

PROGRAMMABLE THERMOSTAT

Owner's Manual

THIS MANUAL IS DESIGNED FOR MODELS
TH-3001, TH-3001H, TH-3012, TH-3032-1 AND TH-3033-2

THE ECONOMIZER II by

 **CALIFORNIA
ECONOMIZER**
The Zoning Systems Company

One Year Limited Warranty

Your ECONOMIZER II THERMOSTAT is warranted to be free from defects in material or workmanship for one year from date of original purchase.

This warranty excludes and does not cover defects, malfunctions or failures of your ECONOMIZER II THERMOSTAT which were caused by repairs by persons not authorized by us, mishandling, improper installation, modifications or damage to the ECONOMIZER II THERMOSTAT while in your possession, or unreasonable use, including failure to provide reasonable and necessary maintenance. This warranty neither applies to batteries nor to deterioration of, nor damage to the product caused by the use of faulty batteries.

At its option, CALIFORNIA ECONOMIZER, INC. may elect to replace the entire unit, rather than repair it.

During the warranty period, return the THERMOSTAT, securely packed and insured with charges prepaid (C.O.D. packages will not be accepted). Enclose a check or money order, made payable to CALIFORNIA ECONOMIZER, INC. to cover the cost of shipping and handling, accompanied by proof of purchase in the form of a dated sales receipt.

Send to:

CALIFORNIA ECONOMIZER, INC.
5622 Engineer Dr. Huntington Beach, CA 92649
Tel: (714) 898-9963

IN NO EVENT SHALL CALIFORNIA ECONOMIZER, INC. BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES RESULTING FROM INSTALLATION OF THE ECONOMIZER II THERMOSTAT.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

Congratulations

on your purchase of The Economizer II.
California Economizer, producer of many zone control systems and thermostats,
now offers you our energy-saving computerized programmable thermostat.

Economizer II is using the latest design in advance micro-computer technology.
Not only does it offer you maximum energy saving, it is also simple to use.

According to the Department of Energy, lowering the temperature setting
10°F (6°C) for two 8 hour periods a day in the winter can reduce your home
heating bills by up to 35%. Likewise, considerable energy savings can be achieved
by raising your air conditioner setting 5°F (3°C) in the summer.

This Owner's manual has been specially written to help you easily program your
Economizer II with its step by step diagrams and instructions.

We hope you enjoy greatly enhanced comfort and energy savings with your
products from California Economizer, The Zoning Systems Company.

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Introduction

1. Please take the time to read through this booklet before you begin to install or operate your **ECONOMIZER II**.
2. The **ECONOMIZER II** has been designed for simple, quick installation using just a few tools. No disassembly of the unit is needed.
3. The **ECONOMIZER II** will directly replace most common residential thermostats and is designed to work with gas, oil, hot water, or electric heating and air conditioning systems using 24 volt controls and relay current between 0.1 and 1.5 Amps. The following Models of the series of **ECONOMIZER II** operate on 24 volt controls. Please check with your dealer which model is suitable for your system:

TH-3001, TH-3033-2, TH-3032-1, TH-3012, TH-3001H

4. This unit cannot be directly used on 240 volt control systems, millivolt systems, or 240 volt electric heaters. The **ECONOMIZER II** can control some of these systems by installing an isolation relay or a 24 volt transformer. For 240 volt control systems, the Model TH-3021 should be used. Please check with your dealer for details.

CAUTION: If the old thermostat is mounted on a junction box (a box similar to one behind a light switch or electric outlet) it is most likely a 240 Volt system.

WARNING: Installing the thermostat in the above systems may be dangerous, **PLEASE CONSULT A QUALIFIED ELECTRICIAN.**

NOTE: The appropriate model **ECONOMIZER II** can control multistage heating and air conditioning systems. Please check the right model with your dealer.

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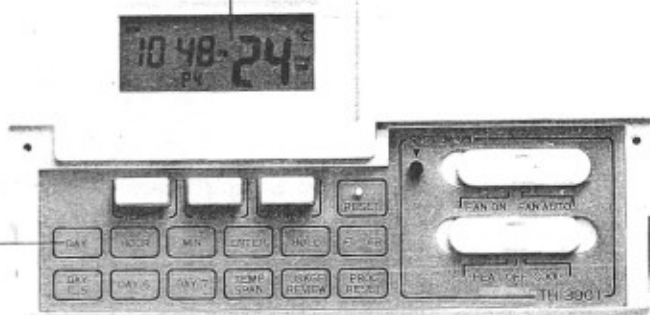
5. Your **ECONOMIZER II** can be programmed to keep your home at any temperature between 7°C and 35°C (45°F and 95°F).
6. The **ECONOMIZER II** uses four widely available 1.5 volt "AA" size alkaline batteries as its backup power source. It is recommended that you replace the batteries once a year, or as soon as the low battery indicator appears on the display.
7. To protect your heater/cooler power circuits and compressor from damage and reduced life by cycling on and off too rapidly, we have incorporated an automatic two minute delay between cycles. Some models may have 15 minutes cycle option. **PLEASE** check with your dealer which option should be suitable for your system.

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Features

Easy to read digital LCD display.

Key Board



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Save programs in memory

To set the temperature

To enter minutes

To enter hour

To enter days

Allows viewing of programs

To adjust temperature span limit

Override makes a short-term change in temperature without altering the programs

System on indicator

Reset button for system reset

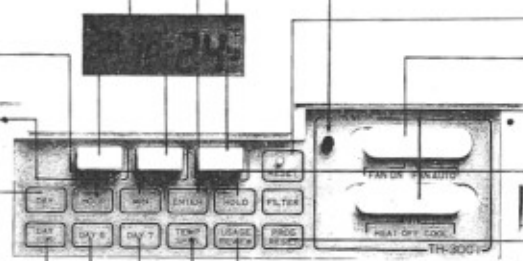
Select fan or fan auto

Select Heater Air-Conditioning or off

Make a permanent temperature change without erasing program

Reset current program to preset factory program

Energy monitor for today yesterday, this week & last week



Day of the week.

Time display

Current mode indicator

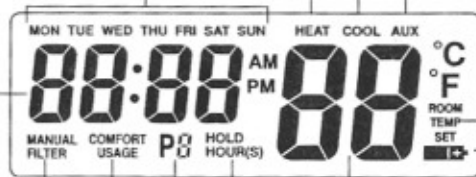
Current program number

Current system modes.

Temperature display mode.

Battery low indicator.

Temperature display.



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NOTE: The model on display is TH-3001. Other models may have a different control panel.

Connecting The Thermostat First Time

When you first install the four AA size batteries, the thermostat LCD display will display fully for 3 seconds.

PRESS

DISPLAY

NOTE

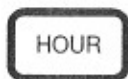


- * The display will flash.
- * Preset to maintain house temperature at 14°C(58°F).
- * The display automatically sets the day and time to Monday 00:00/12:00AM showing the current room temperature.

Setting the Time and Day of Week

Example:

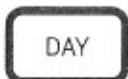
Suppose the time of installation is 08:30/8:30AM Friday. Follow these simple steps to enter the time and day.



- * Press and hold until 08:00/8:00AM is displayed.



- * Press and hold until 08:30/8:30AM is displayed.



- * Press 5 times until Friday (FRI) is displayed.

Note:

If the key is not pressed within 8 seconds, the display will automatically return to current time and room temperature display.

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At the end of the setting, ENTER key must be pressed to enter the change, otherwise the time will remain unchanged.

Reset the Filter Counter to Zero

NOTE:

Some models may not have the filter function. If your model does not have this function please skip to next section.

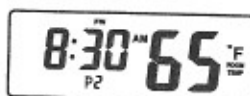
PRESS

DISPLAY

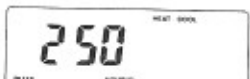
NOTE



- * Thermostat will display current time and room temperature.



- * After the batteries are installed, FILTER will display and flash.



- * Displays the total filter time capacity in 250 hours.

Press and hold the FILTER key more than 3 seconds.



- * It will reset the filter counter to zero.



- * Display the current time and room temperature without FILTER.

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The Factory Pre-set Time and Temperature Program

The Economizer II has winter and summer weekday and weekend programs in permanent memory. It is designed to accommodate a family's lifestyle, and you may be able to use it with little or no change.

Factory Pre set Programs

NOTE: Some countries may not use a/c in summer. Therefore summer setting may not be used.

Weekdays	Program#	starting time	Winter temperature setting	Summer temperature setting
	P1	06:00/ 6:00AM	20°C (68°F)	24°C (75°F)
	P2	08:30/ 8:30AM	14°C (58°F)	29°C (85°F)
	P3	15:30/ 3:30PM	20°C (68°F)	24°C (75°F)
	P4	22:30/10:30PM	14°C (58°F)	27°C (80°F)
Saturday				
	P1	07:00/ 7:00AM	20°C (68°F)	24°C (75°F)
	P2	09:00/ 9:00AM	20°C (68°F)	24°C (75°F)
	P3	17:00/ 5:00PM	20°C (68°F)	24°C (75°F)
	P4	22:00/10:00PM	14°C (58°F)	27°C (80°F)
Sunday				
	P1	07:00/ 7:00AM	20°C (68°F)	24°C (75°F)
	P2	09:00/ 9:00AM	20°C (68°F)	24°C (75°F)
	P3	17:00/ 5:00PM	20°C (68°F)	24°C (75°F)
	P4	22:00/10:00PM	14°C (58°F)	27°C (80°F)

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Displaying Weekday Program

To view the factory Weekday Pre-set Time and Temperature simply press WEEKDAY key in the following sequence.

Note:
During program review mode if the key is not pressed within 8 seconds it will return to current time and room temperature display.

PRESS	DISPLAY	NOTE
		* Current Time and room Temperature are on display.
		* Switch on HEAT position * Program # 1 (P1) weekday Winter program is displayed. * Monday thru Friday indicates Weekday Program. * HEAT appears indicating heat program for winter.
		* Program # 2 (P2) Weekday Winter program is displayed.
		* Program # 3 (P3) Weekday Winter program is displayed.
		* Program # 4 (P4) Weekday Winter program is displayed.

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To view Summer program, switch must be at COOL position.

Note:

In the switched OFF position you can continuously review Summer program after Winter program. For Auto Changeover Model (TH-3012), you can review both Summer and Winter programs when switched to AUTO position.

PRESS	DISPLAY	NOTE
DAY 1...5		* Program # 1 (P1) Weekday Summer program is displayed. * COOL appears indicating cooling program for Summer.
DAY 1...5		* Program # 2 (P2) Weekday Summer program is displayed.
DAY 1...5		* Program # 3 (P3) Weekday Summer program is displayed.
DAY 1...5		* Program # 4 (P4) Weekday Summer program is displayed.
ENTER		* Displays current time and room temperature. If the key is not pressed, it will return to current time and room temperature display in 8 seconds.

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Displaying Saturday Programs

To review pre-set factory Saturday programs press SATURDAY key in following sequence

To view Winter Program

PRESS	DISPLAY	NOTE
		* Current time and room temperature are on display.
DAY 6		* Switch on HEAT position * Program # 1 (P1) Saturday Winter program is displayed. * SAT indicates Saturday program. * HEAT appears indicating heat program for winter.
DAY 6		* Program # 2 (P2) Saturday Winter program is displayed.
DAY 6		* Program # 3 (P3) Saturday Winter program is displayed.
DAY 6		* Program # 4 (P4) Saturday Winter program is displayed.

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To view Summer Program, switch must be on Cool position.

PRESS	DISPLAY	NOTE
DAY 6	7:00 AM 75°F P1	* Program # 1 (P1) Saturday Summer program is displayed. * COOL appears indicating Cooling program for Summer.
DAY 6	9:00 AM 75°F P2	* Program # 2 (P2) Saturday Summer program is displayed.
DAY 6	5:00 PM 75°F P3	* Program # 3 (P3) Saturday Summer program is displayed.
DAY 6	10:00 PM 80°F P4	* Program # 4 (P4) Saturday Summer program is displayed.
ENTER	8:30 AM 65°F P2	* Press to return to display current time and room temperature. If the key is not pressed, it will return to current time and room temperature display in 8 seconds.

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Displaying Sunday Programs

PRESS	DISPLAY	NOTE
To review pre-set factory Sunday programs press SUNDAY key in following sequence display.	8:30 AM 65°F P2	* Current time and room temperature are on display.
To view Winter Program, switch must be on heat position.	DAY 7	
	7:00 AM 68°F P1	* Program # 1 (P1) Sunday Winter program is displayed. * SUN indicates Sunday program. * HEAT appears indicating heat program for winter.
	DAY 7	
	9:00 AM 68°F P2	* Program # 2 (P2) Sunday Winter program is displayed.
	DAY 7	
	5:00 PM 68°F P3	* Program # 3 (P3) Sunday Winter program is displayed.
	DAY 7	
	10:00 PM 58°F P4	* Program # 4 (P4) Sunday Winter program is displayed.

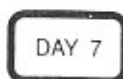
14

To view summer program switch must be on cool position.

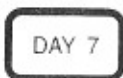
PRESS

DISPLAY

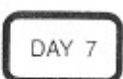
NOTE



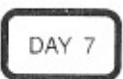
* Program # 1 (P1) Sunday Summer program is displayed.
* COOL appears indicating Cooling program for Summer.



* Program # 2 (P2) Sunday Summer program is displayed.



* Program # 3 (P3) Sunday Summer program is displayed.



* Program # 4 (P4) Sunday Summer program is displayed.



* Press to return to display current time and room temperature.
If the key is not pressed, it will return to current time and room temperature display in 8 seconds.

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Your Personal Programming Schedule

If you wish to design your own time and temperature programs, it may be convenient to write them down here.

WINTER PROGRAM		
WEEKDAY	TIME	TEMPERATURE
P1		
P2		
P3		
P4		
SATURDAY	TIME	TEMPERATURE
P1		
P2		
P3		
P4		
SUNDAY	TIME	TEMPERATURE
P1		
P2		
P3		
P4		

SUMMER PROGRAM		
WEEKDAY	TIME	TEMPERATURE
P1		
P2		
P3		
P4		
SATURDAY	TIME	TEMPERATURE
P1		
P2		
P3		
P4		
SUNDAY	TIME	TEMPERATURE
P1		
P2		
P3		
P4		

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To Change the Programmed Time or Temperature

To change one or more programmed time or temperature, simply follow these instructions.

Example 1: If you would like to change weekday winter program #1 to run from 06:30/6:30AM to 08:30/08:30PM at 23°C(73°F).

Example 2: Also change program #4 22:30/10:30PM to 12°C(47°F). Other programs will not change.

	PRESS	DISPLAY	NOTE
Example 1: Note: During the program mode, if key is not pressed in 8 seconds. It will return to current time and room temperature display automatically.			* Switch to Heat position. * Weekday program # 1 (P1) is displayed.
Change Minute			* Advance minute to 06:30AM * Each press is 10 Minutes increment. * Minute digit is flashing.
Set Minute			* Advance Temperature to desired setting. * Temp digit is flashing.
			* Set the Temp into memory. * Temp digit will not flash.

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Example 2:

	PRESS	DISPLAY	NOTE
			* Advance program to P4. Weekday program # 4 (P4) is displayed.
			* Decreases Temp to desired setting. * Temp digit is flashing.
			* Set temperature into memory. * Temp digit will not flash.

Note: If the key is not pressed within 8 seconds, it will return to current time/temp display automatically.

		* Current time/temp is displayed.
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To View the Current Temperature Setting for Manual and Hold

To select heating, switch must be on heat position. Similarly to select A/C, switch must be on cool position.

For auto change over (TH-3012) model, heat and cool can be selected at auto position. However, there is a safe guard range of 2°C (4°F) to prevent heat and cool temperature overlap.

PRESS

DISPLAY

NOTE

TEMP ▲

or

TEMP ▼

8:30 AM 68°F
P2

* Current time and temperature is on display.

58°F
P2

* It will display current program temp setting with program #.

The Temporary Temperature Override

TEMP ▲

or

TEMP ▼

70°F
HEAT

* Select desired temperature.
* Temperature will flash.

Manual Override Until Next Program:

It will keep the temperature at previous selection 21°C (70°F) until next program.

MANUAL

8:30 AM 68°F
P2

* The program # will disappear and MANUAL will appear on display.

* Current time/temp is on display.

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To cancel, Press **MANUAL** again to cancel and automatically return to program.

Manual Override for 1, 2, or 3 Hour(s):

After selecting desired temperature.

PRESS

DISPLAY

NOTE

HOUR

70°F
COMFORT 1 HOUR
HEAT

* COMFORT 1 HOUR(S) with selected temp appearing on display.
* Once selected, it will keep the desired temp for one hour.

HOUR

70°F
COMFORT 2 HOURS
HEAT

* COMFORT 2 HOUR(S) with selected temp appearing on display.
* Once selected, it will keep the desired temp for two hours.

HOUR

70°F
COMFORT 3 HOURS
HEAT

* COMFORT 3 HOUR(S) with selected temp appearing on display.
* Once selected, it will keep the desired temp for three hours.

HOUR

70°F
HEAT

* Manual override until next program appears on display.
* If HOUR is pressed, it will repeat above cycle again.

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Example:
If 3 hours manual
comfort is selected.

MANUAL

* MANUAL COMFORT 3
HOUR(S), current time
and room temperature will
display without program
#.

To cancel, Press

MANUAL

again returning to program automatically.

The Permanent Temperature Override:

* Press HOLD key after
desired temperature se-
lected.

HOLD

* HOLD, current time and
room temperature will
display without program
#.

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To cancel, Press

HOLD

again returning to program automatically.

Temperature Span

The Economizer II is preprogrammed at the factory to cycle when the temperature rises 1°C(2°F) above or 0.5°C(1°F) below the temperature setting.

For example, if the thermostat is programmed to maintain a 20°C(68°F) setting, the heater unit will cycle off when the room temperature reaches 21°C(70°F) and turn on until the temperature reads 19.5°C(67°F).

For air-conditioner to maintain a 24°C(75°F) setting in summer, the air-conditioner would come on at 25°C(77°F) and turn off at 24.5°C(74°F).

The following is a Temperature Span code table which you can select from the temperature span function:

Code Number °F °C

Hi 1	+1	+0.5
Hi 2	+2	+1.0
Hi 3	+3	+1.5
Hi 4	+4	+2.0
Hi 5	+5	+2.5
Lo 1	-1	-0.5
Lo 2	-2	-1.0
Lo 3	-3	-1.5
Lo 4	-4	-2.0
Lo 5	-5	-2.5

Note:

Positive value is above set point.

Negative value is below set point.

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To Review Temperature Span

PRESS	DISPLAY	NOTE
TEMP SPAN	H. 2.	* Display will show higher temperature span limit as 1.0°C(2°F) above the set temperature.
TEMP SPAN	Lo 1.	* Display will show lower temperature span limit as 0.5°C(1°F) below the set temperature.
ENTER	8:30 ^{PM} 65°F P2	* To return to current time and temperature display.

To Change Temperature Span

You may like to change the factory pre-set temperature span to a more suitable range for better control of temperature in your house. Also, if your system appears to cycle too fast or too slow by adjusting the high and low limits of temperature span your heating and air conditioning system will run more effectively.

TEMP SPAN	H. 2.	* Display higher limit of temp span.
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PRESS	DISPLAY	NOTE
TEMP▲	H. 3.	* Select new higher limit of temp span.
ENTER	H. 3.	* The new higher limit of temp span is now set into memory.
TEMP SPAN	Lo 1.	* Display lower limit of temp span.
TEMP▲	Lo 2.	* Select the new lower limit of temp span.
ENTER	Lo 2.	* The lower limit of temp span is now set into memory.
ENTER	8:30 ^{PM} 65°F P2	* Return to current time/ temp display.

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Using The USAGE Energy Monitor

The USAGE Energy Monitor measures and stores the amount of time the heating and air-conditioning system operates. By present day (as of 12:00 AM), the previous day (12:00 AM thru Mid-night), for the entire week (as of Monday) and last week (Mon-Sun). By monitoring on a daily basis, the user can gradually adjust winter or summer temperature settings and monitor the effect of the energy conserving efforts.

PRESS	DISPLAY	NOTE
		* Current time and room temperature display.
		* Display will show the amount of time the system operated today.
		* Display will show the total amount of time the system operated yesterday.
		* Display will show the total amount of time the system operated for the week.
		* Display will show the total amount of time the system operated last week.

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PRESS	DISPLAY	NOTE
		* Return to the current time and room temperature display.

Using the FILTER Feature

The Economizer II also keeps a record of the number of hours your filter has been used. It will display the total usage in hours of the system since the filter was replaced and the LCD counter was reset to zero.

After 250 hours of system operation, the FILTER indicator will begin flashing, to remind you to change or clean the filter and reset the counter back to zero. The Filter counter will count up to max 999 hours of usage. Counter will stay at 999 until you reset it again.

		* Displays the total filter usage in hours.
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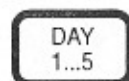
26

Program Reset

If you desire to reset any one of the programs back to the factory program, the program reset will allow you to reset the program back to factory preset program.

Example:

Suppose you would like to reset the weekday winter program # 1 to factory preset program.



* Select program.



* To reset the selected program to preset factory program.



* Return to current time and room temperature display.

To reset program for SATURDAY and SUNDAY, select program with

DAY 6

or

DAY 7

key. Then press the

PROG
RESET

to reset the factory preset program.

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Batteries Low Indicator

The 4 X 1.5 V AA size batteries are used to retain the memory of the programs and current time in the event that the main power is interrupted or fails for an extended period of time.

We recommend you use 1.5 Volt "AA" size alkaline batteries for longer life.

When the battery power is below the normal operation power of the unit, it will display the Lo Batteries sign, and every five minutes there will be a beep tone reminding you to change the batteries. The following is the display indicating when the battery power is getting low.



NOTE: Continuous battery period can extend up to 5 days based on the lifetime of new alkaline batteries.

Energy Usage Recording Chart

The Economizer II will calculate, record and display the amount of time your heating and airconditioning system has run for today, yesterday, this week and last week.

This Energy Usage Recording Chart will help you to plan your most efficient energy saving by recording your energy usage on a daily or weekly basis.

Month		Day					Year
WEEK#	MON	TUE	WED	THU	FRI	SAT	SUN

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Early Start /Finish Function

The Economizer II incorporates the latest micro-computer technology providing an inbuilt function enabling it to calculate the optimum time to start and switch off the heating or airconditioning system to achieve the desired temperature setting at the programmed time.

Based upon the rate of temperature increase/decrease that the heater or airconditioner can achieve in your house the Economizer II may start or switch off the heater or airconditioner as early as 30 minutes prior to the programmed time. This is to bring your house to the required temperature level at the time you have programmed, additionally eliminating a wasteful last short cycle of the system approaching switch off time.

Short Cycle Protection

There is a minimum of two minutes delay in switching the system on and off. This is to guard against any short cycle switching and prolonging the life of the system.

Temperature Sensor

This unit is fitted with a highly sensitive temperature sensor. It is located at the lower left hand side of the unit. It is recommended not to touch the sensor as it may cause an incorrect reading. If you have touched the sensor accidentally, allow the temperature to settle for a while as it will return to its normal temperature shortly after.

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