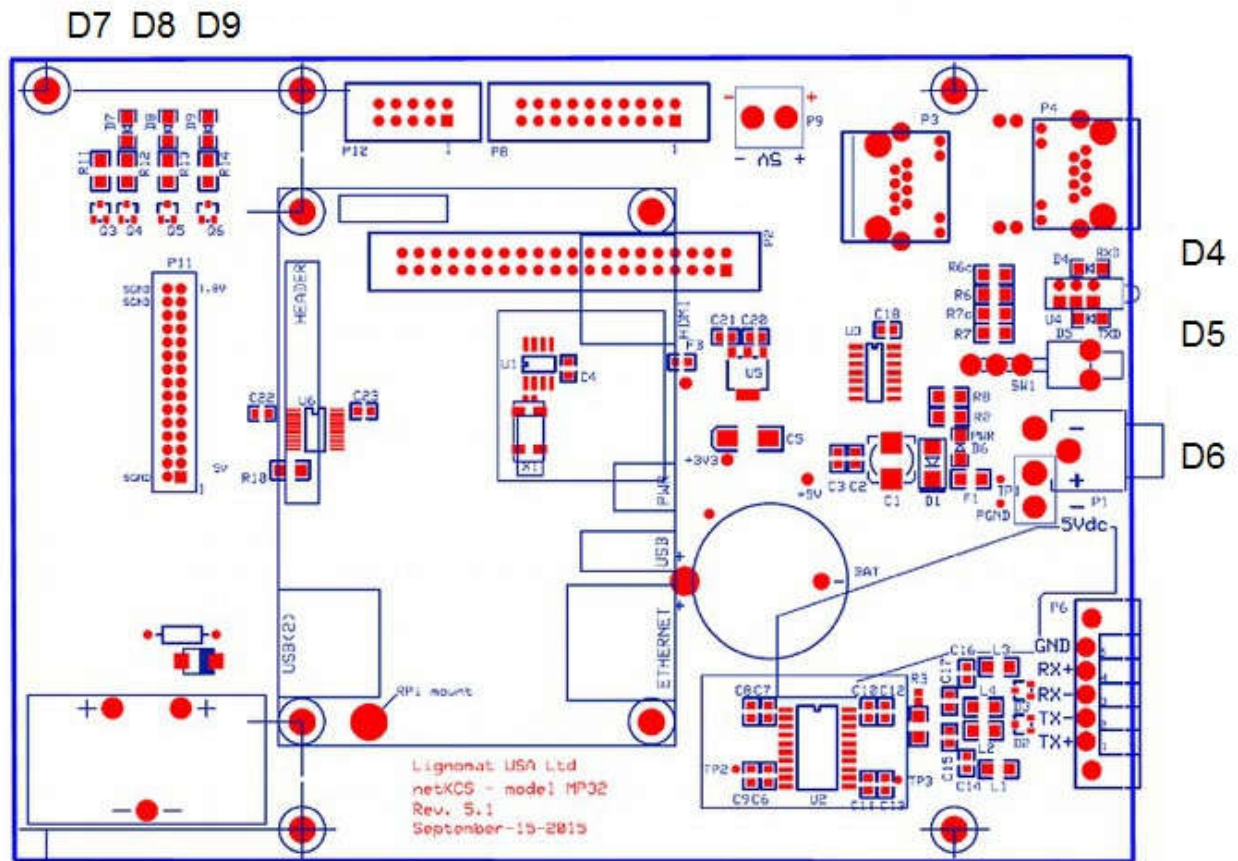
### Recommended accessories

Uninterruptible Power Supply

[http://www.apc.com/products/resource/include/techspec\\_index.cfm?base\\_sku=BE350G&total\\_watts=200](http://www.apc.com/products/resource/include/techspec_index.cfm?base_sku=BE350G&total_watts=200)

## HARDWARE INSIDES

### MP32 Main Board Indicators



#### D7: Controller Status

Not ready, when this (red) LED is on the CPU board is not yet fully booted – Please wait.

- On – Not ready, during boot sequence and when communications is disabled. When this (red) LED is on the CPU board is not yet fully booted – Please wait.
- Off – Ready, once Operating system is booted the LED should be off.

#### D8: Controller (KCP program) heart beat

- Off during boot,
- Blinking (slow about 3-5 seconds per minute) This is normal operation and the on cycle should correspond to blinking on the Tx, and Rx lights near the switch near the right hand side of the board

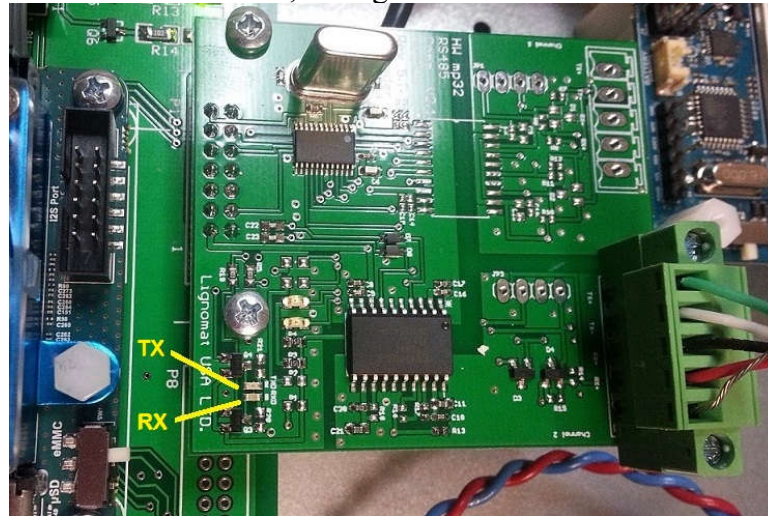
#### D9: Reset LED

- Off during boot,
- Normally on  
When a reset request has been identified this light will be off until the reset has completed.

D4, D5: Main Data communication indicators – Depending on hardware version these LED's may be on the main board or on the add-on communication board.

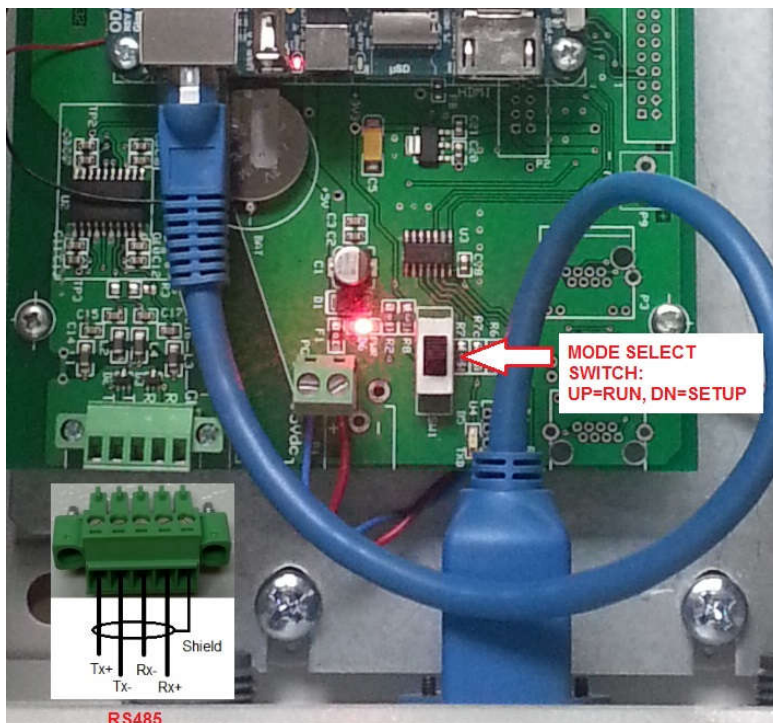
**Tx**, and **Rx** lights are normally off except when communicating with the kilns.

- Blinking intermittently (about once a minute quick flashes of both LED's). This is normal operation and is an indication that we are able to communicate with kilns.
- Off for more than 3 minutes – could be an issue with the RS485 communication with kilns. Check cable connections, wiring and kiln controllers.



D6: power LED (red)

- On, unless system is not receiving power from AC outlet

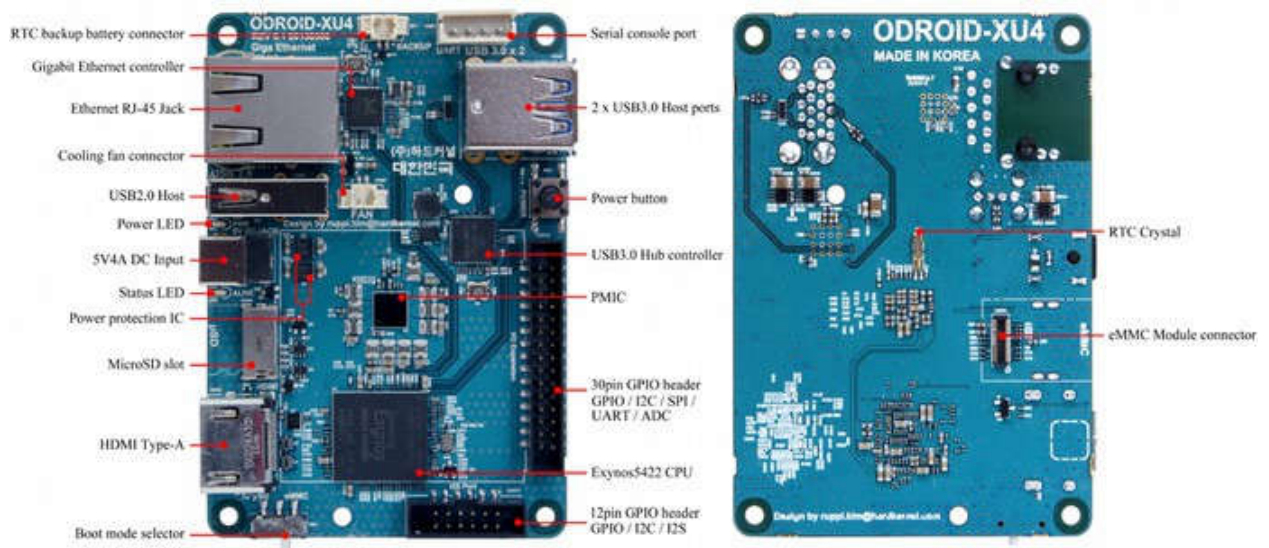


RS485  
MAIN DATA  
CONNECTOR

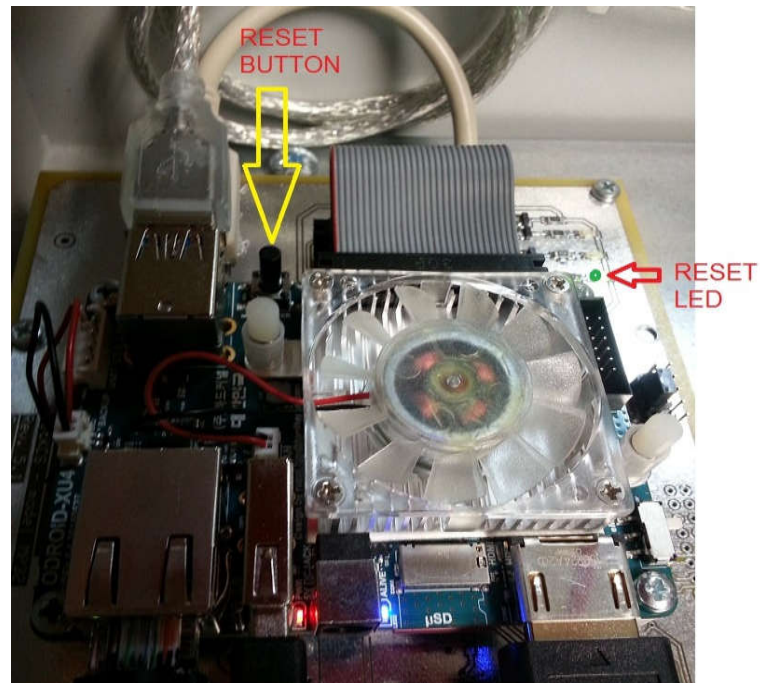
Cable to KCU/KCM/PCM  
kiln controllers



CPU board should have a Status LED (blue) that is blinking and a red LED that is on solid.  
 Additionally the LED's on the Network connector should also be either on or blinking



Reset  
button



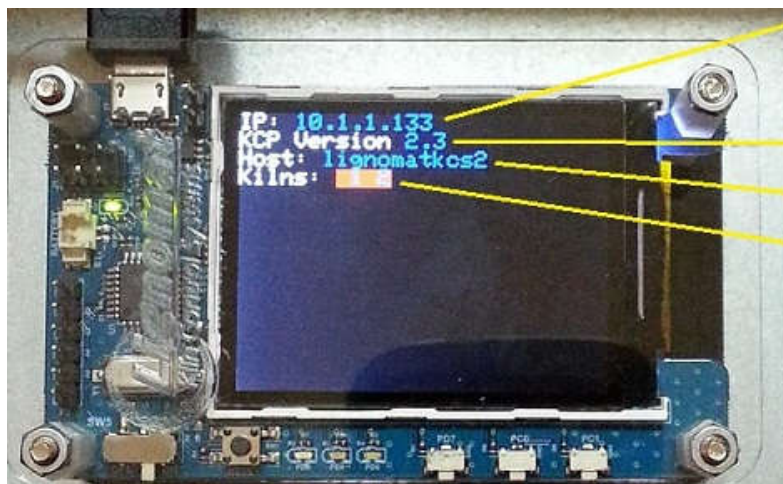
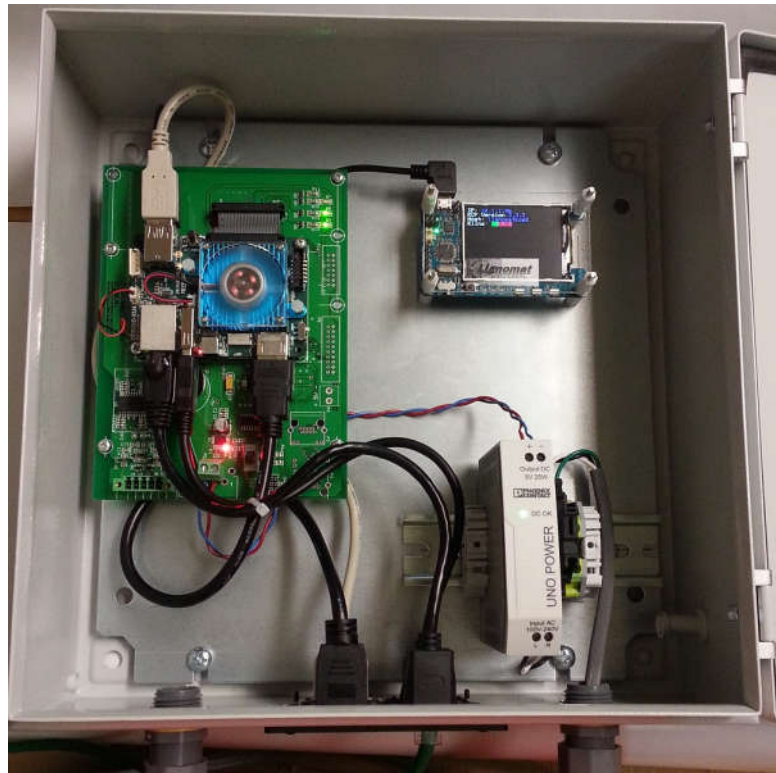
Screen :

Running:

While running the screen will be periodically updated with the IP address, the hostname, Kilns, and status.

Reboot/startup:

Blank, during reboot if the screen had data on it previously it will not update until the software has completely rebooted it may be up to 2 minutes to update after a reboot. Indicator LEDs will show reboot status until the system is up and running again.



IP address

KCP software version

Host name

Kiln numbers

## How to use the Samples and Manual MC Override features.

1. Select the desired kiln number from the Overall Kiln Status (OKS).
2. When starting a kiln check the “Use manual MC Override” check box to run MC schedules based on your samples. Specify “Starting Avg. MC” (starting point in MC schedule) & “MC Loss/Day” (schedule progress rate).

Change Kiln #1

Save Cancel

Password required for changes.

Charge # RO.12.22

Description RO Winter Run

Final MC 1.0

Schedule Curr Sched 5

Dump Schedule ☐ :Enable Dump

☒ :Use Avg MC Override

Avg MC Override

Starting Avg MC (%) 65

MC Loss/ Day (%) 2

Charge Details

Species: Northern Red Oak

Thickness: 6 /4

Board Feet: 80

3. In the Individual Kiln Status Screen (IKS), Click “Samples” button in to enter Samples page.

Lignomat Kiln Control System

Overall Kiln Status Stop Probes Overrides Schedule History Samples Settings Graphical View

Individual Kiln Status

Change Setup Pause Rest

Kiln	Charge	Schedule	Operator	Final MC	Status
1	RO.12.22 RO Winter Ru	5 DM- 6/4 Northern Red Oak	cody	1.0	Running

Fans - Auto

Direction	Speed %	Rem Time
Off	50	2:38 / 3:00

Temperature °F

Desired	Active	Inactive
110.0	74.2	72.0
Zone2	74.3	72.7

Internal desired Temp:74.2

EMC %

Desired	Active	Inactive
19.0	9.4	9.4

Internal desired EMC:9.4

MC #	1	2	3	4	5	6	7	8	Manual Avg
%	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	65.0
Species	1	1	1	1	1	1	1	1	
Active	X								

Elapsed Time

Total	0d 00:22
Heating	0d 00:22
Warming	0d 00:00
Drying	0d 00:00
Conditioning	0d 00:00
Cooling	0d 00:00
Heat Treatment	0d 00:00

Regulators - Auto

Heat	Auto	Off
Vent <td>Auto <td>Off</td> </td>	Auto <td>Off</td>	Off
Spray <td>Auto <td>Off</td> </td>	Auto <td>Off</td>	Off
Steam Pressure	0	

4. In the samples page, set up your first sample by entering the individual sample information, then click the “add” button, in the top right corner under “Add/Edit Samples”.

Return to IKS

Samples	
Clear Table	
	Add/Edit Samples Update Add
Initial Sample Date	
Species	Red Oak
Thickness	6/4
Green sample weight(grams)	100
Dry sample weight(grams)	65.5
Sample board in kiln initial weight(grams)	1000
Calculated MC%	
Kiln Sample Weights	



← Wet sample wafer wt.

← Oven Dry Sample wafer wt.

5. First samples information is added as seen below.

6. Keep in mind that you can navigate away from the page without losing your sample data. The “Clear Table” button will clear the whole table when desired for the next charge (password required). You can also hover your mouse over the sample number label at the top of the column (“Sample 1” in the pic) to edit or delete a sample column at any time.

Return to IKS

Samples		
Clear Table		
	Sample1	Add/Edit Samples Update Add
Initial Sample Date	20161122	
Species	Red Oak	
Thickness	6/4	
Green sample weight(grams)	100	
Dry sample weight(grams)	65.5	
Sample board in kiln initial weight(grams)	1000	
Calculated MC%	52.7%	
Kiln Sample Weights		
	Add	Insert from scale

7. Example below of a second samples information added. Repeat step 4 for each sample. (unlimited sample quantity)

Return to IKS

Samples			
Clear Table			
	Sample1	Sample2	Add/Edit Samples Update Add
Initial Sample Date	20161122	20161122	
Species	Red Oak	Red Oak	
Thickness	6/4	6/4	
Green sample weight(grams)	100	120	
Dry sample weight(grams)	65.5	70	
Sample board in kiln initial weight(grams)	1000	1020	
Calculated MC%	52.7%	71.4%	
Kiln Sample Weights			
	Add	Insert from scale	Add Insert from scale



8. With a sample scale connected to your network or MP32, click “Insert from scale” button in the samples designated column to enter sample weight. If using a separate scale, type the sample weight in the data box then click the “add” button.

Return to IKS

Samples			
Clear Table			
	Sample1	Sample2	Add/Edit Samples Update Add
Initial Sample Date	20161122	20161122	
Species	Red Oak	Red Oak	
Thickness	6/4	6/4	
Green sample weight(grams)	100	120	
Dry sample weight(grams)	65.5	70	
Sample board in kiln initial weight(grams)	1000	1020	
Calculated MC%	52.7%	71.4%	
Kiln Sample Weights			
	Add	Insert from scale	Add Insert from scale

9. Below, the first sample weight for Sample 1 has been added. You will see the calculated MC% and the option to use this sample in your Avg. MC%. Note loss/day is not calculated yet.

Return to IKS

Samples			
Clear Table			
	Sample1	Sample2	Add/Edit Samples Update Add
Initial Sample Date	20161122	20161122	
Species	Red Oak	Red Oak	
Thickness	6/4	6/4	
Green sample weight(grams)	100	120	
Dry sample weight(grams)	65.5	70	
Sample board in kiln initial weight(grams)	1000	1020	
Calculated MC%	52.7%	71.4%	
Kiln Sample Weights			
	Add	Insert from scale	Add Insert from scale
2016-11-22	Weight: 960.0 Update Delete MC%: 46.6 Use in Avg MC: <input type="checkbox"/>		Set Avg MC

## 10. Sample #2 added.

Return to IKS

Samples			
Clear Table			
	Sample1	Sample2	Add/Edit Samples
Initial Sample Date	20161122	20161122	<input type="button" value="Update"/> <input type="button" value="Add"/>
Species	Red Oak	Red Oak	<input type="text"/>
Thickness	6/4	6/4	<input type="text"/>
Green sample weight(grams)	100	120	<input type="text"/>
Dry sample weight(grams)	65.5	70	<input type="text"/>
Sample board in kiln initial weight(grams)	1000	1020	<input type="text"/>
Calculated MC%	52.7%	71.4%	
Kiln Sample Weights			
	<input type="button" value="Add"/> <input type="button" value="Insert from scale"/>	<input type="button" value="Add"/> <input type="button" value="Insert from scale"/>	
2016-11-22	Weight: <input type="text" value="960.0"/> <input type="button" value="Update"/> <input type="button" value="Delete"/> MC%: 46.6 Use in Avg MC: <input checked="" type="checkbox"/>	Weight: <input type="text" value="956.0"/> <input type="button" value="Update"/> <input type="button" value="Delete"/> MC%: 60.7 Use in Avg MC: <input checked="" type="checkbox"/>	<input type="button" value="Set Avg MC"/>

11. If you are at this point with a running kiln, verify you're running a MC based schedule (DM) and "Use Avg MC Override" is enabled in the "Change Setup" page (2<sup>nd</sup> pic below) by clicking "Change Setup" button.

Lignomat Kiln Control System

Individual Kiln Status

Kiln	Charge	Schedule	Operator	Final MC	Status
1	RO.12.22 RO Winter Ru	5 DM- 6/4 Northern Red Oak	cody	1.0	Running

Fans - Auto

Direction	Speed %	Rem Time
Off	50	2:19 / 3:00

Temperature °F

	Desired	Active	Inactive
Zone1	110.0	74.2	71.9
Zone2		74.3	72.3

Internal desired Temp: 74.2

EMC %

	Desired	Active	Inactive
	19.0	9.4	9.4

Internal desired EMC: 9.4

MC #	1	2	3	4	5	6	7	8	Manual Avg
%	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	53.6
Species	1	1	1	1	1	1	1	1	
Active	X								

Elapsed Time

Total	0d 00:41
Heating	0d 00:41

Regulators - Auto

Pressure	10.0
Temperature	74.2

12. If starting a kiln using sample MC% data. Make sure the schedule you choose from your library is an MC based schedule, and the “Use Avg MC Override” box is checked in the “Start Kiln” page. “Starting Avg. MC” and “MC Loss/ Day” can be left blank at this point as the schedule starts in heating up and warming thru segments. MC% data is not required for these segments.

Return to IKS

Start Kiln # 1

Start Cancel

Password required to start kiln.

Charge # RO.12.22

Description RO Winter Run

Schedule 5 - DM- 6/4 Northern Red Oak

Dump Schedule ☐ :Enable Dump

Final MC 8.0

Avg MC Override ☒ :Use Avg MC Override

Starting Avg MC (%)

MC Loss/ Day (%)

Charge Details Species: Northern Red Oak

Thickness: 6 /4

Board Feet: 90

13. Once the kiln is started, click the “Samples” button from the IKS screen. This will take you back to your samples setup page from step #10.

Lignomat Kiln Control System

Overall Kiln Status Stop Probes Overrides Schedule History Samples Settings Graphical View

Individual Kiln Status

Change Setup Pause Rest

Kiln	Charge	Schedule	Operator	Final MC	Status
1	RO.12.22	RO Winter Ru	5 DM- 6/4 Northern Red Oak	cody	1.0 Running

Fans - Auto

Direction Speed % Rem Time

Temperature °F

Desired	Active	Inactive
110.0	74.2	72.0

EMC %

Desired	Active	Inactive
10.0	0.4	0.4

14. Use desired sample MC's in Avg MC by checking the box, then click “Set Avg MC” button.

Samples

Clear Table

	Sample1	Sample2	Add/Edit Samples
Initial Sample Date	20161122	20161122	<input type="button" value="Update"/> <input type="button" value="Add"/>
Species	Red Oak	Red Oak	<input type="text"/>
Thickness	6/4	6/4	<input type="text"/>
Green sample weight(grams)	100	120	<input type="text"/>
Dry sample weight(grams)	65.5	70	<input type="text"/>
Sample board in kiln initial weight(grams)	1000	1020	<input type="text"/>
Calculated MC%	52.7%	71.4%	

Kiln Sample Weights

Add Insert from scale Add Insert from scale

2016-11-22	Weight: 960.0 <input type="button" value="Update"/> <input type="button" value="Delete"/> MC%: 46.6 Use in Avg MC: <input checked="" type="checkbox"/>	Weight: 956.0 <input type="button" value="Update"/> <input type="button" value="Delete"/> MC%: 60.7 Use in Avg MC: <input checked="" type="checkbox"/>	<input type="button" value="Set Avg MC"/>
------------	---	---	---

15. You will then be prompted to enter a “Loss/Day value. This determines schedule progression speed.

Return to IKS

Samples

Clear Table

	Sample1	Sample2	Add/Edit Samples Update Add
Initial Sample Date	20161122	20161122	
Species	Red Oak	Red Oak	
Thickness		6/4	
Green sample weight(grams)		120	
Dry sample weight(grams)		70	
Sample board in kiln initial weight(grams)		1020	
Calculated MC%		71.4%	
<p>MC override is currently On Avg MC% = 53.6 Please enter a loss per day</p> <p>2</p> <p>OK Cancel</p>			
<p>Add Insert from scale Add Insert from scale</p>			
2016-11-23	960.0 46.6	956.0 60.7	Set Avg MC

16. Navigate back to the IKS screen and you will see the “Manual Avg” MC% equals your samples average. Your MC based schedule is now advancing at your desired loss/day from this MC%

Overall Kiln Status Stop Probes Overrides Schedule History Samples Settings Graphical View

Individual Kiln Status

Change Setup Pause Reset

Kiln	Charge	Schedule	Operator	Final MC	Status
1	RO.12.22 RO Winter Ru	DM- 6/4 Northern Red Oak	cody	8.0	Running

Fans - Auto

Direction	Speed %	Rem Time
B	50	2:43 / 3:00

Temperature °F

Desired	Active	Inactive
110.0	71.8	74.0
Zone2	71.7	74.2

Internal desired Temp:73.9

EMC %

Desired	Active	Inactive
19.0	9.6	9.6

Internal desired EMC:10.6

MC #	1	2	3	4	5	6	7	8	Manual Avg
%	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	53.6
Species	1	1	1	1	1	1	1	1	
Active									

Elapsed Time

Total	0d 00:17
Heating	0d 00:17
Warming	0d 00:00
Drying	0d 00:00
Conditioning	0d 00:00

Regulators - Auto

Heat	Auto	On
Vent	Auto	Off
Spray	Auto	Off

17. To continue adding sample weights, navigate back to the “Samples” page from the IKS page.

Samples			
Clear Table			
	Sample1	Sample2	Add/Edit Samples Update Add
Initial Sample Date	20161122	20161122	
Species	Red Oak	Red Oak	
Thickness	6/4	6/4	
Green sample weight(grams)	100	120	
Dry sample weight(grams)	65.5	70	
Sample board in kiln initial weight(grams)	1000	1020	
Calculated MC%	52.7%	71.4%	
Kiln Sample Weights			
	Add Insert from scale	Add Insert from scale	
2016-11-22	Weight: 960.0 Update Delete MC%: 46.6 Use in Avg MC: <input checked="" type="checkbox"/>	Weight: 956.0 Update Delete MC%: 60.7 Use in Avg MC: <input checked="" type="checkbox"/>	Set Avg MC

18. Place sample on scale and use the insert from scale button or add button as described on instruction number 8.

19. Each time you add a weight with the “Add” or “Insert from Scale” button it adds a row, one at a time for the respective sample column. The option to “Set Avg MC” is always available in the last row of column segments.

Return to IKS

Samples			
Clear Table			
	Sample1	Sample2	Add/Edit Samples Update Add
Initial Sample Date	20161122	20161122	
Species	Red Oak	Red Oak	
Thickness	6/4	6/4	
Green sample weight(grams)	100	120	
Dry sample weight(grams)	65.5	70	
Sample board in kiln initial weight(grams)	1000	1020	
Calculated MC%	52.7%	71.4%	
Kiln Sample Weights			
	Add Insert from scale	Add Insert from scale	
2016-11-23	960.0 46.6	956.0 60.7	
2016-11-23	850.0 29.8 -16.8	880.0 47.9 -12.8	
2016-11-23	800.0 22.1 -7.6	810.0 36.1 -11.8	
2016-11-23	740.0 13.0 -9.2	750.0 26.1 -10.1	Set Avg MC

20. As you hover your mouse over a row of sample weights/values, the row expands to give you more information and options for the row, and collapses as your mouse leaves the row.

21. The picture below has an expanded last row showing options and added info.

Samples			
<input type="button" value="Clear Table"/>			
	Sample1	Sample2	Add/Edit Samples
Initial Sample Date	20161122	20161122	<input type="button" value="Update"/> <input type="button" value="Add"/>
Species	Red Oak	Red Oak	<input type="text"/>
Thickness	6/4	6/4	<input type="text"/>
Green sample weight(grams)	100	120	<input type="text"/>
Dry sample weight(grams)	65.5	70	<input type="text"/>
Sample board in kiln initial weight(grams)	1000	1020	<input type="text"/>
Calculated MC%	52.7%	71.4%	
Kiln Sample Weights			
	<input type="button" value="Add"/> <input type="button" value="Insert from scale"/>	<input type="button" value="Add"/> <input type="button" value="Insert from scale"/>	
2016-11-23	960.0 46.6	956.0 60.7	
2016-11-23	850.0 29.8 -16.8	880.0 47.9 -12.8	
2016-11-23	800.0 22.1 -7.6	810.0 36.1 -11.8	
2016-11-23	Weight: <input type="text" value="740.0"/> <input type="button" value="Update"/> <input type="button" value="Delete"/>  MC%: 13.0 (loss/day): -9.2 Use in Avg MC: <input type="checkbox"/>	Weight: <input type="text" value="750.0"/> <input type="button" value="Update"/> <input type="button" value="Delete"/>  MC%: 26.1 (loss/day): -10.1 Use in Avg MC: <input type="checkbox"/>	<input type="button" value="Set Avg MC"/>



22. If you have multiple sample scales connected to your network, select the correct sample scale from the drop down menu before you start inserting sample weights using the “Insert from Scale” button.

Return to IKS

Samples			
Clear Table			
	Sample1	Sample2	Add/Edit Samples Update Add
Initial Sample Date	20161122	20161122	
Species	Red Oak	Red Oak	
Thickness	6/4	6/4	
Green sample weight(grams)	100	120	
Dry sample weight(grams)	65.5	70	
Sample board in kiln initial weight(grams)	1000	1020	
Calculated MC%	52.7%	71.4%	
Kiln Sample Weights			
Select an IP scale:	<div> <div>10.1.1.255</div> <div>▼</div> </div> <div>Add</div> <div>Insert from scale</div> <div>Add</div> <div>Insert from scale</div>		
2016-11-23	960.0 46.6	956.0 60.7	
2016-11-23	850.0 29.8 -16.8	880.0 47.9 -12.8	
2016-11-23	800.0 22.1 -7.6	810.0 36.1 -11.8	
2016-11-23	740.0 13.0 -9.2	750.0 26.1 -10.1	Set Avg MC

For further questions on how to use the Samples feature please contact Lignomat.