CoolTrol®

Energy Control Products

OPERATION INSTRUCTIONS FOR

CCS2

COOLER AND FREEZER ENERGY CONTROL SYSTEM

National Resource Management, Inc.

Rev 1.0.055

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Introduction

The CoolTrol Cooler and Freezer Energy Management System is a microprocessor-based digital controller that is designed and programmed to operate a walk-in cooler in an energy-efficient manner. The controller features a graphic display and keypad, which allows operating parameters to be viewed and changed. The system can control one cooler and an outside air economizer.

Figure 1. Controller

The control box has a bypass button (see Figure 1 and Figure 4). When the bypass button is pressed, the system goes into bypass mode, where all control relays are de-energized. The relays go to their normally closed (NC) positions, and the original control circuit is reestablished. The cooler is now operating on the original thermostat. **If the cooler is serviced by someone unfamiliar with the NRM Cooler Controller, the bypass mode should be used during servicing (see Figure 2).** When the bypass mode is deactivated and the system returns to run mode, there is a delay before the compressor turns on. This delay is set to 2 minutes by default.

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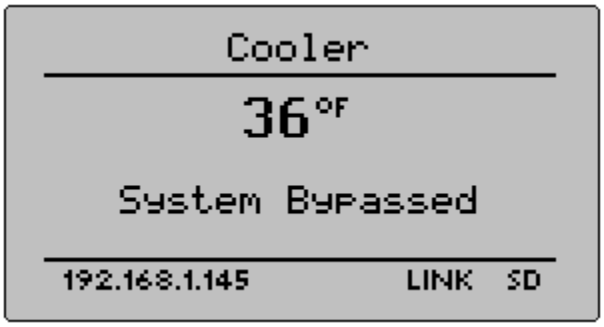
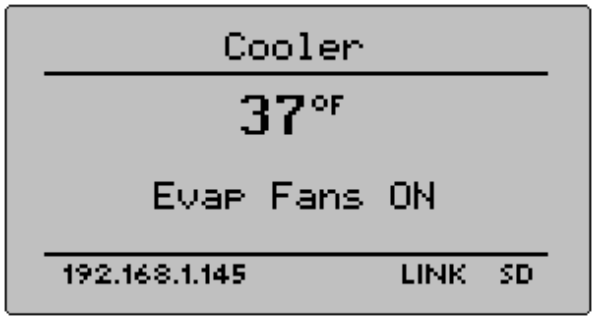
Figure 2. Controller Display in Bypass Mode



During normal operation, the controller displays the current temperature and operating mode (See Figure 3.)

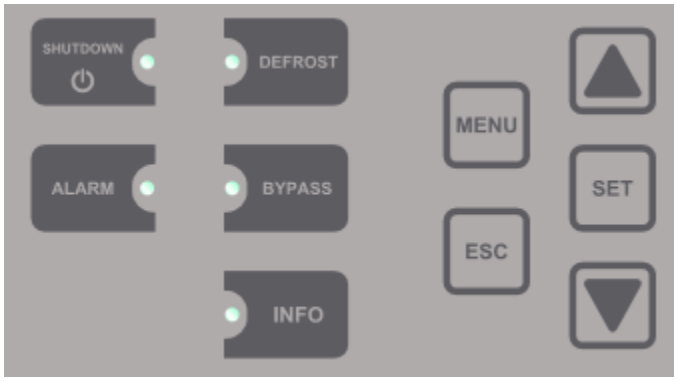
Figure 3. Controller Display in Normal Operation



Using the Keypad

The keypad layout of the CoolTrol Cooler Controller is shown in Figure 4.

Figure 4. Keypad Layout



These keys and their functions are described in the table below.

Table 1. *CoolTrol* Controller Keys and Functions

Key Name	Description
Shutdown	Press to start or end a timed shutdown. The LED is lit when the cooler is in a timed shutdown. If the timed shutdown is starting or ending, the light flashes. If the cooler cannot be shut down at the moment, such as when it is in bypass mode, the light flashes quickly.
Alarm	Press to silence the alarm.
Defrost	Press to manually start or stop a defrost cycle. The LED is lit when the cooler is in a defrost cycle. The LED flashes when a defrost cycle is starting.
Bypass	Press to manually bypass the controller or to put into run mode if bypassed. The LED is lit when the system is in bypass mode. The LED flashes while transitioning from bypass to run mode or vice-versa. Press for 3 Seconds to bypass or put into run mode all controllers in a cooler if Distributed Control is enabled.
Info	Scrolls through a series of screens that display details about the system setup and status. The screens available are: • Control probes – Calculated temperatures based on the local/remote probes. • Equipment Status • Local probes – The temperature probes connected to the controller. • Digital inputs • Pilot relays • Onboard relays

Key Name	Description
	• 4-20mA inputs • Version info, which displays the firmware version and MAC address • Daily, weekly, monthly runtime percentages. • Door Heat probe and output percentages.
Menu	Scrolls through the menus, where you can view or adjust the controller's operating parameters. Press **[▲]**, **[▼]**, or **[MENU]** to scroll through the options. Press **[SET]** to select the menu you want. Move back one screen by pressing the **[ESC]** key, and continue pressing this key to return to the normal operating screen. When you have finished changing an item, you save the value by pressing the **[SET]** key. If you decide not to change a value before pressing the **[SET]** key, press either **[MENU]** or **[ESC]** to cancel. See Table 2 for details about the menus. Tables 3-7 describe the functions in each menu.
Escape (ESC)	Cancels the current display.
Up and down arrows (▲, ▼)	Increments and decrements values in the setup menu.
Set	Selects a function, initiates an action, or saves a setting.

Menus Accessible from the Keypad

Table 3 contains the basic user settings, and Table 7 contains the advanced settings.

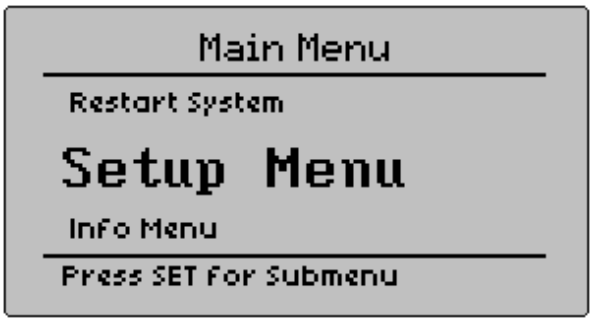
Table 2. Menus

Menu Name	Description
Setup	Adjust the time, date, temperature, setback, LCD backlight, and temperature units. Also assign names to coolers.
Info	Scrolls through a series of screens that display details about the system setup and status. The screens available are: • Control probes – Calculated temperatures based on the local/remote probes. • Equipment Status • Local probes – The temperature probes connected to the controller. • Digital inputs • Pilot relays • Onboard relays • 4-20mA inputs • Version info, which displays the firmware version and MAC address • Daily, weekly, monthly runtime percentages. • Door Heat probe and output percentages. • Remote Site Manager connection status. **TIP:** For quicker access to these screens, press the **[INFO]** key. Then use the up and down arrow keys to scroll to the screens you want to view. Some screens are not displayed if that functionality has been disabled.
Test	Tests the solenoid, evaporator fan, defrost, economizer, and coil. Also view the relay outputs, coil temperature, and onboard relay outputs. Tests start with all of the equipment shut off, and all short cycle safeties are disabled.
Network	Adjusts the network settings for the system.
Advanced	Adjusts settings related to the cooler system, such as fan delay times, defrost, destratification cycles, shutdown, shutoff, bypass, alarms, and economizer enable and disable.
Manual Defrost	Starts or Stops a defrost cycle.
Restart	Restarts the system.

Setup Menu

To access the settings in the Setup menu:

1. Press **[MENU]**. The **Setup Menu** displays by default. The active menu in the list displays in large letters in the center of the screen.



2. Press **[SET]** to go to the **Setup Menu**.

3. Follow the steps in the table below to adjust the setting you selected.

To exit the Setup menu, press **[ESC]**, or just wait a minute, and the controller will return to normal operation.

Table 3. Setup Menu Settings

To adjust this:	Do this:
Time	1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Time**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the hour. Press **[SET]** to move to the minutes, and use the up and down arrow keys to adjust. Then press **[SET]** and repeat to set the seconds. 3. When you are finished, press **[SET]** to save the time.
Date	1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Date**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the month. Press **[SET]** to move to the day, and use the up and down arrow keys to adjust. Then press **[SET]** and repeat to set the year. 3. When you are finished, press **[SET]** to save the time.
Daylight Savings	1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Daylight Savings**." Then press **[SET]**. 2. Daylight savings time is enabled and set to US March – November by default. Press the down arrow to "**Disabled**" to deactivate this setting. Then press **[SET]** to select and save your change.
Time Zone	1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Time Zone**." Then press **[SET]**. 2. By default, the controller is set to Eastern. Press the down arrow repeatedly to find your time zone. The options available are: • Eastern • Atlantic • UTC-3:30 • UTC-3:00 • UTC-2:00 • UTC-1:00 • UTC • Samoa • Hawaii • Alaska • Pacific • Mountain • Central When you find your time zone, press **[SET]** to select and save it.

To adjust this:	Do this:
Setpoint	This sets the operating temperature. The default setting is 38° F. NOTE: When controlling an air defrost, the Setpoint is limited to a minimum setting of 32°F. To adjust the Setpoint: 1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Setpoint.**" Then press **[SET]**. 2. Use the up and down arrow keys to adjust the temperature of the cooler. Press **[SET]** to save the new temperature setting.
Differential	1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Differential**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the temperature differential value. Press **[SET]** to save your changes.
Setback Diff	The additional degrees that the cooler is set back. When the setback differential is set to OFF, the cooler is shut off. To adjust the setback differential: 1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Setback Diff**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the setback differential value. Press **[SET]** to save your changes.
Setback – Monday Setback – Tuesday Setback – Wednesday Setback – Thursday Setback – Friday Setback – Saturday Setback – Sunday	Sets up the daily schedule for the setback for the cooler's temperature and the Novelty Shutoff. To set up the setback schedule: 1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Setback**," for the desired day of the week. Then press **[SET]**. 2. Set the store's close time by using the up and down arrow keys to adjust the hour. Press **[SET]** to move to the minutes, and use the up and down arrow keys to adjust. When you are finished, press **[SET]** to move to the store's open time. 3. Set the store's open time by using the up and down arrow keys to adjust the hour. Press **[SET]** to move to the minutes, and use the up and down arrow keys to adjust. When you are finished, press **[SET]** to move to the Setback setting. 4. The Setback setting is disabled by default. To retain this setting, press **[SET]** to move to the next setting. Otherwise, to enable setback, press the down arrow key to select **Enabled**. Then press **[SET]** to move to the Novelty Shutoff setting. 5. The Novelty Shutoff (N.S.) setting is disabled by default. To retain this setting, press **[SET]** to move to the next setting. Otherwise, to enable setback, press the down arrow key to select **Enabled**. Then press **[SET]** to save your change and move to the Shutoff setting. 6. When you are finished, press **[SET]** to save all of your setback settings

To adjust this:	Do this:
	for the day selected. 7. Repeat the above steps to set the setback schedule for another day.
Copy Setback Schedule	Copies the Monday configuration to the rest of the week.
Setback Date 1 Setback Date 2 Setback Date 3 Setback Date 4 Setback Date 5 Setback Date 6 Setback Date 7	Sets up the date range setback schedules for the setback of the cooler's temperature. Each setting has a starting day/month, ending day/month, an enable, and an option to turn the cooler off instead of setting the temperature back. To set up the setback schedule: 1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Setback**," for one of the desired settings. Then press **[SET]**. 2. Set the start date by using the up and down arrow keys to adjust the month. Press **[SET]** to move to the day, and use the up and down arrow keys to adjust. When you are finished, press **[SET]** to move to the end date. 3. Set the end date by using the up and down arrow keys to adjust the month. Press **[SET]** to move to the day, and use the up and down arrow keys to adjust. When you are finished, press **[SET]** to move to the enable setting. 4. This date range setting is disabled by default. To retain this setting, press **[SET]** to move to the next setting. Otherwise, to enable setback, press the down arrow key to select **Enabled**. Then press **[SET]** to move to the Novelty Shutoff setting. 5. The Cooler Off setting is disabled by default. This turns the cooler off during the date range instead of setting back the temperature. To retain this setting, press **[SET]** to move to the next setting. Otherwise, to turn the cooler off during this date range, press the down arrow key to select **Enabled**. Then press **[SET]** to save your change and move to the Shutoff setting. 6. When you are finished, press **[SET]** to save these date range setback settings. 7. Repeat the above steps to set the schedule for range of dates.
Cooler Name	A list of names for the controlled cooler. To choose a cooler name from the list: 1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Cooler Name**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the name you want. Then press **[SET]** to select and save the name. If you want to create a unique name for the cooler, select **Custom Name** from **Setup** menu. See the next row of this table for further instructions.

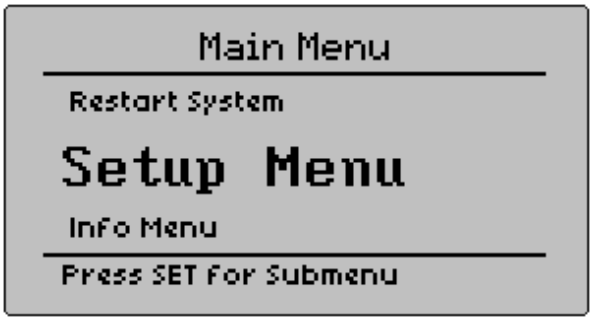
To adjust this:	Do this:
Custom Name	Creates a name for the cooler using up to 20 characters. To create a custom cooler name: 1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Custom Name**." Then press **[SET]**. 2. Use the up and down arrows to scroll through the alphabet and number list to create the first character of the custom name. Use **[SET]** to move to the next character in the name and **[MENU]** to move to the previous character. 3. Continue repeating step 2 until you have completed creating the custom name for the cooler. Then press **[SET]** to save the cooler name.
LCD Backlight	Sets the behavior of the display backlight to either On, Off, or Timed. The Timed option turns the on backlight for two minutes. To set the LCD backlight: 1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**LCD Backlight**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Temperature Units	Sets the unit of temperature to either Fahrenheit or Celsius with or without decimal points. To set the temperature units: 1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Temperature Units**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Remote Settings	Allows settings changes to be made via the local web interface. Options are "Allowed", "Not Allowed", and "60 Minutes". The default is "Allowed". The "60 Minutes" option allows settings changes to be made for one hour from the time this option is selected, after which it changes to "Not Allowed".

Info Menu

You can access the Info Menu in two ways: by pressing the **[MENU]** key or by pressing the **[INFO]** key.

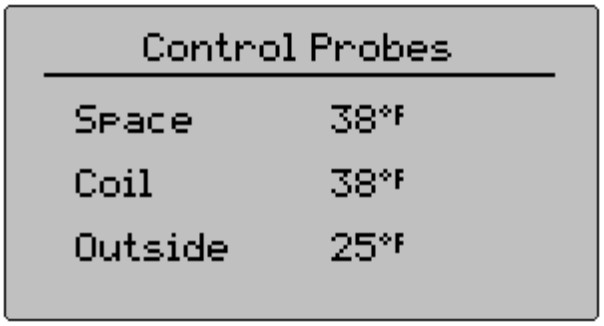
To access the Info Menu through the **[MENU]** key:

1. Press **[MENU]**. The **Setup Menu** displays by default. The active menu in the list displays in large letters in the center of the screen.



2. Press the down arrow key until the **Info Menu** appears in large letters.

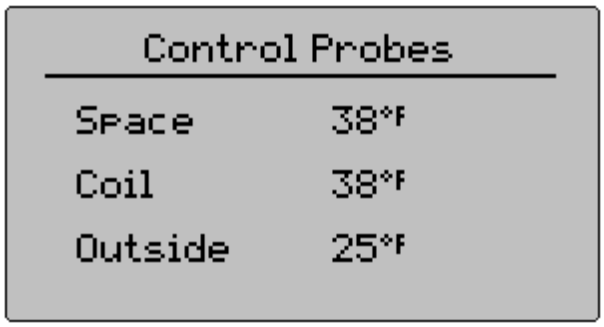
3. Press **[SET]**. The **Control Probes** screen displays.



4. Press the up and down arrow keys scroll through the setting screens.

To view settings in the Info Menu through the **[INFO]** key:

1. Press **[INFO]**. The **Control Probes** screen displays.



2. Press the up or down arrow keys to scroll through the screens.

To exit the Info Menu from either location, press **[ESC]**, or just wait a minute, and the controller will return to normal operation.

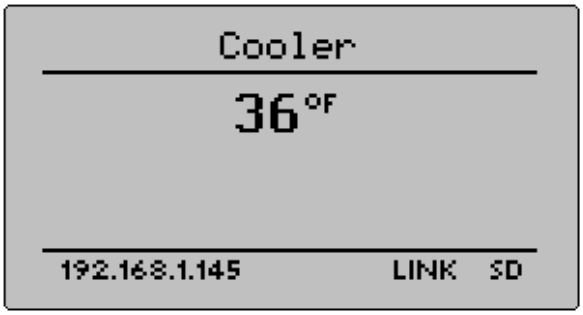


Table 4. Info Menu Screens

Menu Item	Description
Control Probes	View the space, coil, and outside temperatures used for control. If there are multiple space temperatures, the average of the temperatures is displayed. For multiple coil temperatures, the lowest temperature is displayed.
Equipment Status	View if the evaporator fans, cooling, defrost heat and economizer are on or off. If compressor feedback is enabled, "(CP)" will appear next to the solenoid status when the compressor is on.
Local Probes	View the temperatures for the physical probes connected to the controller. • P1—Space temperature 1 • P2—Space temperature 2 • P3—Coil temperature 1 • P4—Coil temperature 2 • P5—Outside temperature

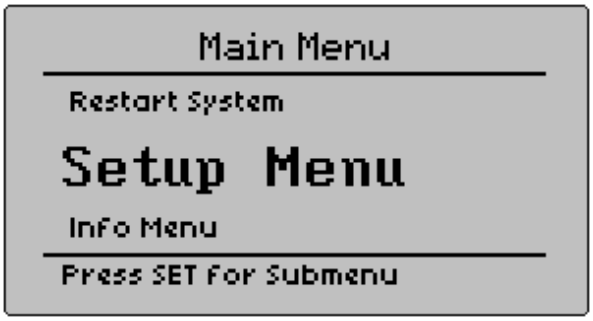
Menu Item	Description
Digital Inputs	Shows the state of each digital input, either open or closed. Five inputs are displayed. These are the typical usages: • Input 1—Shutdown button • Input 2—Bypass switch • Input 3—Door sensor • Input 4—Compressor on/off feedback. • Input 5—Occupancy
Pilot Relays	View the state of the MAIN, SOL, EFAN, DFRST, and ECON pilot relays from this screen. **NOTE:** The actual state of the relays is displayed, not the state of what is being controlled.
Onboard Relays	OBR1 (alarm) and OBR2 (night shutoff)
4-20mA Inputs	The top line for each input shows the milliamp signal transmitted from the transducer. The bottom line shows the engineering units if set up. Two inputs are displayed.
Door Heat Control/ Dewpoint Probe	View Dew Point probe values, and Door Heat power %, if enabled.
Version Info	Firmware version, Hardware revision, and MAC address of the Ethernet interface. The MAC address is also used as the serial number for the CCS2.
RSM Status	The top line shows the RSM configuration. The 2nd line shows the connection status if enabled. The bottom line shows the IP address and port of the server that the controller is contacting, or connected to. **
Statistics info	Daily, weekly, monthly runtime percentages. The number of screens displayed is dependent on the device configuration.

** The Remote Site Manager subscription service enables end users to review real-time or historical HVAC/R data and modify control parameters remotely over cloud based servers. *An optional paid subscription is required in order to use this service.*

Test Menu

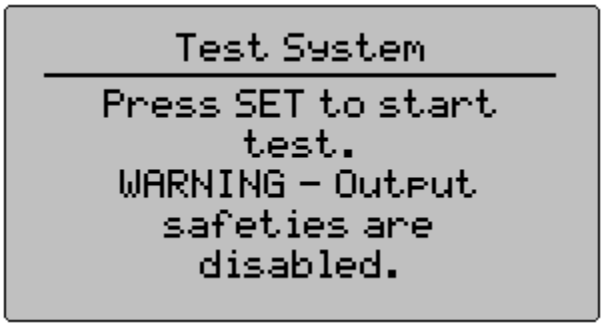
From the Test Menu, you can test the solenoid, evaporator fan, defrost, and economizer. To start a test:

1. Press **[MENU]**. The **Setup Menu** displays by default. The active menu in the list displays in large letters in the center of the screen.

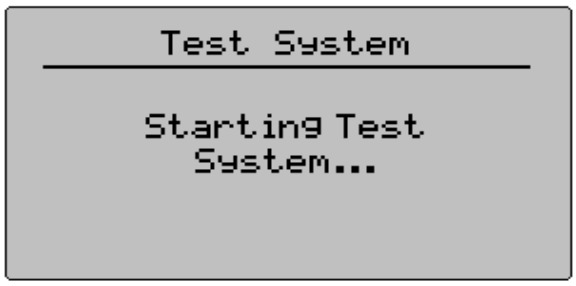


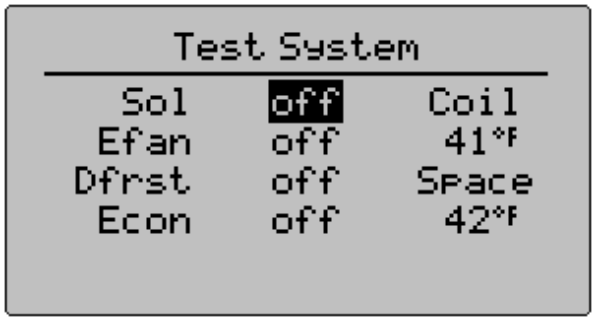
2. Press the down arrow key until the **Test Menu** appears in large letters.

3. Press **[SET]** to select the **Test Menu**.

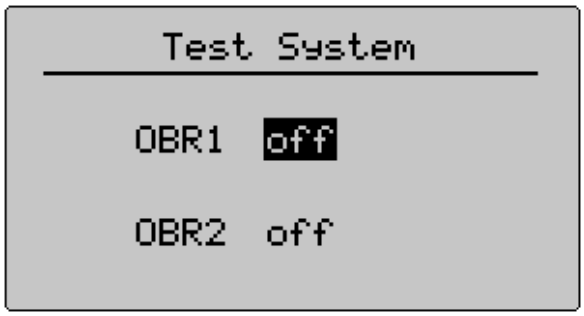


4. Press **[SET]** again to start the test. At this point, all of the equipment will turn off. The PWM outputs used with the Door Heat control option are run at 60% and 70%.





5. Press **[Menu]** to switch between the equipment outputs and on-board relays.



6. Follow the steps in the table below to adjust test each output.

To exit the Test Menu, press **[ESC]**, and the controller will return to normal operation. The test will time out after 45 minutes of inactivity, and the controller will return to normal operation.

If compressor feedback is enabled, "CP" will appear above the coil temperature if the compressor is running.

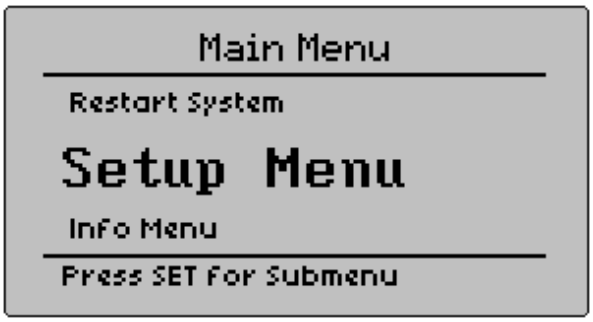
Table 5. Test Menu Settings

Setting Name	Description
Test System	Manually tests each output. ***Warning: All short cycle safeties are disabled.*** To run a test from the Test Menu: 1. Press the arrow keys to select the items you want to test: • Solenoid • Evaporator fan • Defrost • Economizer Press **[SET]** to toggle each item on or off. Use the **[MENU]** key to move between the different sets of output types. 2. Press the **[ESC]** key to end the test. The test mode ends automatically after 45 minutes of inactivity.
Relay outputs	Displays the relay outputs and the coil temperature. Shows the equipment state. The test starts with all of the equipment shut off.
Onboard relay outputs	Displays the onboard relay outputs: • OBR1—Alarm output • OBR2—Night shutoff output

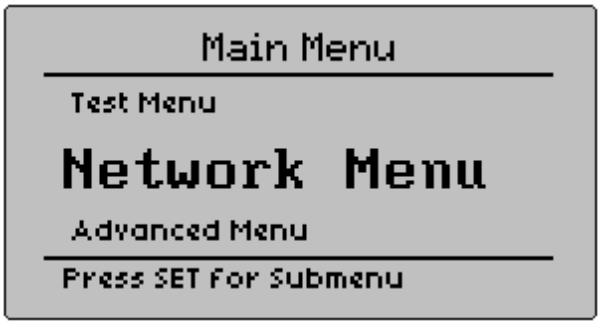
Network Menu

To access the settings in the Network Menu:

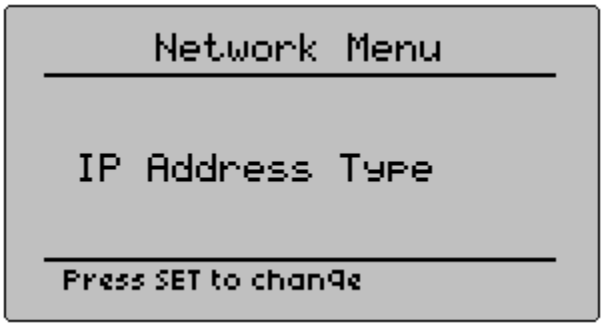
1. Press **[MENU]**. The **Setup Menu** displays by default. The active menu in the list displays in large letters in the center of the screen.



2. Press the down arrow key until the **Network Menu** appears in large letters.



3. Press **[SET]** to display the **Network** menu.



4. Follow the steps in the table below to adjust the setting you selected.

To exit the Network Menu, press **[ESC]**, or just wait a minute, and the controller will return to normal operation.

Table 6. Network Menu Settings

Setting Name	Description
IP Address Type	Sets either a static or DHCP address. The static IP address type is selected by default. Select DHCP to automatically set the IP address for the CCS2. To set the IP address type to DHCP: 1. In the **Network Menu**, and press the down arrow repeatedly until the display reads, "**IP Address Type**." Then press **[SET]**. 2. Use the down arrow key to select **DHCP**. Then press **[SET]** to save your change. A reboot is required for a change to take effect.
DHCP Actions	If DHCP is active, this menu item will be available. The following actions can be run: • **Renew** – Renew the DHCP lease, requesting the same address. • **Release** – Restart DHCP without requesting a specific address. • **Save to Static** – Save the current DHCP assigned address to the static settings. • **Request Static** – Restart DHCP and request the address set in the static IP configuration.
IP Address	Sets the static IP address for the CCS2. To set the IP address: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**IP Address**." Then press **[SET]**. 2. The first set of numbers, before the first decimal point, are highlighted. Use the up and down arrow keys to adjust the first set numbers. Press **[SET]** to move to the next set of numbers between the first and second decimal points, and use the up and down arrow keys to adjust. Then press **[SET]** and repeat this step until all of the number sets are correct. 3. When you are finished, press **[SET]** to save the IP address. A reboot is required for a change to take effect.
Netmask	Sets the subnet mask of the IP address. To set the subnet mask: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**Netmask**." Then press **[SET]**. 2. The first set of numbers, before the first decimal point, are highlighted. Use the up and down arrow keys to adjust the first set numbers. Press **[SET]** to move to the next set of numbers between the first and second decimal points, and use the up and down arrow keys to adjust. Then press **[SET]** and repeat this step until all of the number sets are correct.

Setting Name	Description
	3. When you are finished, press **[SET]** to save the subnet mask. A reboot is required for a change to take effect.
Default Gateway	Sets the default gateway used with the CCS2. To set the default gateway address: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**Default Gateway**." Then press **[SET]**. 2. The first set of numbers, before the first decimal point, are highlighted. Use the up and down arrow keys to adjust the first set numbers. Press **[SET]** to move to the next set of numbers between the first and second decimal points, and use the up and down arrow keys to adjust. Then press **[SET]** and repeat this step until all of the number sets are correct. 3. When you are finished, press **[SET]** to save the default gateway address. A reboot is required for a change to take effect.
DNS #1 DNS #2 DNS #3	Sets the IP addresses for the domain name servers (DNSs). To set the IP address for a domain name server: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**DNS #1**." Then press **[SET]**. 2. The first set of numbers, before the first decimal point, are highlighted. Use the up and down arrow keys to adjust the first set numbers. Press **[SET]** to move to the next set of numbers between the first and second decimal points, and use the up and down arrow keys to adjust. Then press **[SET]** and repeat this step until all of the number sets are correct. 3. When you are finished, press **[SET]** to save the IP address. 4. Repeat these steps to change the IP address for another DNS.
SNTP #1 SNTP #2 SNTP #3 SNTP #4 SNTP #5	Sets the IP addresses for the RFC868 Time servers. These are alternate addresses if the RSM time servers cannot be reached. To set the IP address for a time server: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**SNTP #1**." Then press **[SET]**. 2. The first set of numbers, before the first decimal point, are highlighted. Use the up and down arrow keys to adjust the first set numbers. Press **[SET]** to move to the next set of numbers between the first and second decimal points, and use the up and down arrow keys to adjust. Then press **[SET]** and repeat this step until all of the number sets are correct. 3. When you are finished, press **[SET]** to save the IP address. 4. Repeat these steps to change the IP address for another time server.

Setting Name	Description
SNTP Client	Enables or disables the CCS2's RFC868 Time client. If enabled, the CCS2 will set the time from TIME servers via the Internet. This setting is enabled by default. To disable this setting: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**SNTP Client**." Then press **[SET]**. 2. Use down arrow key to select **Disabled**. Then press **[SET]** to save your change.
Ethernet Link	Sets the Ethernet link connection type. The default is Auto. Use this setting to change the link speed and duplex type, or to disable Ethernet. To change the Ethernet link connection type: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**Ethernet Link**." Then press **[SET]**. 2. By default, the Ethernet link is set to Auto. Press the down arrow repeatedly to find your time zone. The options available are: • Auto • Disable • 10 Half • 10 Full • 100 Half • 100 Full When you find the Ethernet link connection type you want to use, press **[SET]** to select and save it. A reboot is required for a change to take effect.
FTP Enable	Enables or disables the CCS2's internal FTP Server. This setting is enabled by default. To disable this setting: 3. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**FTP Enable**." Then press **[SET]**. 4. Use down arrow key to select **Disabled**. Then press **[SET]** to save your change.
FTP Write	Enables or disables the ability to write to CCS2's micro SD card via the FTP server. This setting is disabled by default. To enable this setting: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**FTP Write**." Then press **[SET]**. 2. Use down arrow key to select **Enabled**. Then press **[SET]** to save your change.
Web Server	Enables or disables the CCS2's internal Web Server. This setting is enabled by default. To disable this setting: 5. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**WEB Server**." Then press **[SET]**.

Setting Name	Description
	6. Use down arrow key to select **Disabled**. Then press **[SET]** to save your change.
Wireless API	Enables or disables the CCS2's Wireless Tag API. This API allows the CCS2 to receive data from a Wireless Tag Manager. This setting is enabled by default. This API requires the internal Web Server to be enabled. To disable this setting: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**Wireless API**." Then press **[SET]**. 2. Use down arrow key to select **Disabled**. Then press **[SET]** to save your change.
IP Filtering	(NOTE: IP filtering was removed in Rev 55 and higher.) Enable to limit traffic allowed to reach the CCS2 unit. This setting is disabled by default. To enable this setting: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**IP Filtering**." Then press **[SET]**. 2. Use down arrow key to select **Enabled**. Then press **[SET]** to save your change.
Filter Default	Passes or blocks traffic to the CCS2 unit. If the block is enabled, no traffic will be allowed through unless a trusted IP and subnet mask are enabled. You can also allow traffic from your local network. The default is Allow. To allow or block this setting: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**Filter Default**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Trusted IP #1 Trusted IP #2 Trusted IP #3	Sets up to three IP or network addresses to allow traffic to the CCS2 unit. To change the trusted IP address: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**Trusted IP #1**." Then press **[SET]**. 2. The first set of numbers, before the first decimal point, are highlighted. Use the up and down arrow keys to adjust the first set numbers. Press **[SET]** to move to the next set of numbers between the first and second decimal points, and use the up and down arrow keys to adjust. Then press **[SET]** and repeat this step until all of the number sets are correct. 3. When you are finished, press **[SET]** to save the trusted IP address. 4. Repeat these steps to change another trusted IP address.

Setting Name	Description
Trusted Mask #1 Trusted Mask #2 Trusted Mask #3	Sets the mask to 255.255.255.255 to limit to only one IP address. You can also set a different mask to allow traffic from a network. To change a trusted mask address: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**Trusted Mask #1**." Then press **[SET]**. 2. The first set of numbers, before the first decimal point, are highlighted. Use the up and down arrow keys to adjust the first set numbers. Press **[SET]** to move to the next set of numbers between the first and second decimal points, and use the up and down arrow keys to adjust. Then press **[SET]** and repeat this step until all of the number sets are correct. 3. When you are finished, press **[SET]** to save the trusted mask address. 4. Repeat these steps to change another trusted mask address.
Allow Local IPs	Allows traffic from the local network. This setting is enabled by default. To enable or disable this setting: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**Allow Local IPs**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Allow Private IPs	Allows traffic from any private IP address. This setting is enabled by default. To enable or disable this setting: 1. In the **Network Menu**, press the down arrow repeatedly until the display reads, "**Allow Private IPs**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
RSM Enable	Enables or disables the system from connecting to the RSM service. **
RSM Service	Normal or No Data. Normal mode sends data every 10 seconds. No Data mode establishes a connection but doesn't send data unless requested.
RSM Units	Sets the temperature units used with RSM only. Options are Fahrenheit, Celsius, Celsius x10, Kelvin, Internal (Kelvin x10).
RSM Write Enable	Limits the ability to make remote settings changes via RSM.
RSM Server IP #1-4	Sets the IP addresses for the RSM servers.
RSM Server Port #1-4	Sets the TCP ports for the RSM service. If set to 0, the default of 6102 is used.
Modbus TCP Enable	Enables or disables the Modbus TCP server on the CCS2. Default is Disabled.
Modbus Units	Sets the temperature units used with Modbus TCP only. Options are Fahrenheit, Celsius, Celsius*10, Kelvin, Internal (Kelvin*10).

Setting Name	Description
Modbus Write Enable	Limits the ability to make remote settings changes via Modbus TCP.
Modbus Port	Sets the TCP port for the Modbus TCP service. If set to 0, the default of 502 is used. A reboot is required for a setting change to take effect.
Distributed Control	Enables or disables synchronized operation between CCS2 controllers. The default is disabled. Shutdown, Defrost, Bypass, and Outside temperature are synchronized between controllers with the same Cooler ID.
Cooler ID	Identifies the cooler that a controller is part of for Distributed Control.
Point ID	Identifies the individual controller within a cooler for Distributed Control.
Zone ID	Identifies the zone that a controller is part of within a cooler for Distributed Control.
Group ID	Identifies a group of coolers for Distributed Control.
Out Temp Sharing	Configures the sharing of the outside temperature between controllers. The options available are: • Enabled • Disabled • Local Priority • Local Only • Remote Only This feature requires that Distributed Control be enabled. If one or more CCS2 controllers have an outside temperature probe connected, the temperature will be shared between the controllers. If multiple temperatures are received by a controller, the coldest value will be used. The Local Priority setting will use the local outside temperature probe unless it is not present.
Comp Sync	Compressor Synchronization. Configures the coordination of compressors starting and stopping in a zone. The options available are: • Disabled • Leader • Follower • Delay This feature requires that Distributed Control be enabled.

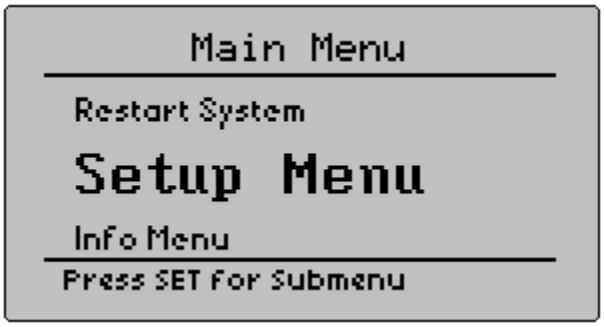
Setting Name	Description
	The Cooler ID and Zone ID need to be the same for the synchronized compressors. If a Leader starts, all Leaders and Followers Start. Starts between different compressors are delayed by a few seconds. The cooling runs until ALL Leaders are satisfied. (There is a low limit on individual units. If the temperature goes too far below the setpoint, cooling is halted on that unit as a safety.) A Follower can start and stop as long as no other Leader is running. If a Leader is running, the Follower will run until the Leader stops. The Delay setting does not coordinate compressor starts. It prevents compressors in the same zone from starting at the same time.
Start Delay	Compressor Start Delay in Seconds. Delays the start of a Leader, Follower or Delay compressor after any compressor in the same zone starts. Default is 0 Seconds. Range is 0 – 600 Seconds. The Delay is enforced after every compressor start in a zone. This requires **Comp Sync** to be functioning**.**
Lag Delay	Compressor Lag in Minutes. Delays the start of a Leader or Follower compressor after a Leader in the same zone starts. Default is 0 Minutes. Range is 0 – 60 Minutes. This is usually used in Multi-Leader applications. The Delay is enforced only after the 1st Leader starts in a zone. A 2nd or 3rd Leader will both start after Lag Delay. This requires **Comp Sync** to be functioning**.**
Sol Off w ED-C	If enabled, cooling is turned off if another controller starts an Electric Defrost within the same cooler. This setting is disabled by default.
Sol Off w ED-Z	If enabled, cooling is turned off if another controller starts an Electric Defrost within the same zone. This setting is disabled by default.
EDS Wait	If enabled, a pending Runtime or Fixed interval Electric Defrost will wait to start if another controller starts an Electric Defrost within the same cooler. This does not delay a RTC defrost. This requires Distributed Control to be Enabled. This setting is disabled by default.
EDS Run	If enabled, an Electric Defrost will start if another controller starts an Electric Defrost within the same zone. It will not start a defrost if the defrost interval on this controller is set to RTC or the type is Air Defrost. This requires Distributed Control to be Enabled.

Setting Name	Description
Timed Efan - Remote	If enabled, the evaporator fans are run if another controller in the same cooler is in Timed Efan mode. This setting is disabled by default.

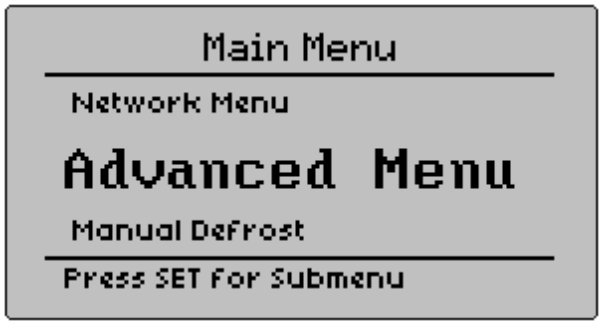
Advanced Menu

To access the settings in the Advanced Menu:

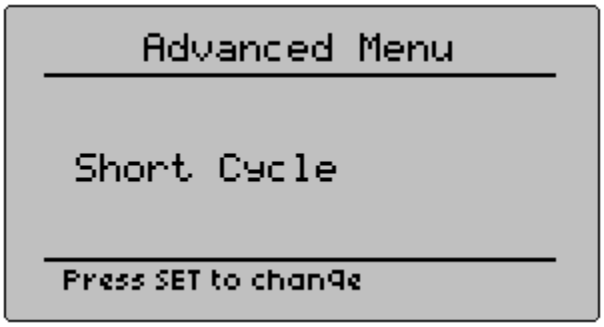
1. Press **[MENU]**. The **Setup Menu** displays by default. The active menu in the list displays in large letters in the center of the screen.



2. Press the down arrow key until the **Advanced Menu** appears in large letters.



3. Press **[SET]** to display the **Advanced Menu**.



4. Follow the steps in the table below to adjust the setting you selected.

To exit the Advanced Menu, press **[ESC]**, or just wait a minute, and the controller will return to normal operation.

Table 7. Advanced Menu Settings

Setting Name	Description
Short Cycle	The time the compressor must remain off before it can be restarted. The default is 2 minutes. To adjust the short cycle: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Short Cycle**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the short cycle value. Press **[SET]** to save your changes.
Min Runtime	The minimum time that the compressor must run before it can be turned off. The default is 2 minutes. To adjust the minimum runtime: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Min Runtime**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the minimum runtime value. Press **[SET]** to save your changes.
Auto Diff Adjust	This algorithm automatically increases the Differential (up to 3°F) if compressor runtimes are too short. This setting is enabled by default. To disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Auto Diff Adjust**." Then press **[SET]**. 2. Use down arrow key to select **Disabled**. Then press **[SET]** to save your change.
Off Cycle Adjust	This algorithm automatically increases the Differential (up to 3°F) if the cooling off cycles are consistently shorter than 4 minutes. This setting is enabled by default. If both "Auto Diff Adjust" and "Off Cycle Adjust" are enabled, the maximum differential increase is limited to 5°F. To disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Off Cycle Adjust**." Then press **[SET]**. 2. Use down arrow key to select **Disabled**. Then press **[SET]** to save your change.
Sol Fan Delay	The minimum time that the evaporator fans must continue running after a cooling cycle stops. The default is 30 seconds. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Sol Fan Delay**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the delay value. Press **[SET]** to save your changes.

Setting Name	Description
Sol PreDelay	This set the time the evaporator fans should run before a cooling cycle starts. The range is 0 – 10 seconds. The default is 0 seconds. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Sol PreDelay**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the delay value. Press **[SET]** to save your changes.
ED Max Fan Delay	The maximum time that the evaporator fans are kept off at the start of a cooling cycle in an electric defrost application (also known as refreeze time). The default is 75 seconds. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**ED Max Fan Delay**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the delay value. Press **[SET]** to save your changes.
Dstrat Off Time	Sets the time between destratification cycles. The default is 7 minutes. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Dstrat Off Time**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the destratification off time. Press **[SET]** to save your changes.
Dstrat On Time	Sets the amount of time that the evaporator fans are run during a destratification cycle. The default is 1 minute. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Dstrat On Time**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the destratification on time. Press **[SET]** to save your changes.
Destrat Cycling	Enables or disables the evaporator fan destratification. This setting is enabled by default. To disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Destrat Cycling**." Then press **[SET]**. 2. Use down arrow key to select **Disabled**. Then press **[SET]** to save your change.
Fan Cycling	Enables or disables the off cycle evaporator fan control. If disabled, the fans run continuously during the off cycle. This setting is enabled by default. To disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the

Setting Name	Description
	display reads, "**Fan Cycling**." Then press **[SET]**. 2. Use down arrow key to select **Disabled**. Then press **[SET]** to save your change.
Gravity Mode	Enables or disables defrost. This setting is enabled by default. To disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Gravity Mode**." Then press **[SET]**. 2. Use down arrow key to select **Disabled**. Then press **[SET]** to save your change.
Stuck Sol Detect	Enables or disables an algorithm that detects if the solenoid valve is stuck open. If it is determined that the valve is stuck open, the solenoid valve is cycled 3 times to attempt to close it. This setting is enabled by default. To disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Stuck Sol Detect**." Then press **[SET]**. 2. Use down arrow key to select **Disabled**. Then press **[SET]** to save your change.
Timed Efan - Door	If enabled, the evaporator fans are run for 7 minutes after the door is opened. This requires a door switch be connected to digital input 3. This setting is disabled by default. To enable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Timed Efan - Door**." Then press **[SET]**. 2. Use down arrow key to select **Enabled**. Then press **[SET]** to save your change.
Timed Efan - Occ	If enabled, the evaporator fans are run for 7 minutes after occupancy is sensed. This requires an occupancy sensor be connected to digital input 5. This setting is disabled by default. To enable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Timed Efan - Occ**." Then press **[SET]**. 2. Use down arrow key to select **Enabled**. Then press **[SET]** to save your change.
Defrost Enable	Enables or disables the ability to cycle off the cooling when the evaporator reaches very cold temperatures. This can occur when the evaporator fans are turned off, or the evaporator encased in ice. This setting is enabled by default. To disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Defrost Enable**." Then press **[SET]**.

Setting Name	Description
	2. Use down arrow key to select **Disabled**. Then press **[SET]** to save your change.
Defrost Type	Sets either an air or electric defrost. This should be set to the correct type of defrost, whether or not the defrost is being controlled. The default is Air. To change this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Defrost Type**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Interval Type	Controls the timing between defrosts. Select from dynamic (runtime), fixed intervals or Real Time Clock (RTC). The runtime interval is based on the compressor runtime. RTC allows up to 8 start times per day to be set. The default is Runtime. To change this setting to Fixed: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Interval Type**." Then press **[SET]**. 2. Use down arrow key to select **Fixed**. Then press **[SET]** to save your change.
Thermostatic Dfrst	Applies only to an electric defrost. If enabled, regulates the heating elements to the terminate temperature. This setting is disabled by default. To enable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Thermostatic Dfrst**." Then press **[SET]**. 2. Use down arrow key to select **Enabled**. Then press **[SET]** to save your change.
Defrost Interval	Sets the time between defrosts. The default is 2.6 hours. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Defrost Interval**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the defrost interval. Press **[SET]** to save your changes.
Dfrst Min Interval	Sets the minimum time between defrosts, if the interval type is Runtime. The default is 4.5 hours. This is used to limit the maximum number of defrosts per day when the cooling is running at a very high percentage. Some typical values are: 5.7 hours - 4 defrosts per day. 4.5 hours - 5 defrosts per day. 3.8 hours - 6 defrosts per day. 3.2 hours - 7 defrosts per day.

Setting Name	Description
	To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Dfrst Min Interval**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the defrost interval. Press **[SET]** to save your changes.
Defrost Times 1 - 8	Sets the defrost start times if the interval type is set to RTC. The setting is in Hours and Minutes of the day. If "Not Used" is selected, the time slot is disabled. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Defrost Time 1.**" Then press **[SET]**. 2. Use the up and down arrow keys to adjust the start time, or select "Not Used". Press **[SET]** to save your changes.
Defrost Min Time	Sets the minimum defrost time. The default is 13 minutes. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Defrost Min Time.**" Then press **[SET]**. 2. Use the up and down arrow keys to adjust the minimum defrost time. Press **[SET]** to save your changes.
Defrost Max Time	Sets an overall maximum time that the defrost cycle can last. The default is 60 minutes. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Defrost Max Time**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the maximum defrost time. Press **[SET]** to save your changes.
Dfrst End Temp	Sets the electric defrost terminate temperature. The default is 60° F. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Dfrst End Temp**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the defrost terminate temperature. Press **[SET]** to save your changes.
Dfrst Drip Time	Sets the amount of extra time to allow water to drip off after ending the heating cycle. Applies to only the electric defrost. The default is 2 minutes. To adjust the defrost drip time: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Dfrst Drip Time**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the defrost drip time. Press **[SET]** to save your changes.

Setting Name	Description
Dfrst Boil Time	Sets the amount of time to allow refrigerant to boil off before starting a heating cycle. Applies to only the electric defrost. The default is 2 minutes. To adjust defrost boil time: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Defrost Max Time**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the defrost boil time. Press **[SET]** to save your changes.
Dual Defrost	This setting enables the independent termination of a 2nd electric defrost heater. This requires a 2nd defrost relay to be installed, connected to the ECON output on the CCS2. Coil Probe #1 will control the 1st heater, and Coil Probe #2 will control the 2nd heater. Both coils need to terminate before cooling is resumed. This setting is disabled by default. To enable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Dual Defrost**." Then press **[SET]**. 2. Use down arrow key to select **Enabled**. Then press **[SET]** to save your change.
Est Dfst Display	Enables or disables display of an "Estimated" defrost. If the controller senses that a defrost clock has initiated an electric defrost, the unit will display "Estimated Defrost". This option only applies if defrost control is disabled, and the defrost type is set to electric. This setting is enabled by default. To disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Defrost Enable**." Then press **[SET]**. 2. Use down arrow key to select **Disabled**. Then press **[SET]** to save your change.
Display @ Defrost	Sets what to display while a defrost is active. The options are Temperature and Defrost. "Temperature" displays the controlled space temperature that is normally shown. "Defrost" turns off the display of the space temperature. "Defrost" is the default.
Defrost Cancel	If enabled, defrosts are not started if the evaporator has been at high temperatures for an extended time. This does not affect manual defrosts. This setting is enabled by default. To enable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Defrost Cancel**." Then press **[SET]**. 2. Use down arrow key to select **Enabled**. Then press **[SET]** to save your change.

Setting Name	Description
Air Dfrst Relay	If enabled, the defrost relay is turned on while an Air Defrost is active. This setting is disabled by default. To enable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Air Dfrst Relay**." Then press **[SET]**. 2. Use down arrow key to select **Enabled**. Then press **[SET]** to save your change.
DH Enable	Enables or disables the door heater control functionality. This is disabled by default. To enable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**DH Enable**." Then press **[SET]**. 2. Use down arrow key to select **Enabled**. Then press **[SET]** to save your change.
DH #1 Setting DH #2 Setting	0-6 if the control type is auto, or 0 – 100% if the control type is fixed %. The default is 3.
DH #1 Xtra Heat DH #2 Xtra Heat	Enables Xtra Heat defrost cycles. Settings are Enabled, Disabled, and Default. If set to Default, the Xtra Heat cycle is enabled if the DH Type is set to Freezer, and disabled if the DH Type is set to Cooler.
DH PWM #1 DH PWM #2	Enables or disables the given PWM output to control door heaters.
DH #1 Type DH #2 Type	Sets the door type per output. The options are Cooler or Freezer doors. The defaults are Cooler for DH #1, and Freezer for DH #2.
DH #1 Control DH #2 Control	Sets the control type per output. The options are Auto, Fixed %, On, Off. The default is Auto.
DH #1 Map DH #2 Map	Set the Auto output algorithm to different power output curves. The options are Normal, Lowest, Low, and High, Pass-through. The map setting selects different heat output vs. dewpoint curves. The map name indicates lower or higher heat output. Pass-through is used for freezer type doors, where the door is located within a cooler.
Economizer Enable	Enables or disables the economizer. This setting is disabled by default. To enable or disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Economizer Enable**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Econ Differential	Sets the temperature differential used for the economizer. The default is 2°F.

Setting Name	Description
	To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Econ Differential**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the temperature differential. Press **[SET]** to save your changes.
Thermal Storage	Sets the cooler to run at a lower temperature using the Economizer so that the cooler can coast through periods of warmer weather. Please note that if Thermal Storage is enabled, the economizer will run if the cooler is turned off via the setback schedule. The default is 36° F. To adjust the thermal storage temperature: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Thermal Storage**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the thermal storage temperature. Press **[SET]** to save your changes.
TS Follows Setback	If enabled, Thermal Storage will only run during a cooler setback. This setting is disabled by default. To enable or disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**TS Follows Setback**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Heat Control	Enables or disables the control of a heater to maintain the controlled space temperature above a temperature based on the Setpoint, Deadband, and Heat Diff. This uses the Defrost Output to control the heating. If the Defrost Output is used for a defrost function, Heat Control cannot be enabled. This setting is disabled by default. To enable or disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Heat Control**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Heat Diff	Sets the differential below the Deadband at which the heat will be turned on. The default setting is 3°F. To adjust the Heating Differential: 1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Heat Diff.**" Then press **[SET]**. 2. Use the up and down arrow keys to adjust the differential. Press **[SET]** to save the new temperature setting.

Setting Name	Description
Deadband	Sets the cooling to heating deadband. The deadband is the differential below the Setpoint at which the heat is turned off. The default setting is 1°F. To adjust the Heating Differential: 1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Deadband.**" Then press **[SET]**. 2. Use the up and down arrow keys to adjust the deadband. Press **[SET]** to save the new temperature setting.
Freeze Protection	If enabled, heat control is used to keep the space temperature above freezing. This is typically used for outdoor coolers in cold climates to prevent freezing of product. If this setting is enabled, the setpoint is limited to a minimum of 34°F. This setting is disabled by default. To enable or disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Freeze Protection.**" Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Efans ON with Heat	If enabled, the evaporator fans will run when the heat is turned on. This setting is disabled by default. To enable or disable this setting: 3. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Efans ON with Heat.**" Then press **[SET]**. 4. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Shutdown Enable	Enables or disables the cooler shutdown button (external and internal). This setting is enabled by default. To enable or disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Shutdown Enable**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Shutdown Length	Sets the cooler shutdown time. The default is 20 minutes. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Shutdown Length**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the shutdown time. Press **[SET]** to save your changes.
Shutdown Limit	This setting the overrides normal maximum shutdown time limit. The options are "**Normal**" and "**Unlimited**".

Setting Name	Description
Shutdown Delay	Enables or disables a slower Shutdown start sequence. This will cause the evaporator fans to be run for a longer time if the refrigeration was running when the shutdown was started.
Setback Enable	A global setting that either enables or disables the cooler temperature setback. This setting is enabled by default. To adjust the setback on a daily basis, use the appropriate setback option for each day in the Setup menu. To enable or disable the global setback setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Setback Enable**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Novelty Shutoff	A global setting that enables or disables the Novelty Shutoff output. This setting is enabled by default. To enable or disable the shutoff output globally: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Shutoff Enable**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Setback Date	A global setting that either enables or disables the date range setback. This setting is disabled by default. To adjust the setback date ranges, use the appropriate setback date setting in the Setup menu. To enable or disable the global setback setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Setback Date**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Bypass Enable	Enables or disables the cooler bypass. This setting is enabled by default. To enable or disable the cooler bypass: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Bypass Enable**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Bypass Button	Enables or disables the keypad bypass button. This setting is enabled by default. Please note that this also disables the remote manual bypass function. The other bypass types continue to function if enabled. To enable or disable the bypass button: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Bypass Button**." Then press **[SET]**.

Setting Name	Description
	2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Bypass Switch	Enables or disables a bypass switch on digital input 2. This setting is disabled by default. To enable or disable the bypass switch: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Bypass Switch**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Byp Switch Global	When enabled, all CCS2 units with the same cooler ID go into bypass simultaneously. This setting is disabled by default. To enable or disable the bypass switches: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Byp Switch Global**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Bypass Door	When enabled, the CCS2 goes into bypass for 10 minutes after the door is opened. Requires a door switch on digital input 3. This setting is disabled by default. To enable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Bypass Door**." Then press **[SET]**. 2. Use down arrow key to select **Enabled**. Then press **[SET]** to save your change.
Bypass Occ	When enabled, the CCS2 goes into bypass for 10 minutes after occupancy is sensed. Requires an occupancy sensor on digital input 5. This setting is disabled by default. To enable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Bypass Occ**." Then press **[SET]**. 2. Use down arrow key to select **Enabled**. Then press **[SET]** to save your change.
Probe 1 Type Probe 2 Type Probe 3 Type Probe 4 Type Probe 5 Type	Sets the type of thermistor. The default is 5 K Z Curve. The options available are: • 5K Z Curve • 10K SB Curve • 10K Z Curve To set a thermistor type: 1. In the **Advanced Menu**, press the down arrow repeatedly until the

Setting Name	Description
	display reads, "**Probe 1 Type**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the thermistor type you want. Then press **[SET]** to select and save your change. 3. Repeat these steps to change another thermistor type.
Probe 1 Cfg. Probe 2 Cfg. Probe 3 Cfg. Probe 4 Cfg.	Sets options for the 1st four temperature probes. The options available are: • Default • Disabled • Monitor "Monitor" is used in RSM applications to report a general purpose temperature point. "Disabled" keeps the probe from being used as a control temperature, or as a monitoring temperature. Probe 1 is the Space 1 temperature probe. Probe 2 is the Space 2 temperature probe. Probe 3 is the Coil 1 temperature probe. Probe 4 is the Coil 2 temperature probe.
Outside Probe Fn.	Sets an alternate function for the outside. The options available are: • Outside • Coil 3 • Space 3 • Monitor • Suction Temp • Disabled Monitor is used in RSM applications to report a general purpose temperature point. Disabled keeps the probe from being used as a control temperature, or as a monitoring temperature.
Out Temp Sharing	Configures the sharing of the outside temperature between controllers. The options available are: • Enabled • Disabled • Local Priority • Local Only • Remote Only This feature requires that Distributed Control be enabled. If one or more CCS2 controllers have an outside temperature probe connected, the

Setting Name	Description
	temperature will be shared between the controllers. If multiple temperatures are received by a controller, the coldest value will be used. The Local Priority setting will use the outside temperature probe connected to the CCS2, unless it is not present. The Remote Only option is used when an Outside temperature is needed, but no local probe is present, in order to prevent an Outside probe alarm.
4-20mA IN1 Type 4-20mA IN2 Type	Sets the type and units for the transducers connected to these inputs. The default is 4-20 mA. To change this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**4-20mA IN1 Type**," or **4-20mA IN2 Type.**" Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
4-20mA Calibration	Sets the calibration value for the 4-20 mA inputs. The default is 326. To change the calibration value: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**4-20mA Calibration**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the calibration value. Press **[SET]** to save your changes.
Comp. Feedback	Sets the input to use to sense if the compressor is on or off. If a 4-20mA input is selected, a 10% F.S. threshold is used to determine if the compressor is on. The default is disabled.
Cooler Control	Enables or Disables the Cooler Control functionality of the controller. This is used in cases when the unit is used for only Door Heat Control or only remote monitoring. A reboot is required after changing this setting.
Demo Mode	If enabled, simulates the control temperatures so that the unit can be used as a demonstration unit. This setting is disabled by default. To enable or disable demo mode: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Demo Mode**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Alarms Enable	A global setting that disables all alarming. This setting is enabled by default. To enable or disable all alarming: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Alarms Enable**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.

Setting Name	Description
Alarm All Hours	If enabled, non-critical alarms can go off at any time. This setting is disabled by default. To enable or disable the non-critical alarms: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Alarm All Hours**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Alarm Relay Enable	Enables or Disables the onboard alarm relay (OBR1). The default is enabled. To enable or disable the alarm relay: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Alarm Relay Enable**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
High Alarm Enable	Enables or disables the high-temperature alarming. This setting is enabled by default. To enable or disable the high-temperature alarming: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**High Alarm Enable**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
High Alarm Type	Allows you to choose among auto, fixed, or differential high-temperature alarm points. The default is Auto. To change the settings for the high-temperature alarm points: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**High Alarm Type**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
High Alarm Adjust	If enabled, the high-temperature alarm adjusts for defrost, shutdowns, and setbacks. This setting is enabled by default. To enable or disable this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**High Alarm Adjust**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
High Alarm Mode	Sets the high-temperature alarm to operate in run mode, or run and bypass mode. The default is Run Only. To change the high alarm mode: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**High Alarm Mode**." Then press **[SET]**.

Setting Name	Description
	2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
High Alarm Setpoint	Adjusts the setpoint for a fixed high-temperature alarm. The default is 46° F. To adjust the high alarm setpoint: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**High Alarm Setpoint**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the high alarm setpoint. Press **[SET]** to save your changes.
High Alarm Diff	Sets the temperature differential for a differential type high-temperature alarm. The default is 5° F. To adjust the high alarm differential: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**High Alarm Setpoint**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the high alarm differential value. Press **[SET]** to save your changes.
High Alarm Time	Sets the high-temperature time for a fixed type high-temperature alarm. The default is 60 minutes. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**High Alarm Time**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the high-temperature time. Press **[SET]** to save your changes.
Low Alarm Enable	Enables or disables the low-temperature alarming. This setting is enabled by default. To enable or disable the low-temperature alarming: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Low Alarm Enable**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Low Alarm Type	Allows you to choose among auto, fixed, or differential low-temperature alarm points. The default is Auto. To change the settings for the low-temperature alarm points: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Low Alarm Type**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Low Alarm Adjust	If enabled, the low-temperature alarm adjusts for defrost, shutdowns, and setbacks. This setting is enabled by default. To enable or disable this setting:

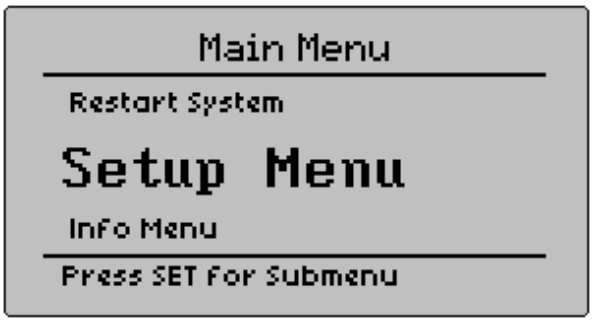
Setting Name	Description
	1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Low Alarm Adjust**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Low Alarm Mode	Sets the low-temperature alarm to operate in run mode, or run and bypass mode. The default is Run Only. To change the low alarm mode: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Low Alarm Mode**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Low Alarm Setpoint	Adjusts the setpoint for a fixed low-temperature alarm. The default is 34° F. To adjust the low alarm setpoint: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Low Alarm Setpoint**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the low alarm setpoint. Press **[SET]** to save your changes.
Low Alarm Diff	Sets the temperature differential for a differential type low-temperature alarm. The default is 3° F. To adjust the low alarm differential: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Low Alarm Setpoint**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the low alarm differential value. Press **[SET]** to save your changes.
Low Alarm Time	Sets the low-temperature time for a fixed type low-temperature alarm. The default is 20 minutes. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Low Alarm Time**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the low-temperature time. Press **[SET]** to save your changes.
Alarm Silence 1	Sets the alarm silence time when the alarm goes off the first time. The default is 1 hour. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Alarm Silence 1**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the first alarm silence time. Press **[SET]** to save your changes.

Setting Name	Description
Alarm Silence 2	Sets the alarm silence time when the alarm goes off for a second time. The default is 24 hours. To adjust this setting: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Alarm Silence 2**." Then press **[SET]**. 2. Use the up and down arrow keys to adjust the second alarm silence time. Press **[SET]** to save your changes.
Backlight Flashing	Enables or disables the flashing of the display backlight during an alarm condition. The default is enabled.
Alarm Scheduling	Enables or Disables the Alarm Disable Schedule. The default is disabled. To enable or disable the alarm scheduling: 1. In the **Advanced Menu**, press the down arrow repeatedly until the display reads, "**Alarm Scheduling**." Then press **[SET]**. 2. Use the up and down arrow keys to scroll through the list to find the setting you want. Then press **[SET]** to select and save your change.
Alarm – MON Alarm – TUE Alarm – WED Alarm – THU Alarm – FRI Alarm – SAT Alarm – SUN	Sets up the daily schedule for the High Temperature Alarm Disable. To disable the High Temperature alarm during certain time periods: 1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "**Setback**," for the desired day of the week. Then press **[SET]**. 2. Set the start of the alarm disable time by using the up and down arrow keys to adjust the hour. Press **[SET]** to move to the minutes, and use the up and down arrow keys to adjust. When you are finished, press **[SET]** to move to the end time. 3. Set the end of the alarm disable time by using the up and down arrow keys to adjust the hour. Press **[SET]** to move to the minutes, and use the up and down arrow keys to adjust. When you are finished, press **[SET]** to move to the Alarm OFF setting. 4. The "**Alarm OFF**" setting is disabled by default. To disable the High Temperature alarm during the set time, press the down arrow key to select Enabled. Then press **[SET]** to save all of your setback settings for the day selected. 5. Repeat the above steps to set the Alarm Disable schedule for another day.
Set Password	Sets a 4 digit passcode that prevents settings form being changed. Set to 0000 to disable.
View All Settings	Enables or Disables the display of normally hidden configuration settings. These are settings that are used to initially configure the system.

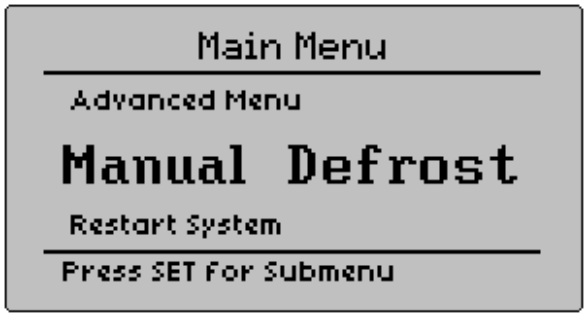
Manual Defrost Menu

The Defrost Menu allows you to start or stop a defrost cycle. To start a defrost:

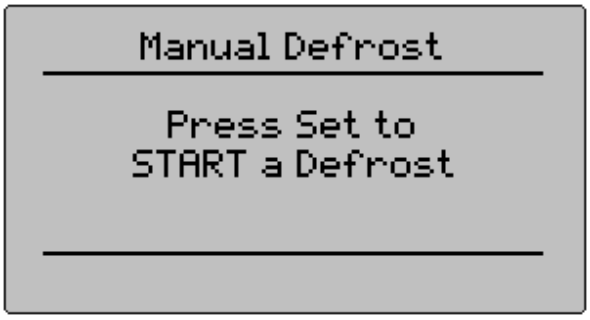
1. Press **[MENU]**. The **Setup Menu** displays by default. The active menu in the list displays in large letters in the center of the screen.



2. Press the down arrow key until the **Defrost Menu** appears in large letters.



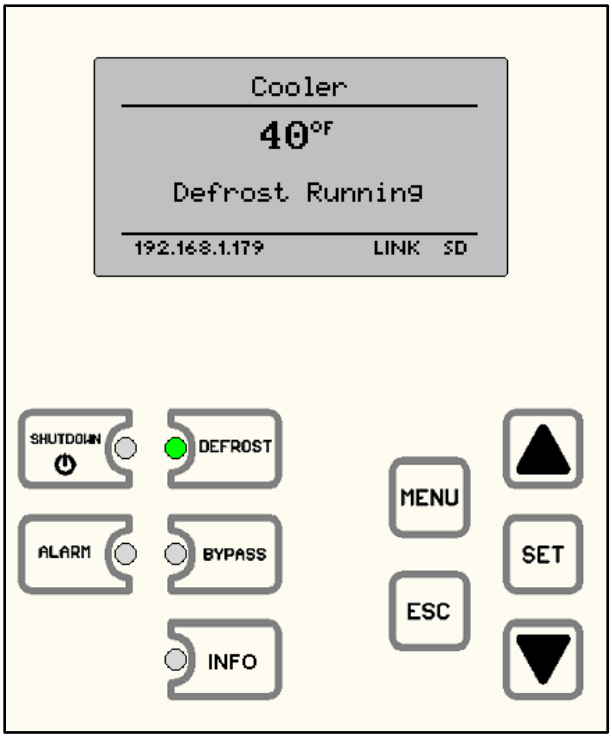
3. Press **[SET]** to display the **Defrost Menu**.



4. Press **[SET]** again to start a defrost. The message below displays:

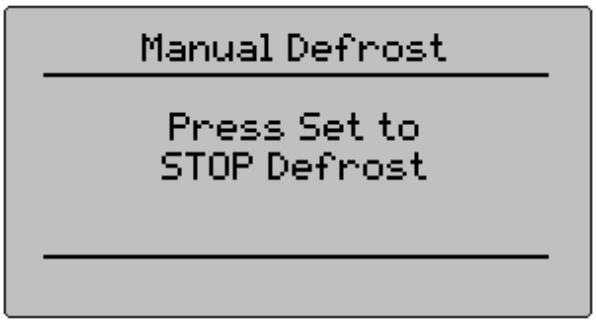
After the defrost starts, the LED at the left of the DEFROST button illuminates.

The main screen displays a "Defrost Running" message. This message continues displaying and the LED at the left of the DEFROST button remains illuminated until the defrost cycle ends.

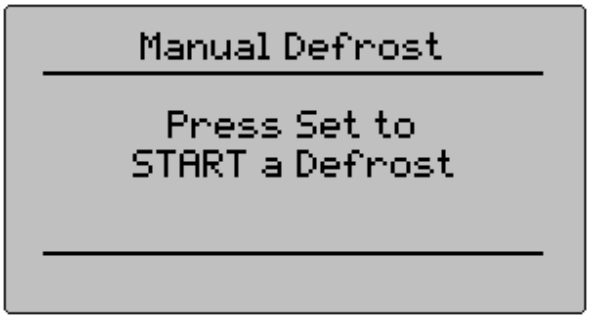


To end a defrost:

1. Press the **DEFROST** button. The following message displays:



2. Press **[SET]**. The following two messages display in order:

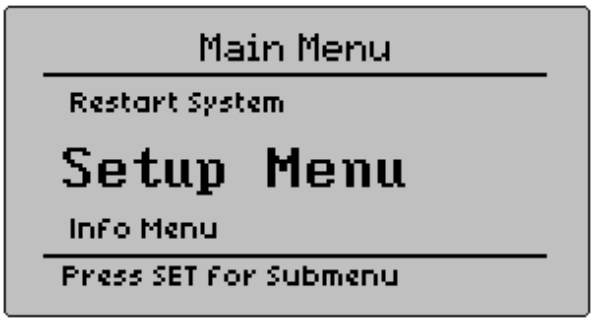


3. To exit the Defrost Menu, press **[ESC]**, or just wait a minute, and the controller will return to the normal display.

Restart System Menu

To access the settings in the Restart System Menu:

1. Press **[MENU]**. The **Setup Menu** displays by default. The active menu in the list displays in large letters in the center of the screen.



2. Press the down arrow key until the **Restart System Menu** appears in large letters.

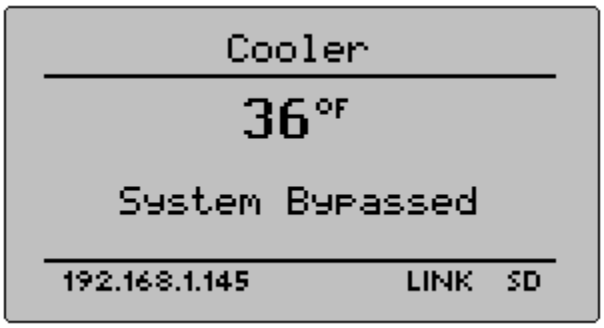
3. Press **[SET]** to restart the system. The following message then displays:

4. Press **[SET]** again to shut down the system. The message below displays:

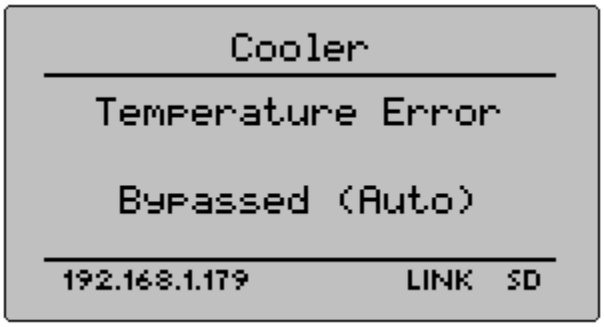
5. The above message displays for a few seconds, and then the system restarts automatically.

Bypass

The CCS2 has a bypass mode, which switches back control to the original thermostat and (whenever possible) defrost clock. This is useful during a controller malfunction or when the cooler is serviced by someone unfamiliar with the controller. The controller also automatically goes into bypass mode if power is removed from the controller or when the controller detects a malfunction (i.e., out-of-range temperature readings from a shorted or loose sensor wire). Bypass mode is controlled by the BYPASS button or an optional bypass switch. When the controller is in bypass mode, the LED next to the BYPASS button is lit and the display indicates that the controller is in bypass mode.



If the controller bypasses itself because of a sensor failure, the system will not go into run mode until the sensor is fixed.



Other Bypass messages that can appear are:

`"Bypassed (IO)"` – The output drivers reset. The message should clear after a few seconds.
`"Bypassed (Reboot)"` – Several quick reboots have occurred and the controller is delaying going into run mode at startup to prevent the short cycling of equipment.
`"Bypassed (CFG Err)"` – The controller started with the settings set to defaults.
`"Bypassed (Timed)"` – A Timed Door Bypass or Timed Occupancy Bypass is active.

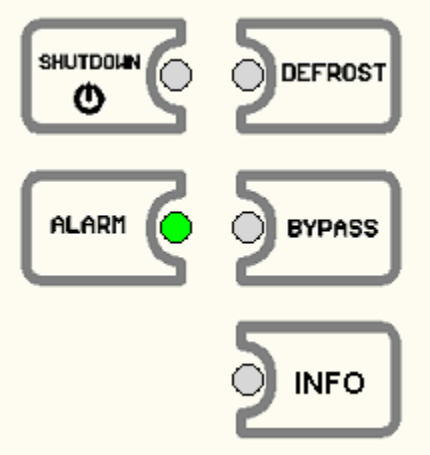
Note: An optional bypass switch can be installed.

The Economizer System

The economizer is allowed to operate when the outside temperature is at least 3° F below the cooler's set point. However, depending on the dynamics of the system, the economizer may not be able to remove all of the BTUs from the cooler by itself, and the compressor will only come on when needed to assist the free-cooling device. As the outside temperature falls, the set point for allowing the mechanical cooling to operate raises automatically to prevent the compressor from running when the economizer should be capable of maintaining the set temperature.

The Alarm System

During an alarm condition, the strobe light flashes, the screen displays the problem, and the LED next to the ALARM button on the CCS2 keypad flashes quickly. The display backlight can be enabled to flash during an alarm, if desired. To silence the alarm, press the ALARM button. During a silenced alarm, the alarm LED is illuminated.



If the alarm condition persists, the strobe light will start blinking again in 1 hour. If the alarm condition continues, the alarm activates every 24 hours.

The alarm system is currently set to signal an alarm under these conditions when configured to auto:

- If the temperature of the cooler is more than 5 degrees plus the differential above the set point for more than 45 minutes (except during defrost or when the cooler shutdown button was pressed).
- If the alarm is configured for NC operation, when the controller is unplugged or loses power, the strobe light will flash. This indicates that the controller is offline (in bypass mode). While in bypass mode, the back-up system takes control, but the back-up defrost clock may have been disabled. If the cooler is in bypass mode for more than a few hours, the defrost clock should be enabled by setting pins to schedule defrosts.
- If a temperature sensor fails: The purpose of this alarm is to alert someone that there is a problem. If the cooler sensor fails, the problem may not be apparent immediately, because the

controller automatically bypasses itself so that the original thermostat (back up) regulates the temperature. This alarm flashes only during normal business hours to inform you of the problem.

Cooler Shutdown

The cooler can be shut down while it is being loaded, or the door is open. A shutdown button is usually located next to the cooler door. In addition, a shutdown button is located on the front panel of the CCS2 unit, and an LED is located at the right of this button. Pressing either of these buttons starts or ends a timed shutdown. The LED is lit when the cooler is in a timed shutdown. If the timed shutdown is starting or ending, the light flashes. If the cooler cannot be shut down at the moment, such as when it is in bypass mode, the light flashes quickly.

The default shutdown time is 20 minutes. After 20 minutes have elapsed, the cooler automatically restarts, and you can press the shutdown button again to shut down the cooler for an additional 20 minutes. After 40 minutes, the cooler must run for 30 minutes before it can be shut down again. The display shows how many minutes are left before the cooler comes on again. While the cooler is in the shutdown state, you can press either shutdown button at any time to return the cooler to normal operation.

Novelty Shutoff Option for Free-Standing Coolers

With this option, you can turn off any number of free-standing display coolers on a seven-day schedule. The time schedule is programmed in the Setup Menu, where you can set up the daily schedule for the setback for the cooler's temperature and the night shutoff. The setback is the temperature setback of the cooler being controlled, and the Novelty Shutoff option turns off standalone coolers at night.

To set up the setback schedule:

1. In the **Setup Menu**, press the down arrow repeatedly until the display reads, "Setback," for the desired day of the week. Then press **[SET]**.

2. Set the store's close time (setback start time) by using the up and down arrow keys to adjust the hour. Press **[SET]** to move to the minutes, and use the up and down arrow keys to adjust. When you are finished, press **[SET]** to move to the setback end time, or press **[Menu]** to move to the previous item.

3. Set the store's open time (setback end time) by using the up and down arrow keys to adjust the hour. Press **[SET]** to move to the minutes, and use the up and down arrow keys to adjust. When you are finished, press **[SET]** to move to the **N.S.** setting, or press **[Menu]** to move to the previous item.

4. The Setback setting is disabled by default. To retain this setting, press **[SET]** to move to the next setting. Otherwise, to disable setback, press the down arrow key to select **Disabled**. Then press **[SET]** to move to the **Shutoff** setting, or press **[Menu]** to move to the previous item.

5. The Novelty Shutoff (N.S.) setting is disabled by default. To retain this setting, press **[SET]** to move to the next setting. Otherwise, to enable the Novelty Shutoff, press the down arrow key to select **Enabled**. Then press **[SET]** to save your change, or press **[Menu]** to move to the previous item.

6. When you are finished, press **[SET]** to save all of your setback settings for the day selected.

7. Repeat the above steps to set the setback schedule for another day.

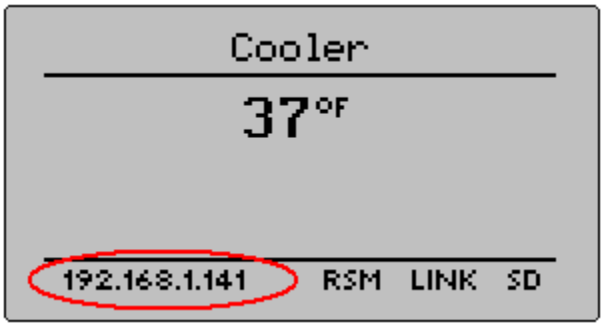
Connectivity

Log File Downloads

While the controller is operating, it records temperature and runtime data in binary format. This data can be retrieved by downloading it to another computer through a FTP client, or copying the data directly from the microSD Card. The log files are downloaded as binary files, which can be converted to a text file by a conversion program that is run on a PC. The converted file can then be imported into spreadsheet programs for analysis and graphing. See the "CCS2 HowToDownload" document for more information.

Internal Web Server

An internal Web Server can be used to view operating information and change settings. To access the Web Server, enter the IP address shown in the lower left hand corner of the display into a Web Browser.



ModbusTCP Server

An internal ModbusTCP server can be used to connect the CCS2 to a building automation system. Please call NRM for more information.

National Resource Management, Inc.
Tel: (800) 377-5439, ext. 1
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Setup and Test Instructions

Tools Needed for Startup and Post Inspections

- Non-contact A/C voltage probe
- Accurate fast-response temperature probe
- Flat-head screwdriver (medium-size tip)
- Flashlight
- Ladder
- Post-Installation Checklist and Customer Warranty Form
- Operations manual for the controller

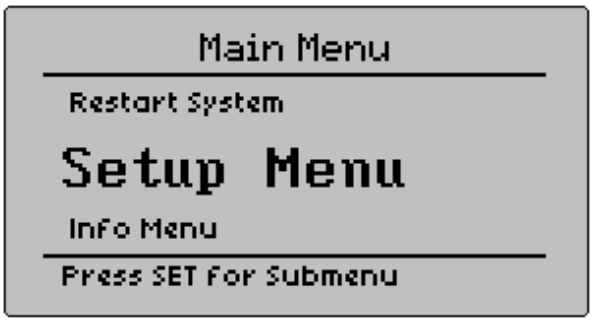
Using the Info Display

The purpose of info display is to give you a quick view of all cooler temperatures and equipment states in real time. This information saves time at startup and helps diagnose problems with the refrigeration equipment.

You can access the Info Menu in two ways: by pressing the **[MENU]** key or by pressing the **[INFO]** key.

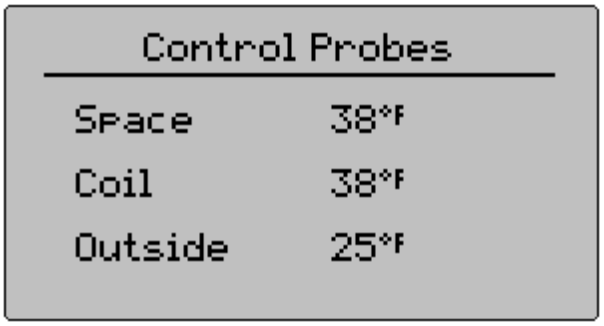
To access the Info Menu through the **[MENU]** key:

1. Press **[MENU]**. The **Setup Menu** displays by default. The active menu in the list displays in large letters in the center of the screen.



2. Press the down arrow key until the **Info Menu** appears in large letters.

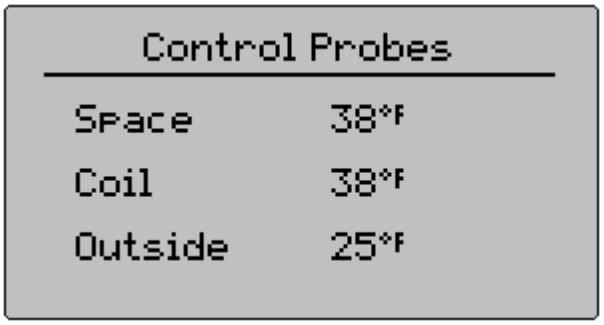
3. Press **[SET]**. The **Control Probes** screen displays.



4. Press the up and down arrow keys scroll through the setting screens.

To view settings in the Info Menu through the **[INFO]** key:

1. Press **[INFO]**. The **Control Probes** screen displays.



2. Press the up or down arrow keys to scroll through the screens.

To exit the Info Menu from either location, press **[ESC]**, or just wait a minute, and the controller will return to normal operation.

Changing the Set Point

1. Press the **[Menu]**.
2. Press **[SET]** to select the **Setup Menu**.
3. Press the down arrow **[▼]** four times until the screen displays **Setpoint**.
4. Press **[SET]** to display the current setpoint.
5. Adjust the setpoint by the up arrow and down arrow keys **[▲]**, **[▼]** to the desired temperature.
6. Press **[SET]** to save your changes.

   Tip: Pressing the [**ESC**] key cancels any changes. To cancel changes, however, you must press [**ESC**] before pressing [**SET**]. Otherwise, your changes will be saved.

Post-Installation Inspection Checklist

After you have installed the controller system, review the following checklist and follow the test procedure to make sure all systems are functioning properly.

- ☐ Verify that the controller is in a safe location, away from potential abuse.
- ☐ Check the wiring to ensure that the connections are secure.
- ☐ Verify that the sensors are in the proper locations. Relocate if necessary.
- ☐ Make sure that any cooler penetrations are sealed to prevent condensation from entering through conduits or holes for low-voltage wiring.
- ☐ Verify that the night shutoff cord is in a safe location. Relocate if necessary.
- ☐ Test the controller system using the test procedure outlined in the installation manual.
- ☐ Note any special wiring or control issues that may be useful during future service calls and leave this information with the controller information packet. Important information would be the location of door heater relays that may be hidden from plain sight or special wiring schematics for controlling the cooler. Note any unusual operation of the compressor and evaporator fans, or other malfunctions observed during installation. (Report this to the owner/manager.)
- ☐ Make sure that the Economizer filter is installed correctly.

Contacting Technical Support

If you have questions or need help with installation, call National Resource Management at:

(800) 377-5439, ext. 1

or via email at **service@nrminc.com**

Alarm Event Record

Whenever there is an alarm, the controller displays the reason. This information should be recorded in the table below, along with the time and date of each event, the action taken, and the results.

Date	Time	Alarm Message	Action Taken and Results

Two-Year Limited Warranty

WARRANTY

The warranty statement contained herein supersedes all warranty statements dated prior to July 1, 2000.

WARRANTY: NRM warrants to the End User that Equipment manufactured by NRM shall be free from defects in material and workmanship for a period of two (2) years ("Warranty Period"), commencing on the first day such Equipment is installed and successfully tested ("Commissioned") at End User's place of business (the "Installation Location"). This warranty does not apply to the alarm strobe light, or to transformers or relays ("Non-NRM Parts"); Non-NRM Parts are warranted for 90 days. For service requested of NRM apart from this warranty, for travel, transportation, and labor at Installation Location, charges shall be billed to End User at NRM's standard hourly rates, plus costs and expenses. NRM salesmen, distributors, representatives, or agents may have made oral statements about the equipment described herein. Such statements do not constitute warranties, shall not be relied on by the End User and are not part of any contract of sale. The terms of this warranty replace and supersede all such prior statements. **EXCEPT AS SET FORTH ABOVE, NRM MAKES NO WARRANTY, EXPRESS OR IMPLIED, TO END USER OR ANY OTHER PERSON OR ENTITY, AS TO THE EQUIPMENT'S FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, DESIGN, CONDITION, OR ANY OTHER ASPECT OF THE EQUIPMENT, ITS COMPONENTS, OR NRM'S WORKMANSHIP AND MATERIALS; END USER TAKES AND ACCEPTS THE EQUIPMENT AS IS.** By reason of your acceptance of delivery of the Equipment, You agree that the Equipment is in proper operating order, conforms to your specifications, and that You have accepted the Equipment in its condition on delivery as the Equipment described herein.

LIMITATIONS OF REMEDIES: Your remedies for damages due to breach of any warranty set forth herein shall be limited to repair or replacement of non-conforming goods or parts within the Warranty Period. The parties agree that the End User's sole and exclusive remedy against NRM shall be for the repair or replacement of defective parts or goods as provided herein. End User agrees that no other remedy, including but not limited to incidental or consequential damages for lost profits, lost sales, injury to persons or property, or any other incidental or consequential loss, shall be available to it. NRM further disclaims liability for any loss, damage or injury to any person as a result of any defects, latent or otherwise, in the Equipment whether arising from NRM's negligence, application of the law of strict liability, or breach of warranty.

REQUIRED PROCEDURE - YOU MUST FIRST CONTACT DEALER/INSTALLER AND REQUEST TELEPHONIC DIAGNOSTIC ASSISTANCE FROM NRM:

As a condition to NRM's obligations under this warranty, when you suspect a problem with the Equipment, you must initially contact and report the problem to the dealer who installed the Equipment. If the dealer/installer cannot or will not correct the problem, you or your agent (which may or may not be the dealer/installer) must then telephone NRM Diagnostic Assistance (number below) from the Installation Location (1) to report and describe to NRM the nature of the suspected problem, (2) to attempt diagnostic repair of the problem via telephone with NRM's assistance, and (3) if appropriate in NRM's sole discretion, to obtain a Return Authorization ("RA") number from NRM. All Equipment returned to NRM MUST be accompanied by an RA number assigned by NRM in order to receive warranty service, repair, or replacement. Additionally, every new and re-manufactured NRM component has affixed to it a 4-digit code, which is used in part to determine and validate the warranty. Any NRM product returned for service without a code-or with a code which has been altered for any reason will be considered out of warranty.

Many of the components that we receive for service are found to have no problem. Please emphasize to your service technicians, that they must call our service department for diagnostic assistance from the **Installation Location**. When it is necessary to send an item to NRM for service, a brief description of the symptoms should be included with the unit; this can save a considerable amount of troubleshooting time.

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REPAIR/REPLACEMENT POLICY: During the Warranty Period, defective NRM Equipment for which NRM has assigned an RA number may be returned, freight prepaid, to NRM. NRM will repair or replace at no charge, and return, freight prepaid, such NRM Equipment (or components thereof) that are judged to be defective in materials or workmanship in accordance with the terms of this warranty. A repair under warranty does not extend or renew the original Warranty Period. Our policy is to repair and return warranted Equipment, or to exchange for re-manufactured Equipment or components. At NRM's sole discretion, NRM may replace Equipment returned under this warranty with re-manufactured Equipment or components. We do not send out new Equipment as service repair/replacement of used Equipment. We will in some cases agree to ship re-manufactured replacement components with the understanding that the defective Equipment it is replacing will be returned for core credit at a later date. You will be billed for the full price of the replacement Equipment at the time of shipping and a core credit will be issued when the old Equipment is returned to NRM. In such cases, the **defective Equipment must be returned within 60 days; otherwise, no credit will be given**. Any request for advance shipment of a warranty exchange component must be accompanied by the date code on the defective unit to be returned for credit. If the replacement component that we ship has a new 24-month warranty, we will issue credit only for the unused portion of the warranty on the component returned to us. Advance shipment of a warranty exchange item may result in a cosmetic charge to cover the cost of cleaning, replacing labels, painting, etc.

WARRANTY VOID: This warranty is automatically void and of no effect in the event of defect, damage, injury or failure of the Equipment due to any of the following causes: Acts of God; improper installation; failure to maintain the equipment in accordance with NRM instructions; use of the equipment in any manner other than the use for which NRM has designed and intended the Equipment; attempt to install, repair, replace, move, or tamper with the Equipment by any person other than a NRM authorized employee or agent; modifications or changes to the equipment of any kind or nature; excessive or improper usage; and electrical burnouts or surges. This warranty does not apply to parts or Equipment which have been damaged by accident, lightning, physical abuse, mis-wiring, misapplication, or improper operation. NRM strongly recommends that End User have a qualified professional install an electrical surge suppressor on all electrical service and all circuits to be connected to or with the Equipment.

This writing contains the final expression of the parties' agreement concerning warranties and is a complete and exclusive statement of the terms of the agreement. Parol evidence shall not be admissible to supplement, modify, or add to the terms hereof for any purpose.

INSTRUCTIONS: End User or installing or servicing contractor/dealer:

When replacing a National Resource Management product under warranty, you should rely on your Distributor for prompt and efficient replacement service. If you have obtained an RA number from NRM and you are returning in-warranty product to National Resource Management, send the product, freight prepaid (NRM will not accept COD shipments) to:

National Resource Management, Inc. 800 377-5439 Fax: 844 828-8877
480 Neponset Street, Bldg. 2
Canton, MA 02021

It is very important that you include your name, return address phone number and a description of the problem. If the product date code is older 30 months, include an invoice showing date of sale or installation within the warranty period. NRM will inspect, repair, or replace the product and ship it back freight prepaid. Products that exhibit evidence of abuse, misuse, field damage (water/fire damage, line voltage applied to low voltage terminals, missing parts, etc.), or that have been installed for more than the warranty period are not eligible for warranty repair or replacement.

RETURN MATERIAL FORM

Bill To: _____ Ship To: _____
This form must accompany each individual product being returned - Failure to submit this form with any item will result in immediate return to sender.

****

Product Information:

Part Number or Part Description: _____

Serial Number: _____ (if applicable)

Disposition information (check one only)

___	in warranty return or previously replaced item	-	item will not be returned to sender - Credit will be issued on invoice of prior placement shipment less freight.
___	in warranty replacement	-	item will be repaired or replaced and returned to address listed above - No charges will apply.
___	Non - warranty repair	-	item will be repaired and returned to address listed above - Invoice will be issued for the repair cost plus freight.

NOTICE: Non warranty items which are damaged beyond repair, or those which the repair cost will exceed the cost of a new item will be discarded. Notification of inability to repair will be forwarded for your records.

CUSTOMER REMARKS:

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