Robertshaw

9851i 9865i 9870i

DELUXE PROGRAMMABLE THERMOSTATS



User's Manual

Menu Driven Display

Integrated Humidity & Dehumidity Control

24 VAC with Worry-Free Memory Storage

English and Spanish Menus





110-1112

Two Year Warranty

IMPORTANT SAFETY INFORMATION

WARNING:

- Always turn off power at the main power source by unscrewing fuse or switching circuit breaker to the off position before installing, removing, or cleaning this thermostat.
- Read all of the information in this manual before programming this thermostat.
- This is a 24V AC low-voltage thermostat. Do not install on voltages higher than 30V AC.
- All wiring must conform to local and national building and electrical codes and ordinances.
- Do not short (jumper) across terminals on the gas valve or at the system control to test installation. This will damage the thermostat and void the warranty.
- Do not connect ground to any terminal in this unit.
- This thermostat is equipped with automatic compressor protection to prevent potential damage due to short cycling or extended power outages. The short cycle protection provides a 5-minute delay between heating or cooling cycles to prevent the compressor from being damaged.
- Do not switch system to cool if the temperature is below 50°F (10°C). This can damage the cooling system and may cause personal injury.
- Use this thermostat only as described in this manual.

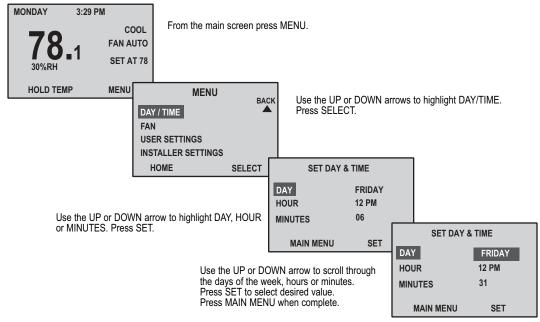
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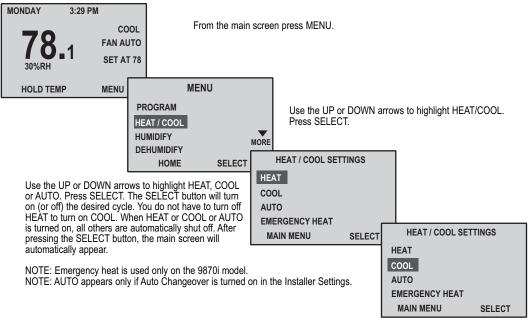
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How do I change the time of day and day of the week?

How do I turn on the heating or cooling cycles?



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What do the LED's below the display mean?

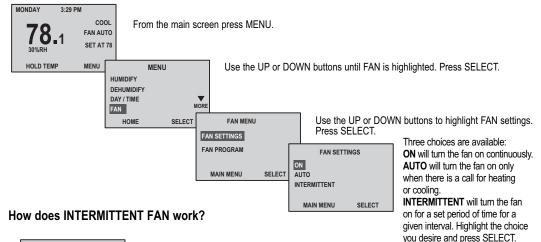
The LED's indicate when the HVAC system is activated. With a call for heating or cooling, the HEAT or COOL LED will be illuminated.

The AUX LED indicates the second stage of heating or cooling.

The CHECK LED is used only on the 9870i. It indicates the heat pump should be serviced by a qualified technician.

The EMER LED indicates emergency heat is turned on.

How do I cycle the fan?



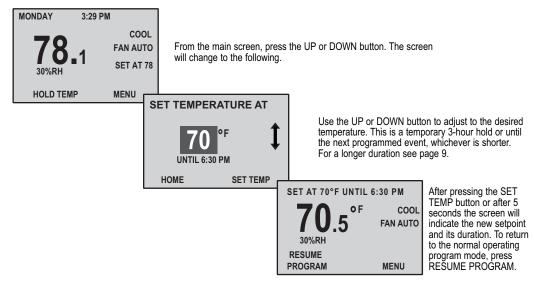
INTERMITTENT FAN							
ON	TIME	5 MIN					
OFF	TIME	20 MIN					
FAN MENU SELECT							

INTERMITTENT will turn the fan on for a set period of time for a given interval.

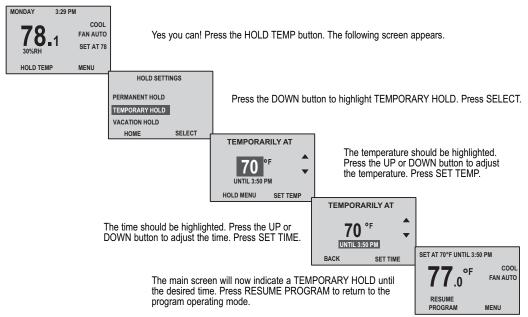
The thermostat will cycle the fan on for the set ON cycle. The fan will remain off for the set OFF cycle.

If the HVAC system runs for a longer period than the ON cycle, the OFF cycle will start counting over again when the system shuts off.

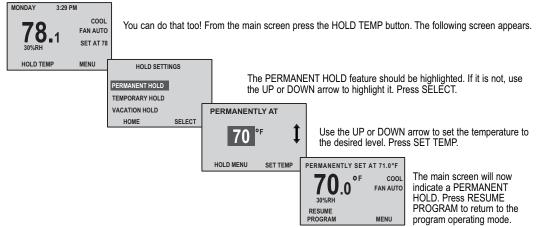
How do I temporarily change the temperature?



Can I set a temporary adjustment for longer than 3 hours?



Can I set the thermostat to hold one temperature indefinitely?

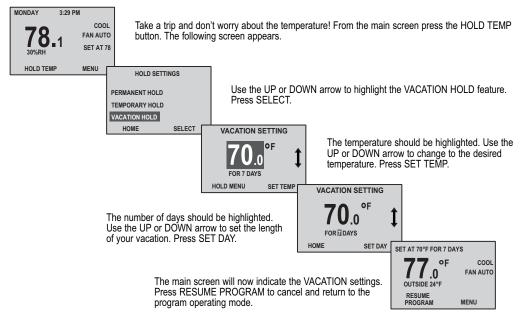


How do I return to the Program Mode after being in HOLD?

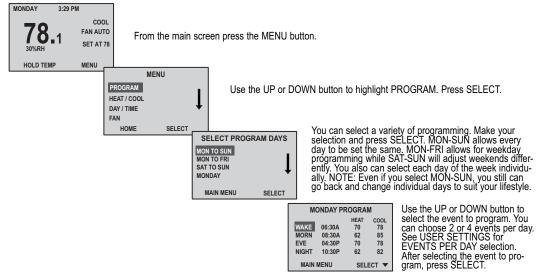


Simply press the RESUME PROGRAM button. This works from all HOLD screens.

How do I set the Vacation Mode?



How do I program my thermostat?



Please go to the next page for a continued discussion on "How to program your thermostat."

How do I program my thermostat? (continued)

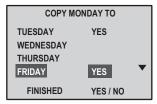
WAKE MORN EVE NIGHT BAC	08:30A 04:30P 10:30P	HEAT 70 62 70 62	A COOL 78 85 78 82 ME		The tim Press \$			event s	hould b	e highl	ighted.	Use the	UP or D	OWN I	key to c	hange the time.
				WAKE MORN EVE NIGHT	06:30A 08:30A 04:30P 10:30P	HEAT 70 62 70 62	COOL 78 85 78 82									d. Use the UP or ET HEAT.
			l	BAC	K	SET H	EAT 🔻	мс	NDAY PR	OGRA	N	1				
								WAKE MORN EVE NIGHT BAC	06:30A 08:30A 04:30P 10:30P K	HEAT 70 62 70 62 52 SET C	COOL 78 85 78 82 OOL ▼	be h to ch	ighlighte	ed. Üse	the UF	e first event will P or DOWN key perature. Press
]		000044		
The second event will now be highlighted. Use the UP or DOWN key to change events if desired. When the desired event is highlighted, press SELECT. Continue programming until all events are programmed.																

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How do I copy one day's program to another day?

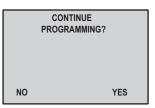
MONDAY PROGRAM						
MORN	08:30A	HEAT 62	COOL 85			
EVE	04:30P	70	78			
NIGHT COPY	10:30P	62	82			
MAIN	MENU	SEL	ECT			

In the program screen, press the DOWN button until COPY is highlighted. Press SELECT.



Use the UP or DOWN button to highlight the day to copy to. Press YES / NO. A YES will appear next to the day. Do this for each day to which that program is to be copied. Press FINISHED when complete.

After pressing FINISHED, you can choose to program other days or exit. YES will take you back to the Select Program Days screen. NO will exit you to the main screen.



What is an event?

An event is a programming period. This could be the period in the morning when you are preparing for work or school. It could be the period when no one is at home. It could be the period when the household is asleep at night.

The time for an event is selected based on when you want the event to occur. For example, if you wake up at 6:30 AM, set the first event for 6:30 AM. The thermostat will automatically make sure that your home is at the desired temperature selected for that event by the time you wake.

This thermostat can be set for 2 or 4 events.

Two events should be selected if someone is home all day thereby requiring a constant temperature during the day and a different temperature at night.

Four events are the most common for working households. Event 1 (WAKE) is the morning period. Event 2 (DAY) is when everybody has left for school or work. Event 3 (EVE) is the return period, coming home from school or work. Event 4 (NIGHT) is the night period when everybody is asleep.

How do I know what program is right for me?

The thermostat is factory set with the US EPA ENERGYSTAR[®] recommended times and temperatures for optimal energy savings. You can change these to suit your lifestyle.

The best rule is to examine your schedule and set the times and temperatures that best fit. This thermostat is so versatile, you can easily change temperatures or programs at a whim.

How do I set the Humidity Levels?

The humidity level is adjustable from 15% to 45% RH in the manual mode. From the main screen press MENU.

Use the UP or DOWN arrow to highlight HUMIDIFY. Press SELECT. Use the UP or DOWN arrow to highlight HUMIDIFY. Press SELECT. Use the UP and DOWN arrow to adjust the humidity level. Press SELECT to set.

What is the difference between Manual and Auto modes?

You can choose to set the 98xxi series in either Auto or Manual mode. You also have a choice for independent operation or only with a call for heating. The difference in the modes are:

MANUAL WITH HEATING - In this mode, you set the desired humidity level. The thermostat will automatically turn on the humidifier to add moisture when the system turns on to heat the home.

MANUAL INDEPENDENT - In this mode, the thermostat will turn on the fan and humidifier when the humidity level falls below the desired setpoint.

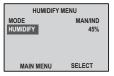
AUTO WITH HEATING - In this mode, the thermostat compares the outdoor temperature with the desired indoor temperature and automatically turns on the humidifier to add moisture when the system turns on to heat the home. (Outdoor sensor 9025i required)

AUTO INDEPENDENT - In this mode, the thermostat compares the outdoor temperature with the desired indoor temperature and automatically turns on the humidifier and fan to add humidity to the air. (Outdoor sensor 9025i required)

What happens if the mode is set to OFF?

The humidifier is shut off. There will be no control of humidity levels in the home.









How is dehumidification achieved?

If the humidity increases above the desired levels, the thermostat will turn on the air conditioner which will allow moisture to be removed from the air. As long as the humidity levels within the home are within the desired range, the D terminal will be energized (constant 24v output). If the humidity increases, the air conditioner will turn on and the D terminal will turn off. A certified HVAC service technician can evaluate your HVAC system to determine if the D terminal output can be used to control the fan speed for more effective humidity control.

How do I set the Dehumidify level?

The humidity level is adjustable from 45% to 60% RH. From the main screen press MENU.

Use the UP or DOWN arrow to highlight DEHUMIDIFY. Press SELECT. Use the UP or DOWN arrow to highlight DEHUMIDIFY. Press SELECT. Use the UP or DOWN arrow to adjust the humidity level. Press SELECT to set.

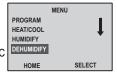
What is the difference between Manual With Cooling and Manual Independent?

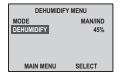
MANUAL WITH COOLING - If the thermostat senses a need to dehumidify the room, it will wait until the temperature has increased enough to turn on the air conditioner.

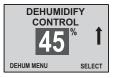
MANUAL INDEPENDENT - The thermostat will automatically turn on the air conditioner when the humidity level rises above the desired setpoint.

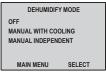
Why does the temperature go below the setpoint in Manual Independent mode?

The humidity levels are probably too high in the home. In the MANUAL INDEPENDENT dehumidification mode, the thermostat will turn on the air conditioner if the humidity levels are too high. This may result in the room temperature falling below the setpoint. The thermostat has a 1.5°F "overcool" limit to minimize the amount of cooling allowed.

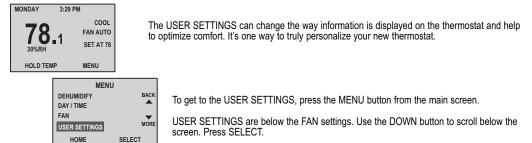








What are the USER settings?

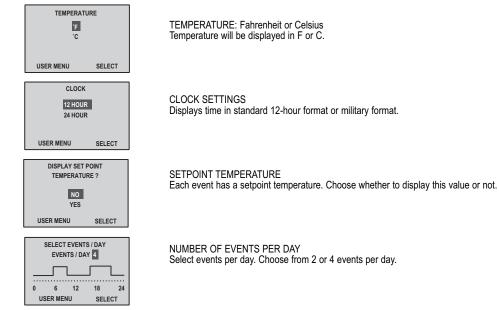


Choose the setting you would like to change. When the SETTING is highlighted, press SELECT. There are 12 USER SETTINGS in all as listed below. For detailed information on each user setting, please go to the next page.

USER SETTIN	GS MENU	USER SETTING	S MENU 🔺	USER SET	TINGS MENU
FORC	'F	1ST STAGE DIFF	1'F	HEATING LIMIT	78'F
12 OR 24hr	12	2ND STAGE DIFF	2°F	LANGUAGE	ENG
SHOW SET TEMP	YES	2ND STAGE DELAY	20	SENSOR SELE	CT L&R
EVENTS / DAY	4	COOLING LIMIT	45°F	SECURITY	OFF
MAIN MENU	SELECT 🔻	MAIN MENU	SELECT 🔻	MAIN MENU	SELECT

Detailed Information on the USER SETTINGS (Or what do these USER SETTINGS do?)

To select a USER SETTING, use the UP or DOWN button to highlight the desired setting. Press SELECT.



More Detailed Information on the USER SETTINGS

DIFFERENTIAL SETTING						
1'F						
2°F						
20 MIN						
USER MENU SELECT						

DIFFERENTIAL SETTINGS

The temperature differential is your comfort level. The differential is the difference from setpoint before your heating or cooling system will turn on. The 9815i and 9820i models also have 2nd stage differential. If the temperature falls below (or above for cooling) the setpoint by the 1st stage differential plus the 2nd stage, the auxiliary heating (or cooling) system will turn on.

The 2nd stage delay is a timed delay before the second stage will turn on if the setpoint has not been achieved within that time frame.



HEATING and COOLING LIMITS

To prevent individuals (probably your kids) from adjusting the thermostat too hot or too cold, you can limit the maximum setting for the heating and cooling modes. This will help you save on energy costs.

SELECT A LANGUAGE								
ENGLISH ESPAÑOL								
USER MENU	SELECT							

LANGUAGE SETTING

This screen allows you to choose the displayed language; English or Spanish.

More Detailed Information on the USER SETTINGS

SENSOR SETTINGS

USE LOCAL SENSOR AVG. LOCAL / REMOTE USE REMOTE SENSOR

USER MENU SELECT

SECURITY ALLOW TEMPERATURE RESTRICT ALL USER MENU SELECT



SENSOR SETTINGS

This screen will appear when a remote indoor sensor (9020i) is connected to the thermostat. USE LOCAL SENSOR will disable the remote sensor and only sense from the thermostat. AVG. LOCAL/REMOTE will take a temperature reading from both the thermostat and the remote sensor and average the two for even temperature control. USE REMOTE SENSOR will disable the sensor in the thermostat and only control from the remote location.

SECURITY SETTINGS

In order to prevent tampering with the program and your desired settings, two levels of security are available. The first will allow only temporary changes to the temperature. It protects all other programmed setpoints. The second will restrict changes to EVERYTHING, including temporary changes to the temperature.

SECURITY CODE

In this screen you enter a four-digit code. Use the UP or DOWN button to change the first value, press SELECT. The second digit will be highlighted. Repeat for all four values. And don't forget your code. If you do, you will have to reset the entire thermostat and that will erase all the schedules you've programmed into the unit.

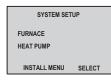
When would I need to change the USER settings?

About the only features you may need to change are the temperature differentials (if you desire additional comfort), and the security settings. All the other settings probably will not need to be changed.

What are the INSTALLER settings?

The INSTALLER SETTINGS are setup during the initial installation. They tell the thermostat how to function with your heating or cooling equipment. The following is a brief overview and discussion of these settings.

INSTALLER SETTINGS			INSTALLER SETTINGS			INSTALLER SETTINGS		
SYSTEM SETUP RESIDUAL COOL	GAS 60		AUTOCHANGEOVER EER	OFF ON		CONTACT INFO SERVICE INT		
LOW BALANCE HIGH BALANCE	45°F 95°F		DEADBAND SECURITY	3°F OFF		REMINDER TEMP OFFSET	RUN 0.0°F	
HOME	SELECT 🔻		HOME	SELECT	▼	MAIN MENU	SELECT	



1ST STAGE HEA	ATING							
GAS / OIL								
ELECTRIC								
INSTALL MENU	SELECT							

SYSTEM SETUP

Choose the system component which the thermostat will control.

1st STAGE HEATING

The 9801i and the 9815i can have a gas/oil or electric first stage heating. Choose the energy source for 1st stage heating.

INSTALLER settings (continued)

AUXILIARY HEAT							
STANDARD - COMP. =ON ADD ON - COMP. =OFF							
INSTALL MENU	SELECT						

RESIDUAL CO	OL
SECONDS DELAY	60
INSTALL MENU	SELECT

BALANCE POINTS		
LOW BALANCE HIGH BALANCE	45 'F 95 'F	
INSTALL MENU	SELECT	



AUXILIARY HEAT

The 9820i can be set to use your 2H/2C heat pump internal auxiliary heating or to use an external add-on source. The add-on feature will be used most often when a single stage heat pump uses a gas or electric furnace as its second stage of heating.

RESIDUAL COOL

In order to get greater efficiency from the cooling system, the fan can be programmed to run for 0 (OFF), 30, 60, 90, or 120 seconds after the air conditioner has shut off.

BALANCE POINTS

This screen will appear only when the optional outdoor sensor 9025i is connected to the thermostat. When this sensor is used with the 9820i, you can set the lower and upper temperatures to disable or enable 2nd stage heat.

AUTO CHANGEOVER

When turned on, the thermostat will switch automatically between heating and cooling to maintain the optimal temperature in your home.

INSTALLER settings (continued)







ENERGY EFFICIENT RECOVERY

When turned on, the thermostat will look ahead up to two hours to determine when to turn on the heating/cooling system in order to reach the desired temperature at the desired time.

DEADBAND SETPOINT Deadband is used with the AUTO CHANGEOVER feature. The deadband is the temperature difference from the setpoint temperature during which the heating or cooling will not be turned on. This is adjustable from 2-8°F (1.0-4°C).

SECURITY CODE Enter a code to prevent changes to the INSTALLER settings.

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INSTALLER settings (continued)

CONTACT INFORMATION		
<u>AIR EXPERTS</u> 1-555-555-1212		
BACK	EDIT	

CONTACT INFORMATION

This allows the servicing HVAC contractor to put their name and phone number into the thermostat to remind you when service may be required.

SERVICE MONITOR MENU		
SERVICE MONITOR 980 FILTER MONITOR 980		
INSTALL MENU	SELECT	

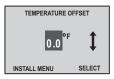
SERVICE MONITOR MENU

Two menus are available, the Service Monitor and the Filter Monitor. Both can be set based on the HVAC system run time or the calendar. See Reminder Interval.

Both the Service Monitor and the Filter Monitor can be set from OFF to 360 days in 30 day increments or OFF to 980 in 20 hour increments.

REMINDER PERIOD RUN TIME CALENDAR TIME

INSTALL MENU SELECT



REMINDER INTERVAL

The Reminder Interval can be set for either HVAC system run time or based on the calendar.

If Run Time is chosen, the service reminder will be set in hours. After the HVAC system has been operating for the selected number of hours, a Service Reminder will be displayed informing you that service is suggested for your system.

If Calendar Time is chosen, the service reminders will be set in days. After the selected number of days has passed, a Service Reminder will be displayed informing you that service is suggested for your system.

TEMPERATURE OFFSET

Even though the thermostat is accurately calibrated before it leaves the factory, you may want to adjust the display to match your old thermostat +/- 3 degrees.

When would I need to change the INSTALLER settings?

NEVER! The INSTALLER SETTINGS are selected based on the type of equipment you have in your home. This feature should be set only by a certified HVAC technician. Changing these settings could result in higher energy costs and may even damage your equipment. You should only change the FILTER MONITOR length should you get a new type of filter.

How does Energy Efficient Recovery[™] (EER[™]) work?

Energy Efficient Recovery[™] is an energy saving feature. During a set back period (or set up in cooling), it allows the thermostat to look ahead to determine when to turn on the heating (cooling) system. During this period, the second stage is locked out to allow the first (and most efficient stage) to bring your home to the desired temperature.

How does my remote indoor sensor work?

The remote indoor sensor (part #9020i) can be used to improve the comfort of your home. When used in conjunction with the local sensor on the thermostat, the two sensors average the sensed temperature and control to that average temperature. You also can use the remote sensor in a stand-alone situation when you want to control the temperature in a remote room but have the thermostat in a secure location.

When would I need a remote indoor sensor?

Large rooms are ideal for remote sensors. Installing a remote sensor across from the thermostat will provide constant comfort throughout the living space.

How does my remote outdoor sensor work?

The remote outdoor sensor (9025i) can be used to aid in the comfort of your home or simply as a sensing device to inquire about outdoor conditions. In most applications, the thermostat will have a display of the temperature sensed by the remote outdoor sensor. With your heat pump system, the remote outdoor sensor can help determine when to turn on the second stage of heating for optimal comfort. The outdoor sensor also allows you to choose AUTO humidity sensing (see page 16) to minimize condensation on your windows.

Where should I install a remote outdoor sensor?

The remote outdoor sensor should be installed on the northern wall of your home, away from direct sunlight or other heat sources that may affect its sensitivity.

Who should I call for additional help?

For additional troubleshooting information, visit our web site at www.about-i-series.com. To talk with a service representative, give us a call at 800-445-8299.

What should I do if my power goes out?

Make sure your family is safe and don't worry about the thermostat. Your thermostat automatically retains the time of day for approximately two hours in the event of a power outage. All other programmed parameters are stored permanently in memory. So, if your power is out for more than two hours, simply reset the clock. See page 5.

How do I reset the thermostat program to factory conditions?

To reset the thermostat to factory conditions, press the UP button and the LEFT button at the same time. Hold for 8 seconds. The time of day will display 12:00 indicating a reset has occurred.

NOTE: This will erase all programming and return the thermostat to the factory conditions including the installer settings. Use this only as a last resort.

How do I know if the heating or cooling is on?

The display of the thermostat will indicate the operating mode, HEAT or COOL. When the temperature in your home decreases or increases, the heating or cooling cycle will come on based on the displayed mode. When the HVAC system is ON, the LEDs along the bottom crease will turn on.

My energy bills are too high. Is there anything I can do?

While we can't do anything about the high cost of energy, we can try to use less energy and thereby lower our heating and cooling costs.

Generally, the best way to do this is to use the EPA ENERGYSTAR® recommended setpoints for heating and cooling.

	ENERGYSTAR [®] Setpoints	
	Winter	Summer
	(Heating)	(Cooling)
Morning	70°F (21°C)	78°F (25°C)
Day	62°F (17°C)	85°F (29°C)
Evening	70°F (21°C)	78°F (25°C)
Night	62°F (17°C)	82°F (28°C)

Another way to contain costs is to cycle the heat pump or air conditioner with moderation. The thermostat controls the cycle rate based on temperature differentials. By maintaining a reasonable differential setpoint, 1°F for 1st stage and 2°F for 2nd stage, your furnace will cycle with moderation.

Finally, using the remote outdoor sensor coupled with the balance point feature (see INSTALLER SETTINGS, page 23) will allow your furnace to cycle to the most efficient stage for your heating or cooling needs.

TWO YEAR LIMITED WARRANTY

The manufacturer warrants to the original contractor installer or to the original consumer user, each new Robertshaw thermostat to be free from defects in materials and workmanship under normal use and service for a period of two (2) years from the date of purchase.

This warranty does not cover batteries (if so equipped), damage caused by batteries, damage resulting from improper installation, alteration, misuse or abuse of the thermostat occurring after the date of purchase.

The manufacturer agrees to repair or replace at its option any thermostat under warranty provided it is returned within the warranty period, postage prepaid, with proof of the date of purchase. Cost of thermostat removal or reinstallation is not the responsibility of the manufacturer.

Repair or replacement as provided under this warranty is the exclusive remedy of the consumer. This warranty and our liability does not apply to merchandise that has been damaged caused by misuse, neglect, mishandling, alterations, improper installation, or use in a way other than in accordance with the recommendations and instructions of the manufacturer. Except to the extent prohibited by applicable law, any implied warranty of merchantability or fitness for a particular purpose on this product is limited to the duration of this warranty.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Instructions for return:

Pack the thermostat carefully in a well-padded carton. Be sure to include a note describing, in detail, what is wrong with the product. Return, postage prepaid, to: **Climate Controls Americas** 515 South Promenade Ave., Corona, CA 91719, Attn: Warranty Department

NOTES

INVENSYS. Climate Controls Americas

515 Promenade Avenue Corona CA 92879-1736 United States of America Made in Mexico Patents Pending www.about-i-series.com