Thermodyne®
FOODSERVICE PRODUCTS, INC.

INSTALLATION & OPERATION MANUAL

CTS-OC-0100
Oven Controller System

For additional information on Thermodyne Foodservice Products, Inc.,
or to locate an authorized parts and service provider in your area,
visit our website at www.tdyne.com.

Please visit our website to Register your Thermodyne unit. Registration ensures that you get up-to-date warranty and product information, along with fast and convenient service.

http://www.tdyne.com/register.aspx

Thermodyne Foodservice Products, Inc.
4418 New Haven Avenue
Fort Wayne, IN 46803

1-800-526-9182
www.tdyne.com

(5-17)

IMPORTANT FOR YOUR SAFETY

THIS MANUAL HAS BEEN PREPARED FOR PERSONNEL QUALIFIED TO INSTALL ELECTRICAL EQUIPMENT, WHO SHOULD PERFORM THE INITIAL FIELD STARTUP AND ADJUSTMENTS OF THE EQUIPMENT COVERED BY THIS MANUAL.

This manual covers the Oven Controller circuit board and Application supplied by Thermodyne Foodservice Products, Inc. **only**. Refer to the manufacturer's manual for information on any other equipment. Do not attempt any service or maintenanece without consulting **all** manufacturer manuals.

READ THIS MANUAL THOROUGHLY BEFORE OPERATING, INSTALLING OR PERFORMING MAINTENANCE ON THE EQUIPMENT.

⚠ WARNING: Failure to follow all the instructions in this manual can cause property damage, injury or death.

⚠ WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death.

⚠ WARNING: Electrical connections should be performed only by a certified professional.

⚠ WARNING: Electrical and grounding connections must comply with the applicable portions of the National Electric Code and/or all local electric codes. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Before connecting the unit to the electrical supply, verify that the electrical and grounding connections comply with the applicable portions of the National Electric Code and/or other local electrical codes. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Before connecting the unit to the electrical supply, verify that the electrical connection agrees with the specifications on the data plate. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: UL73 grounding instructions: This appliance must be connected to a grounded, metal, permanent wiring system. Or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the appliance. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Appliances equipped with a flexible electric supply cord, are provided with a three-prong grounding plug. It is imperative that this plug be connected into a properly grounded three-prong receptacle. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: If the receptacle is not the proper grounding type, contact an electrician. Do not remove the grounding prong from the plug. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Before performing any service that involves electrical connection or disconnection and/or exposure to electrical components, always perform the Electrical LOCKOUT/TAGOUT Procedure. Disconnect all circuits. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Before removing any sheet metal panels or servicing this equipment, always perform the Electrical LOCKOUT/TAGOUT Procedure. Be sure all circuits are disconnected. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Do not operate this equipment without properly placing and securing all covers and access panels. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Do not use or store gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance. Failure to comply can cause property damage, injury or death.

⚠ WARNING: In the event of a power failure, do not attempt to operate this appliance. Failure to comply can cause property damage, injury or death.

CAUTION: These models have glass doors. Remove carton carefully.

FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS OR LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

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OPERATION

OVEN CONTROLLER

SYSTEM DESCRIPTION

The Oven Controller is designed to provide a complete embedded system to run the different oven configurations manufactured at Thermodyne. The Oven Controller provides a simple, yet powerful user friendly LCD display with touch screen interface to start, stop, and program cooking recipes. Along with stored recipes, the Oven Controller contains a WiFi chip that allows the Oven Controller to upload and download recipes and control the oven remotely.

MAIN OPERATOR INTERFACE

The operator interface panel contains a number of control switches and indicators. These are explained as follows:

Oven Controller Main Screen:

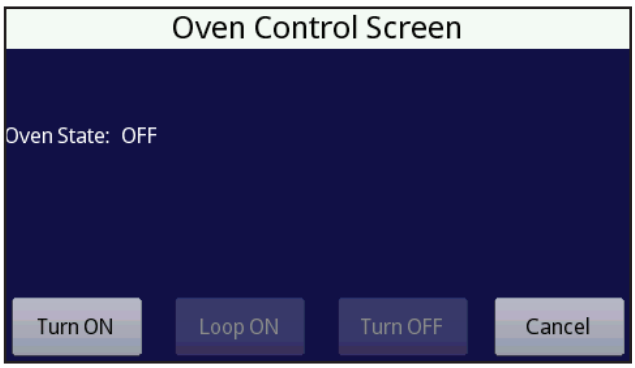
Oven Controller Main Screen

This screen is main view of all operations that occur during the operation of the oven. From here one may load recipes, start/stop the recipes, and perform other miscellaneous operations.

This screen shows the date/time, active recipe (blue text), what step of the recipe that is currently running, the temperature of the oven/shelf and food probe if connected, and the minutes until the recipe is complete. The Oven State will contain one of the following values: Off, Preheat, Bake, Hold, and Done. These will be discussed in the Recipes section of this manual. The Oven State will contain the value of "**Basic**" if the oven is being used as a basic oven. Only when the recipe has completed the green box with "**RECIPE COMPLETE**" will be displayed. Otherwise the box is hidden from sight.

- The temperatures that are displayed are the current temperature of the oven/shelf and probe. When the recipe is running the [ ] area of the temperature will be populated with the actual temperature set point for the given recipe step. Recipe steps will be defined in the Recipes section of this manual.
- Touching the "**Oven Control**" button will display the Oven Control screen. This button will be disabled when the oven is running in Basic Oven mode.
- Touching the "**Basic Oven**" button will display the Basic Oven screen. This button will be disabled when the oven is running a recipe.
- Touching the "**Recipes**" button will display the Oven Recipes screen.
- Touching the "**Utilities**" button will display the Oven Utilities screen once the correct password has been entered.

Oven Control Screen:

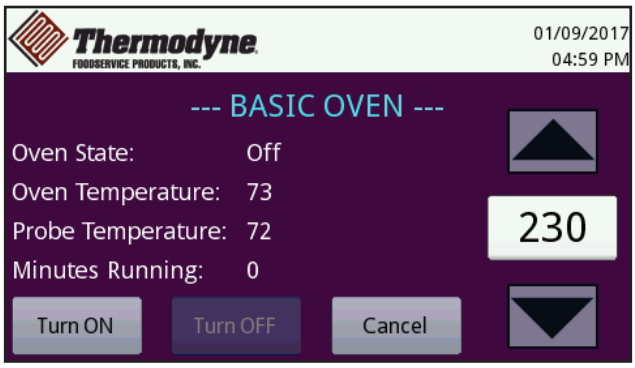


Oven Control Screen

This screen will allow the starting and stopping of the active recipe. The current state of the oven is displayed in the "**Oven State**" line. This will display either "**OFF**" or "**ON**".

- The "**Turn ON**" button will start the oven running the recipe. This button is available for both Timer and Clock based recipes. Refer to the Recipes section of this manual for the definition of Timer and Clock recipes.
- The "**Loop ON**" button will start the oven running the recipe in a looping mode. This button is only available for Clock based recipes.
- The "**Turn OFF**" button will stop the oven running the recipe.
- The "**Cancel**" button will return to the previous screen without performing any actions.
- Buttons that have a blue background and light gray text are disabled and cannot be activated based upon the current state of the oven.

Basic Oven Control Screen:



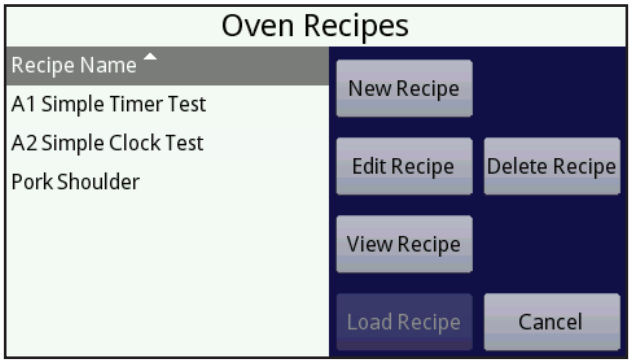
Basic Oven Screen

This screen will allow the turning on and off of the oven in a basic mode (like a standard oven in a home). The current state of the oven is displayed in the "**Oven State**" line. This will display either "**Off**" or "**Basic**".

- The "**Turn ON**" button will turn the oven on using the temperature set point (in this case 88 degrees).
- The "**Turn OFF**" button will turn the oven off.
- The "**Cancel**" button will return to the previous screen without performing any actions.
- The "**Temperature**" field may be used to enter the desired temperature to operate the oven. This may be changed any time regardless if the oven is turned on or off.
- The "**Up/Down**" buttons will allow adjusting the temperature of the oven in 5 degree increments. Touching the button will make a 5 degree change every second and if held for more than 2 seconds will start to increment/decrement rapidly. Once either of the buttons are released for a few seconds the oven will be automatically set to the new temperature. The oven does not require turning off and then back on to make the new temperature active.
- Buttons that have a blue background and light gray text are disabled and cannot be activated based upon the current state of the oven.

RECIPE SYSTEM

Oven Recipes Screen:

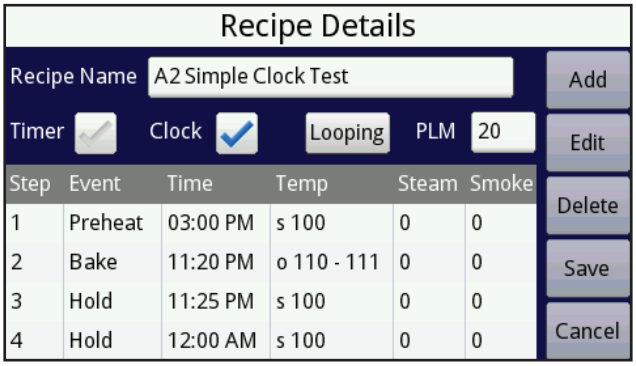


Oven Recipes Screen

This screen will allow the creation of a new recipe, editing a recipe, viewing a recipe, deleting a recipe, and loading a recipe. To edit, view, delete, or load a recipe simply touch the recipe name in the Recipe Name list and select the button of operation. The **Load Recipe** button will be grayed out if a recipe is already loaded and running. If a new recipe needs to be loaded, go to the Oven Control screen and turn the oven off.

- The "**New Recipe**" button will allow the creation of a recipe. When selected the screen will change to the Recipe Details screen and all of the fields will be empty and waiting for user input.
- The "**Edit Recipe**" button will allow the editing of an existing recipe. When selected the screen will change to the Recipe Details screen and all of the fields will be populated with the recipes data for editing.
- The "**View Recipe**" button will allow the viewing of a recipe. When selected the screen will change to the Recipe Details screen and all of the fields will be populated with the recipes data for viewing.
- The "**Delete Recipe**" button will allow the deletion of a recipe that is no longer needed. When selected a message box will be displayed prompting the user to select **Yes** or **No** if the recipe is to be deleted. Selecting "**Yes**" will indicate that the recipe has been deleted and the recipe name will be removed from the Recipe Name list. Selecting "**No**" will indicate that the recipe has not been deleted.
- The "**Load Recipe**" button will allow the loading of a recipe into the oven for running. When selected the screen will change to the Main Window screen and the recipe name will be displayed in the light blue text just below the date/time. From here the user may select the Oven Control button to start the recipe.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Recipe Details Screen:



Recipe Details Screen

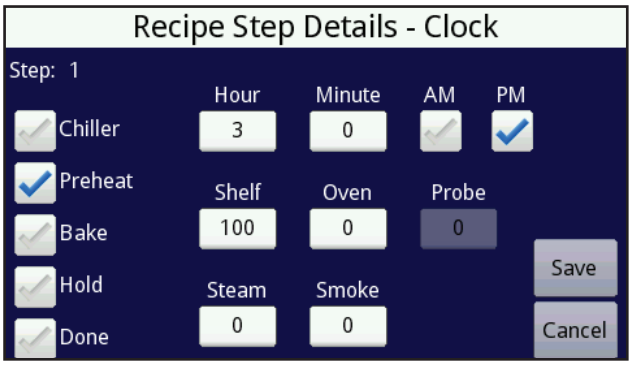
This screen will either be empty if the **New Recipe** button was selected or it will be populated with the selected recipes data. If the **View Recipe** button was selected, then the Add, Edit, Delete, and Save buttons will be grayed out showing they are disabled.

- **Recipe Name** – This field will contain the name of the recipe. Simply touching the field will pop up keyboard allowing the entry of a recipe name or changing the recipe name.
- **Timer** – A Timer type recipe is one that will run immediately when the oven is turned on. Each step of the recipe will contain the number of minutes that the step must run before automatically advancing to the next step. Touching this button will cause a blue checkmark to be displayed in the box.
- **Clock** – A Clock type recipe is one that will run each step at a set hour and minute of the day when the oven is turned on. Each step of the recipe will contain the hour and minute that the step must wait for before running that step. Touching this button will cause a blue checkmark to be displayed in the box.
- The "**Looping**" button, only available if the Clock checkbox is selected, will allow the selecting the days of the week that the recipe should automatically run on. When selected

the screen will change to the Recipe Looping Details screen.

- **PLM** – Power Loss Minutes. This number represents the number of minutes of a power outage that are allowed to pass before the recipe can no longer be automatically started when the oven is powered up after a power loss. In this screen the **20** represents 20 minutes. If power to the oven is lost for up to 20 minutes, then when power is restored the oven will automatically start the recipe. However if 21 minutes or more have passed and power is restored the oven will not automatically start the recipe. This number can be a value of 0 to 60 minutes. Touching this field will cause a keypad to pop up and allow entering/editing of the PLM value.
- **Step List** – This is the list of defined steps that are needed to complete the recipe. The columns of the list are:
  - **Step** – The steps of the recipe.
  - **Event** – This is the event that will take place in this step.
  - **Time** – If the recipe is a Timer based recipe, then the time displayed will be the number of minutes that the step will run. If the recipe is a Clock based recipe, then the time displayed will be the hour and minutes that the step will wait for before executing.
  - **Temp** – This is the temperature of the oven when this step is active. Looking at the above recipe one notices that there is an "s" and an extra temperature in the different steps of the recipe. These are details to help the user know what section of the oven is being used when the step is active. In this case the "s" represents that the Shelf will be used to set this temperature. The extra temperature, 111 in the Recipe Details Screen, represents the temperature setting of the Food Probe will be looking for before moving on to the next step. For example: the Shelf temperature is set to 200°F and the Food Probe temperature is set to 160°F. The system will keep the oven at 200°F until the probe temperature is met. It will stay this way until the 160°F is achieved and then the system will move on to the next step in the recipe. It doesn't matter if the recipe is a Timer or Clock based recipe at this point because the system will wait for the Food Probe to reach 160°F before advancing to the next step. Care must be taken to insure the Food Probe temperature can be reached for the given Shelf/Oven temperature setting.
- The "**Add**" button will add a new step to the recipe. This step will be appended to the end of the recipe. When selected the Timer/Clock Step Details screen will be displayed.
- The "**Edit**" button will allow the editing of the selected recipe step. A recipe step in the list must be selected before selecting this button. When selected the Timer/Clock Step Details screen will be displayed.
- The "**Delete**" button will allow the deleting of the selected recipe step. A recipe step in the list must be selected before selecting this button.
- The "**Save**" button will save the current recipe edits and return to the Oven Recipes screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Recipe Step Details – Clock Screen:



Recipe Step Details – Clock Screen

This screen will either be empty if the **Add** button was selected or it will be populated with the selected recipes data. Selecting the different **Event** (Chiller, Preheat, Bake, Hold, Done) will cause the other fields on the screen to be enabled or disabled. This type of operation will help the user to edit only the fields that are active for the selected event.

- **Chiller** – This event will allow setting only the **Shelf** temperature. Valid temperature range is: 34 to 60°F.
- **Preheat** – This event will allow setting the **Shelf** temperature. Valid temperature range is: 70 to 230°F.
- **Bake** – This event will allow setting the **Shelf** temperature. Valid temperature range is: 70 to 230°F. The **Food Probe** temperature may also be set during the Bake event.
- **Hold** – This event will allow setting the **Shelf** temperature. Valid temperature range is: 70 to 230°F.
- **Done** – This event will indicate that the recipe is complete. All recipes **MUST** contain a "**Done**" event for the recipe to execute properly!
- **Hour** – This field will contain the hour of when the Clock based recipe should start. Valid hour range is: 1 to 12 hours.
- **Minute** – This field will contain the minutes of when the Clock based recipe should start. Valid minute range is: 0 to 59 hours.
- **AM / PM** – Corresponds to the hours when the recipe step should start.
- **Food Probe** – This field will contain the temperature that the Food Probe will be looking for before advancing to the next step. Valid temperature range is: 80 to 230°F.

  Cooking with the Food Probe will change the operation of the oven in one very important aspect and needs to be understood fully before using. For example: the Shelf temperature is set to 200°F and the Food Probe temperature is set to 160°F. The system will keep the oven at 200°F until the probe temperature is met. It will stay this way until the 160°F is achieved and then the system will move on to the next step in the recipe. It doesn't matter if the recipe is a Timer or Clock based recipe at this point because the system will wait for the Food Probe to reach 160°F before advancing to the next step. Care must be taken to insure the Food Probe temperature can be reached for the given Shelf temperature setting.
- The "**Save**" button will save the current recipe step edits and return to the Recipe Details screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Recipe Step Details – Timer Screen:

Recipe Step Details – Timer Screen

This screen will either be empty if the **Add** button was selected or it will be populated with the selected recipes data. Selecting the different **Event** (Chiller, Preheat, Bake, Hold, Done) will cause the other fields on the screen to be enabled or disabled. This type of operation will help the user to edit only the fields that are active for the selected event.

- **Chiller** – This event will allow setting only the **Shelf** temperature. Valid temperature range is: 34 to 60°F.
- **Preheat** – This event will allow setting the **Shelf** temperature. Valid temperature range is: 70 to 230°F.
- **Bake** – This event will allow setting the **Shelf** temperature. Valid temperature range is: 70 to 230°F. The **Food Probe** temperature may also be set during the Bake event.
- **Hold** – This event will allow setting the **Shelf** temperature. Valid temperature range is: 70 to 230°F.
- **Done** – This event will indicate that the recipe is complete. All recipes **MUST** contain a "**Done**" event for the recipe to execute properly!
- **Minutes** – This field will contain the number of minutes the current step of the Timer based recipe should run before advancing to the next step. Valid hour range is: 1 to 9999 hours.
- **Food Probe** – This field will contain the temperature that the Food Probe will be looking for before advancing to the next step. Valid temperature range is: 80 to 230°F.

  Cooking with the Food Probe will change the operation of the oven in one very important aspect and needs to be understood fully before using. For example: the Shelf temperature is set to 200°F and the Food Probe temperature is set to 160°F. The system will keep the oven at 200°F until the probe temperature is met. It will stay this way until the 160°F is achieved and then the system will move on to the next step in the recipe. It doesn't matter if the recipe is a Timer or Clock based recipe at this point because the system will wait for the Food Probe to reach 160°F before advancing to the next step. Care must be taken to insure the Food Probe temperature can be reached for the given Shelf temperature setting.
- The "**Save**" button will save the current recipe step edits and return to the Recipe Details screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Recipe Looping Details Screen:

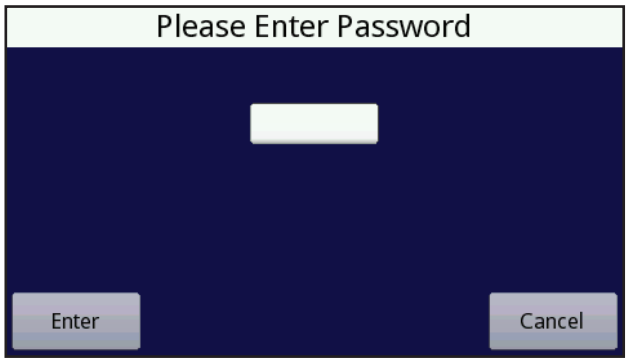
Recipe Looping Details Screen

This screen will only be available for Clock based recipes. The concept of looping is taking a recipe that starts at a certain time of the day and defining the days of the week that the recipe will run automatically without user intervention. The above screen indicates that the Looping Mode is enabled for this particular recipe and that on the days of Sunday, Tuesday, Thursday, and Saturday this recipe will automatically run without having to start it manually. This is particularly useful if the oven is used every day to run the same recipe. For example the oven can be turned into a Chiller at 5:00PM, and at 6:00AM the next day it can Preheat to warm up the food in the oven, finally at 7:00AM the food can then be Warmed and ready for 8:00AM use.

- The "**Save**" button will save the current looping edits and return to the Recipe Details Clock screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

UTILITY SCREENS

Password Screen:



Password Screen

When the "**Utilities**" button is selected from the Main screen, the user will be presented with the Password Entry screen. Enter the password and select the "**Enter**" button. If the password is correct, the Oven Utilities screen will be displayed. If the password is incorrect, then the user will be returned to the Main screen. The default password for the oven is: 1514.

- The "**Enter**" button will validate the entered password and allow the user to view the Oven Utilities screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

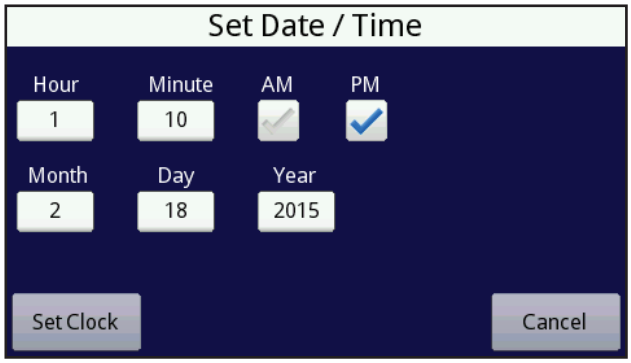
Oven Utilities Screen:

Oven Utilities Screen

This screen is a menu of options that can be performed. These options are designed to be startup configuration and troubleshooting screens that once the oven is operational should not need to be accessed.

- The "**Set Date / Time**" button will allow the user to set the date and time of the oven. When this button is selected a pop up screen will indicate to the user that setting the date and time will result in rebooting the system.
- The "**Temperature Options**" button will allow the user to perform temperature based operations on the oven. These include: setting temperature offsets, setting the display mode of temperatures in degrees F or C, and monitoring the temperature sensors if there is a problem.
- The "**Change Password**" button will allow the user to change the default password to a new password.
- The "**Network Options**" button will allow the user to perform network based operations on the oven. These include: enabling WiFi on the oven, setting addresses, monitoring network status, etc.
- The "**Calibrate Touchscreen**" button will allow the user to re-calibrate the touchscreen when needed.
- The "**Set Outputs**" button will allow the user to change the state of the outputs of the oven to aid in troubleshooting problems with the oven. **THIS OPTION SHOULD ONLY BE ACCESSED BY A TRAINED TECHNICIAN! FAILURE TO HEED THIS WARNING WILL RESULT IN VOIDING OF THE OVENS WARRANTY.**
- The "**Miscellaneous**" button will allow to change oven settings that don't have a specific category they fit in.
- The "**About**" button will display information about the oven.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Set Date / Time Screen:



Set Date / Time Screen

This screen will allow setting the date and time of the ovens clock. Simply touch the fields and enter the appropriate values and select the "**Set Clock**" button.

- **Hour** – This field will contain the hour of the system clock. Valid hour range is: 1 to 12 hours.
- **Minute** – This field will contain the minutes of system clock. Valid minute range is: 0 to 59 minutes.
- **AM / PM** – Corresponds to the hours of the system clock.
- **Month** – This field will contain the month of the system clock. Valid month range is: 1 to 12 months.
- **Day** – This field will contain the day of the system clock. Valid day range is: 1 to 24 hours.
- **Year** – This field will contain the year of the system clock. Valid year range is: 2015 and up.
- The "**Set Clock**" button will set the date and time of the oven and cause it to reboot. The reboot is necessary due to the timing functions of the oven controller.
- The "**Cancel**" button will return to the previous screen without performing any actions.

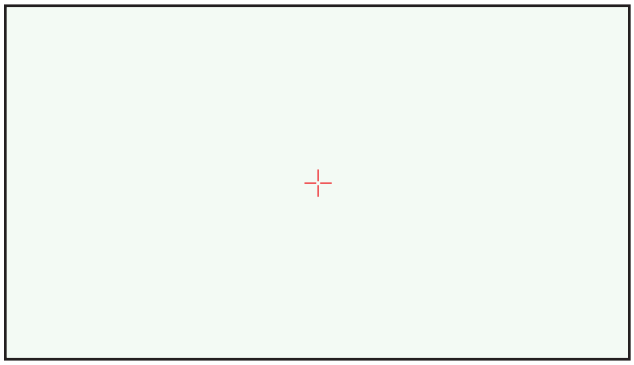
Change Password Screen:

Change Password Screen

This screen will allow the changing of the password that allows access to the Utilities screen. Touching the password field will cause a keyboard to be displayed. Simply enter the new password. This can be any combination of letters and numbers. Blank passwords and passwords containing spaces are not acceptable and the oven will ask to re-enter a different password.

- The "**Save Setting**" button will store the new password and return to the previous screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Calibrate Touchscreen Screen:



Calibrate Touchscreen Screen

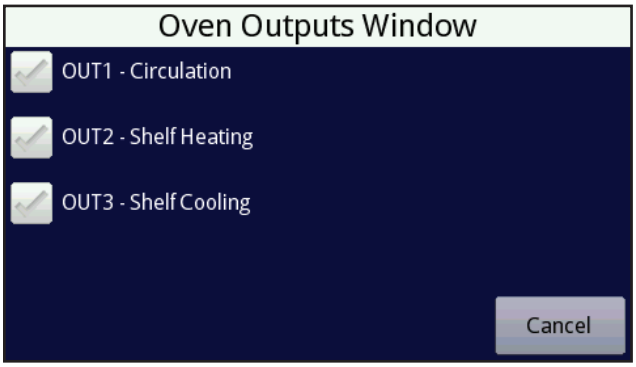
This screen will allow the user to calibrate the touchscreen of the oven controller. When selected the calibration screen will step the user through a series of touch points on the screen marked with a red cross. The user will have to touch the center of the screen and then the four corners of the screen. Once done the user will have to confirm the calibration before leaving the screen.

NOTE: Using the eraser end of a pencil is an excellent way to accurately calibrate the touchscreen.

NOTE: Once the user enters this screen the operation must be carrier through to completion as there is no way to exit this operation.

NOTE: If the calibration of the touchscreen is incorrect the user may touch the screen and keep touching the screen for 10 seconds until the calibration screen appears. This "hidden" function can be executed on any screen of the oven controller.

Set Outputs Screen:



Set Outputs Screen

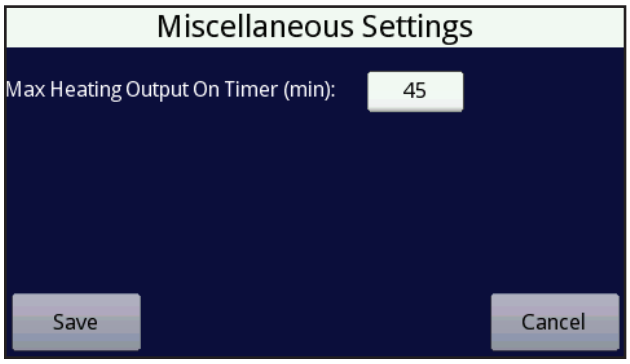
THIS OPTION SHOULD ONLY BE ACCESSED BY A TRAINED TECHNICIAN! FAILURE TO HEED THIS WARNING MAY RESULT IN DAMAGING OF THE OVEN AND VOIDING OF THE OVENS WARRANTY.

This screen will allow a trained technician to turn on the outputs of the oven on to troubleshoot problems. The outputs can only be turned on when the oven is NOT running a recipe. If a recipe is actively running, the technician will not be able to change the state of the outputs. To change the state of the output simply touch the checkbox that is desired and the output will toggle ON. When touched again the output will be turned OFF.

This screen is updated automatically when a recipe is running and the outputs that are used will toggle ON and OFF automatically. Again this may be used as an aid in troubleshooting issues with the oven.

- The "**Cancel**" button will return to the previous screen without performing any actions.

Miscellaneous Screen:



Miscellaneous Settings Screen

This screen is designed to show different settings of the oven that don't have a specific category they fit in.

- The "**Max Heating Output On Timer**" field is designed to monitor the shelf heating output and if it remains on for a time longer than specified in this field, the oven will reset itself to turn this output off. This is done to prevent the oven from trying to heat the shelves when the fluid is low and causing serious damage to the oven.
- The "**Exit**" button will return to the previous screen.

About Screen:

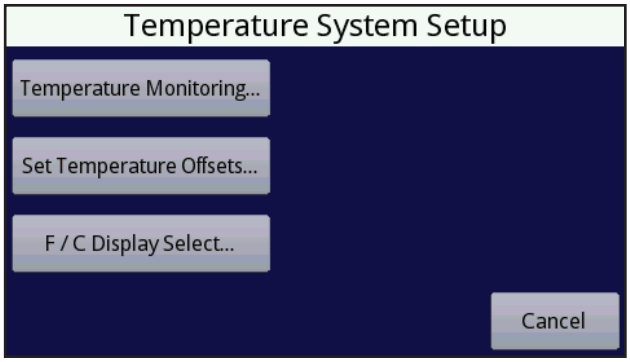
About Screen

This screen is designed to show the firmware version of the oven controller along with the support contact information.

- The "**Exit**" button will return to the previous screen.

TEMPERATURE SYSTEM

Temperature Options Screen:

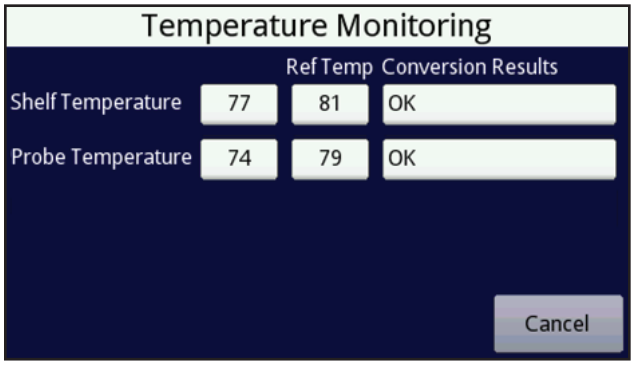


Temperature Options Screen

This screen is a menu of options that can be performed on the temperature system.

- The "**Temperature Monitoring**" button will allow the user to view the state of the temperature sensors in the oven.
- The "**Set Temperature Offsets**" button will allow the user to change the raw temperature reading to a reading that is adjusted after a temperature calibration has been performed.
- The "**F / C Display Select**" button will allow the user to change the displaying of the temperatures in degrees F or C.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Temperature Monitoring Screen:

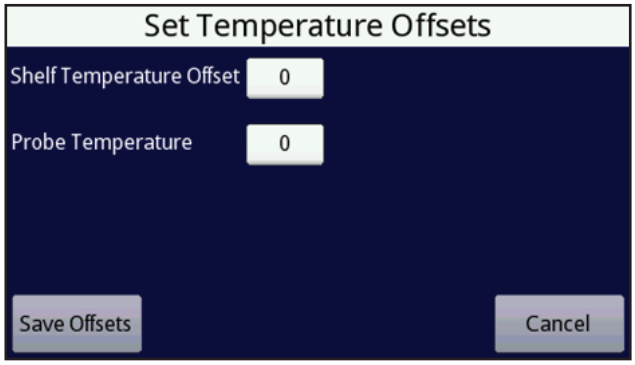


Temperature Monitoring Screen

This screen will display the temperatures of the different sensors in the oven in real time. This will aid in troubleshooting problems related to the temperature sensors. The sensors monitored are: shelf and food probe.

- The first column displays the actual temperature of the sensor (+- the temperature offset set in the **Temperature Offsets** screen.
- The second column displays the reference temperature of the sensor chip on the circuit board.
- The third column displays the results of the conversion of the temperature sensor.
  - **OK** – Temperature conversion successful
  - **OPEN CIRCUIT** – Temperature sensor has a loose or broken lead.
  - **SHORT TO GROUND** – One of the temperature sensor leads is touching ground.
  - **SHORT TO VCC** – One of the temperature sensor leads is touching +3 to +5VDC.
  - **NO SENSOR DETECTED** – The temperature sensor is not present or the conversion chip has failed.
  - **READING OUT-OF-RANGE** – The temperature sensor has gone bad and causing an invalid reading to be generated.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Set Temperature Offsets Screen:

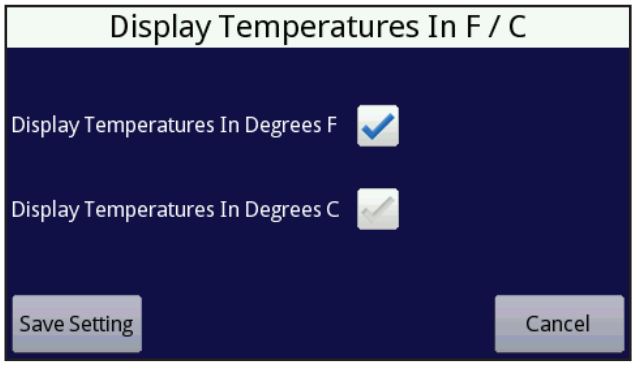


Set Temperature Offsets Screen

This screen will display the offsets of the different sensors in the oven. This screen will allow changing the fine tuning of the factory calibrated temperature readings. This is accomplished by adding or subtracting an offset value to correct the temperature reading. **THIS OPTION SHOULD ONLY BE ACCESSED BY A TRAINED TECHNICIAN! FAILURE TO HEED THIS WARNING WILL RESULT IN VOIDING OF THE OVENS WARRANTY.**

- The first column displays the actual offset value for the temperature sensor. Valid range is: -100 to 100.
- The "**Save Offsets**" button will store the offsets and return to the previous screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Display Temperatures In F / C Screen:



Display Temperatures In F / C Screen

This screen will allow the selection of displaying temperatures in degrees F or C.

- The "**Save Setting**" button will store the selection and return to the previous screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

WIFI NETWORKING SYSTEM

Network Options Screen:

Network Options Screen

This screen is a menu of options that can be performed on the network WiFi system.

- **WiFi Enabled** – This checkbox will enable or disable the WiFi networking subsystem. Once enabled the other WiFi buttons on this screen will become enabled and allow access.
- The "**Setup A WiFi Connection**" button will allow setting up a new WiFi connection either automatically or manually.
- The "**View Remote Access Status**" button will allow viewing the current state of the WiFi connection to the internet.
- The "**Registration Info**" button will allow the viewing of the data that is used to register the oven with Thermodyne's servers.
- The "**Advanced Settings**" button will allow the setting up of advanced network settings in accessing the internet.
- The "**Cancel**" button will return to the previous screen without performing any actions.

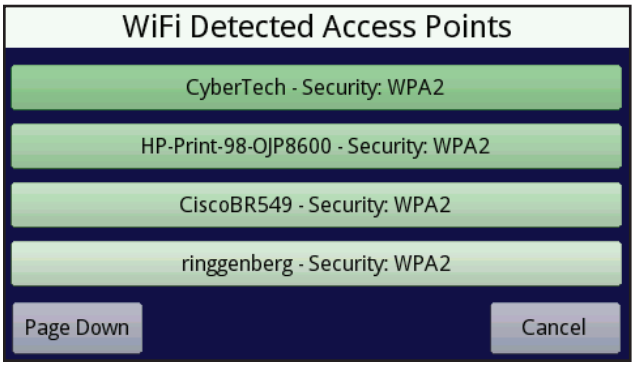
Setup A WiFi Connection Screen:

Setup A WiFi Connection Screen

This screen is a menu of options that can be performed on setting up a new WiFi connection to the internet.

- The "**Scan For Available Access Points**" button will allow automatically scanning for WiFi access points that may be used by the oven for internet access.
- The "**Manual Access Point Setup**" button will allow the manually configuring of a WiFi connection to the internet.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Scan For Available Access Points Screen:



Scan For Available Access Points Screen

This screen is a list of WiFi access points that will be populated automatically by the system. The list is populated with the strongest signal at the top to the weakest. Select the access point by touching it and the Manual Settings screen will be displayed where the WiFi Security Key may be entered.

- The "**Page Down**" button will show the continued list of access points (if more than 4 are seen by the WiFi system).
- The "**Cancel**" button will return to the previous screen without performing any actions.

Manual WiFi Setup Screen:

Manual WiFi Setup Screen

This screen will display the network connection data if the access point was selected from the **Scan For Available Access Points** screen or it will be empty if accessed from the **Manual Access Point Setup** screen. The Network SSID and WiFi Security fields on the screen will be grayed out if the screen was accessed from the scanning screen.

NOTE: The setting up of the WiFi networking on the oven requires knowledge of wireless networking and should be performed by a qualified person.

- **Network SSID** – (Service Set Identification "access point name") This field contains the name of the access point if selected from the scanning screen. If entered as a manual setup this field will be empty. Enter the name of the access point that the oven controller should connect too in this field. Access Point names are case sensitive.
- **WiFi Security** – This field contains the type of security of the access point if selected from the scanning screen. If entered as a manual setup this field will be empty. Select the security type that the access point requires.
- **WiFi Security Key** – This field is used to enter the access point's security key to gain access to the network. This field will be blank when this screen is displayed for security purposes. Touch this field and enter the security key. Security keys are case sensitive.
- The "**Connect**" button will display the **WiFi Connecting Status** screen and use the settings that have been entered on this screen to connect to the access point.
- The "**Cancel**" button will return to the previous screen without performing any actions.

WiFi Connecting Status Screen:

WiFi Connecting Status Screen

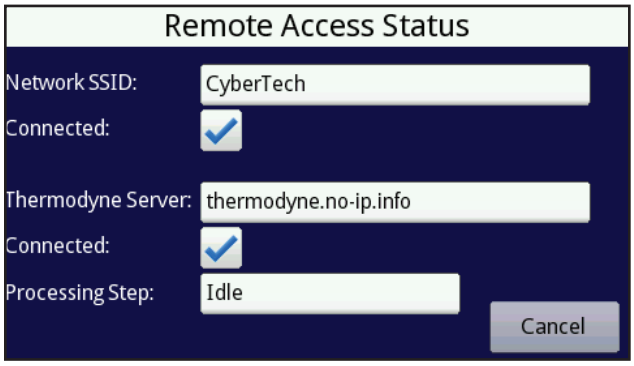
This screen will display the status of the oven controller when attempting to connect to the configured access point. The screen will display the access points name and the current connecting status. If the connection to the access point is successful the screen will display "**Connected**". If the connection to the access point fails the screen will display "**Failed To Connect**".

NOTE: The process of connecting to an access point can take several minutes to complete.

- The "**Retry**" button will be enabled if the connection to the access point fails and will return to the **Manual WiFi Setup** screen to allow changing of the connection parameters.
- The "**Continue**" button will save the current WiFi settings and display the **WiFi Setup** screen.

NOTE: Once the oven controller has been successfully connected and the continue button is pressed the oven will pop up a message box indicating that it needs to be rebooted to fully enable the WiFi subsystem. Clicking the "**OK**" button will cause the system to reboot.

View Remote Access Status Screen:



View Remote Access Status Screen

This screen will display the current status of the WiFi connection to the configured access point and the Thermodyne server. This screen will update every 250ms to show detailed "**Processing Step**" data when interacting with the Thermodyne server.

- **Network SSID** – (Service Set Identification "access point name") This field contains the name of the access point.
- **Connected** – Indicates the connection status to the access point. A blue checkmark indicates the oven controller is connected to the access point.
- **Thermodyne Server** – This field contains the web address name of the Thermodyne server.
- **Connected** – Indicates the connection status to the Thermodyne server. A blue checkmark indicates the oven controller is connected to the Thermodyne server.
- **Processing Step** – This field contains the current step in the processing messages sent to the Thermodyne server. This is a diagnostic tool that a technician can use to troubleshoot connection issues.
- The "**Cancel**" button will return to the previous screen without performing any actions.

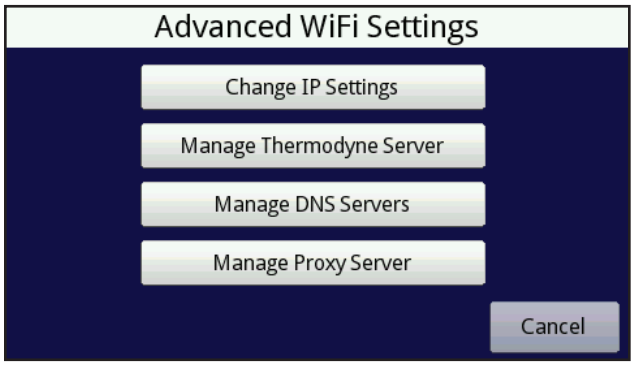
Registration Info Screen:

Registration Info Screen

This screen will display the registration information for the oven controller to connect Thermodyne server. This screen will allow the user to enter a special PIN number that becomes a password for the user to access the oven from the Thermodyne mobile application.

- **Serial Number** – This is the unique number that identifies this specific oven to the Thermodyne server. No two ovens have the same serial number.
- **Oven Name** – Allows the user to change the name of the oven. This can be helpful if multiple ovens are at the same site and the user wants to give them unique names.
- **PIN Number** – This field contains the user entered number that acts like a password on the mobile application to access the oven remotely. This can be any combination of letters and numbers.
- The "**Save**" button will save the oven name and PIN number before returning to the previous screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Advanced Settings Screen:

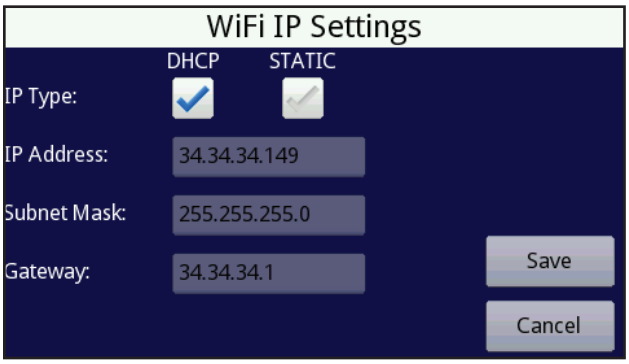


Advanced Settings Screen

This screen is a menu of advanced WiFi options that can be performed on setting up a WiFi connection to the internet.

- The "**Change IP Settings**" button will allow the user to change the TCP/IP settings of the oven controller.
- The "**Manage Thermodyne Server**" button will allow the user to change the address of the Thermodyne server that the oven controller communicates with.
- The "**Manage DNS Servers**" button will allow the user to change the DNS address of the WiFi subsystem to aid in the connecting to the internet.
- The "**Manage Proxy Server**" button will allow the user to configure the WiFi subsystem to communicate to the Thermodyne server via a Proxy server.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Change IP Settings Screen:

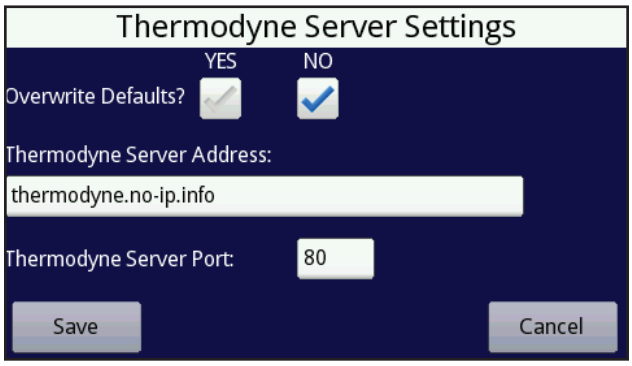


Change IP Settings Screen

This screen will allow the user to change the TCP/IP setting from **DHCP** to **Static** or **Static** to **DHCP**. If the settings are Static, the user will be able to enter the IP address, Subnet Mask, and Gateway manually if **DHCP** is not an option with the available access point.

- **IP Type** – Can be DHCP (Dynamic Host Control Protocol) where the access point gives the oven its IP address. Static indicates that the user wants to set the address manually.
- **IP Address** – Displays the TCP/IP address that the DHCP access point has given to the oven controller. This field will be grayed out in DHCP mode. In Static mode this field can be changed by the user to specify the address the oven controller should use.
- **Subnet Mask** – This field contains the mask that the access point requires to access the internet. This field will be grayed out in DHCP mode. In Static mode this field can be changed by the user to specify the mask the oven controller should use.
- **Gateway** – This field contains the TCP/IP address of the access point. This field will be grayed out in DHCP mode. In Static mode this field can be changed by the user to specify the TCP/IP address the oven controller should use.
- The "**Save**" button will save the configuration parameters, reconfigure the WiFi subsystem to use the new settings, and then return to the previous screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Manage Thermodyne Server Screen:

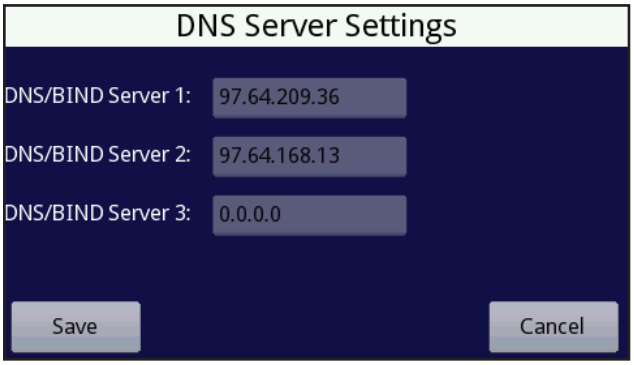


Manage Thermodyne Server Screen

This screen will allow the user to change the Thermodyne server that the oven controller communicates with.

- **Overwrite Defaults** – Allows overwriting of the defaults if YES is selected.
- **Thermodyne Server Address** – The actual web address of the Thermodyne server that the oven uses communicate with.
- **Thermodyne Server Port** – This field contains the port of the Thermodyne server that the oven controller needs to communicate through.
- The "**Save**" button will save the configuration parameters, reconfigure the WiFi subsystem to use the new settings, and then return to the previous screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Manage DNS Servers Screen:

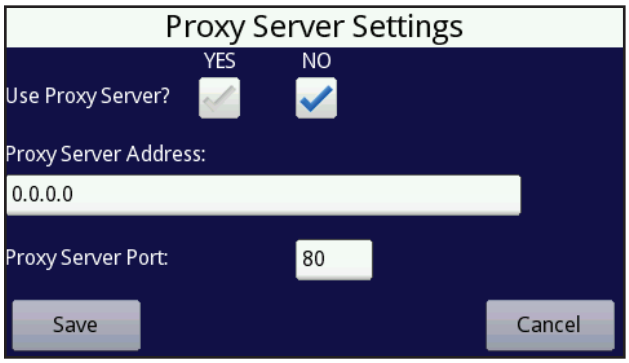


Manage DNS Servers Screen

This screen will allow the user to change the DNS address that the oven controller must use to resolve the Thermodyne server address that the oven controller communicates with. If the IP Settings are in DHCP mode, these fields will be grayed out (disabled). If the IP Settings are in Static mode, these fields will be enabled and allow the user to change.

- **DNS/BIND Server 1** – First DNS server that should be used to resolve the Thermodyne server web address.
- **DNS/BIND Server 2** – Second DNS server that should be used to resolve the Thermodyne server web address if the first address fails.
- **DNS/BIND Server 3** – Third DNS server that should be used to resolve the Thermodyne server web address if the first two addresses fail.
- The "**Save**" button will save the configuration parameters, reconfigure the WiFi subsystem to use the new settings, and then return to the previous screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

Manage Proxy Server Screen:



Manage Proxy Server Screen

This screen will allow the user to change how the oven controller gets to the internet to communicate with the Thermodyne server.

- **Use Proxy Server** – Allows the setting of the proxy server address if YES is selected.
- **Proxy Server Address** – The actual address of the proxy server that the oven uses communicate with. This is normally a TCP/IP address.
- **Proxy Server Port** – This field contains the port of the proxy server that the oven controller needs to communicate through.
- The "**Save**" button will save the configuration parameters, reconfigure the WiFi subsystem to use the new settings, and then return to the previous screen.
- The "**Cancel**" button will return to the previous screen without performing any actions.

WARRANTY

Thermodyne Foodservice Products, Inc. warrants to the original purchaser for use of each new Thermodyne Conductive Cooking/ Holding Oven the following: Any part which proves to be defective in materials or workmanship within the warranty period will, subject to the terms of this warranty, be repaired or replaced at Thermodyne Foodservice, Inc.'s option. Claims under this warranty must be presented to Thermodyne Foodservice Products, Inc. in writing, promptly.

Thermodyne stainless steel cabinets are warranted for 5 years and all other original equipment parts such as heat transfer plates, doors, casters, fluid system components and electrical components are warranted against defect for 2 years from the date of purchase.

This warranty applies only to Thermodyne Conductive Cooking/Holding Ovens in the Continental United States. This warranty shall not apply if the oven or any part is subjected to accident, casualty, alteration, misuse, abuse, neglect, faulty installation, or if the date of manufacture is altered or removed.

The obligation of Thermodyne Foodservice Products, Inc. is limited specifically to the aforementioned. No additional guarantees or warranty, expressed or implied, to include without limitation warranties of Fitness or Merchantability with respect to Thermodyne Conduction Ovens and Thermodyne Foodservice Products, Inc. regarding other liability with respect thereto including, without limitation, liability for incidental, special, or consequential damages.

RESPONSIBILITIES OF PURCHASER

It is the responsibility of the purchaser to:

1. Arrange on site electrical services in accordance with Thermodyne specifications.
2. Receive shipment of Thermodyne conduction oven to include unloading, uncrating, inspecting for damage in shipment, and installation of the oven in its proper location; in accordance with installation instructions.
3. Arrange that the electric services are connected properly by a qualified technician. All such connections must be in accordance with applicable code requirements and Thermodyne installation procedures.

Please note the specific details on the Warranty and make certain that service connections are made to the proper utility services. This warranty and purchasers responsibility information should be retained for future reference.

For assistance please call:

Toll Free: (800) 526-9182

Local: (260) 428-2535

HEAT TRANSFER FLUID MSDS

Dow Chemical U.S.A.
Midland, MI 48674
Emergency Phone: 517-636-4400
Product Code: 23545
Product Name: PROPYLENE GLYCOL HEAT TRANSFER FLUID
Effective Date: 03-02-88
Date Printed: 06/02/88
MSDS: 000130

1. INGREDIENTS:
   Propylene glycol CAS# 000057-55-6 95%
   Dipotassium phosphate CAS# 007758-11-4 <5%
   Deionized water CAS# 007732-18-5 <5%

   This document is prepared pursuant to the OSHA Hazard Communication Standard (29CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.
2. PHYSICAL DATA:
   BOILING POINT: 370F, 188C
   VAP. PRESS: 0.22 mmHg @ 20C, 68F
   VAP. DENSITY: 2.62
   SOL. IN WATER; Complete
   SP. Gravity: 1,050 @ 60/60F, 16C
   APPEARANCE: Colorless.
   ODOR: Odorless liquid.
3. FIRE AND EXPLOSION HAZARD DATA:
   FLASH POINT: 215F, 102C
   METHOD USED: COC
   FLAMMABLE LIMITS
   LFL: 2.6% @ 100C
   UFL: 12.5% @ 130C
   EXTINGUISHING MEDIA: Water fog, alcohol foam, dry chemical
   FIRE AND EXPLOSION HAZARDS: None.
   FIRE-FIGHTING EQUIPMENT: None.
4. REACTIVITY DATA:
   STABILITY: (CONDITIONS TO AVOID) Stable over normal
   Operating temperature range of –30F to 250F.
   INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)

   Oxidizing material.
   HAZARDOUS DECOMPOSITION PRODUCTS: None
   HAZARDOUS POLYMERIZATION: Will not occur,
5. ENVIROMENTAL AND DISPOSAL INFORMATION:
   ACTION TO TAKE FOR SPILLS/LEAKS: Cover with absorbent material, soak up and sweep into bag.
6. HEALTH HAZARD DATA:
   EYE: May cause slight transient eye irritation. Corneal injury is unlikely.
   SKIN CONTACT: Essentially nonirritating to skin on prolonged contact.
   SKIN ABSORPTION: A single prolonged skin exposure is not likely to result in absorption of harmful amounts. The LD50 for skin absorption in rabbits is >10,000 mg/kg.
   Repeated exposures may cause slight flaking, tenderness and softening of skin.
   INGESTION: Single does oral toxicity is low. The LD50 for female rats is about 20.3 g/kg
   INHALATION: A single prolonged (hours) inhalation exposure is not likely to cause adverse side effects. Mists are not to be hazardous.
   SYSTEMIC & OTHER EFFECTS: Repeated excessive ingestion may cause central nervous system effects. No carcinogenic effects have been seen in long-term animal studies. Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus. In animal studies, has been shown not to interfere with reproduction. Results of mutagenicity tests in vitro (test tube) and in animals have been negative.
7. FIRST AID
   EYES: Irrigate immediately with water for at least 5 minutes.
   SKIN: wash off in flowing water or shower
   INGESTION: Induce vomiting if large amounts are ingested, consult medical
   INHALATION: Remove to fresh air if effects occur. Consult medical.
   NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.
8. HANDLING PRECAUTIONS:
   EXPOSURE GUIDELINE (S): Dow IHG is 10mg/m3 for propylene glycol mist. Dow IHG 440 ppm for propylene glycol vapors.
   VENTILATION; Good general ventilation sufficient.
   RESPIRATORY PROTECTION: No respiratory protection should be needed.
   SKIN PROTECTION: No precautions other than clean body covering should be needed.
   EYE PROTECTION: Use safety glasses.
9. ADDITIONAL INFORMATION:
   REGULATORY REQUIREMENTS:
   SARA HAZARD CATEGORY: This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Section 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: A delayed hazard.
   SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Exercise reasonable care and caution.
   MSDS STATUS: Revised Section 9

NOTES