

**Honeywell**

# **Timer Thermostat Fuel Saver**

**Heating-Only Thermostat and Wallplate or Heating/Cooling  
Thermostat and Subbase Models CT1500, CT1501, CT1502, CT1503**

- Heat Only—CT1500
- Heat/Cool—CT1501
- Central Electric Heat/Cool or Single Stage  
Heat Pump without auxiliary heat—CT1502
- Millivolt Heat—CT1503

**OWNER'S MANUAL**



69-0333-6

Welcome to the world of energy savings with your new Honeywell Fuel Saver Thermostat. The Honeywell name is your assurance of accurate control and reliable operation for years to come.

Your new thermostat will automatically control the temperature in your home to provide a high level of comfort plus energy savings when programmed according to the instructions in this manual.

## **Recycling Notice**

This control contains mercury in a sealed tube. Do *not* place control in the trash at the end of its useful life.

If this control is replacing a control that contains mercury in a sealed tube, do *not* place your old control in the trash.

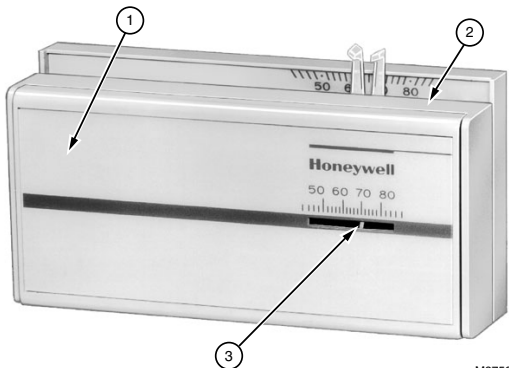
Contact your local waste management authority for instructions regarding recycling and the proper disposal of the control, or of an old control containing mercury in a sealed tube.

# Table of Contents

	<b>PAGE</b>
Features of Your Thermostat .....	4
Reviewing Your Family Schedule .....	7
Setting The Temperature .....	8
Setting Subbase Switches .....	9
Inserting Timer Batteries .....	10
Setting The Timer .....	11
Programming .....	12
Temporarily changing the program .....	15
Troubleshooting .....	17
Servicing The Thermostat .....	21
System on-time adjustment .....	21
Thermometer adjustment .....	22
Limited One-Year Warranty .....	27

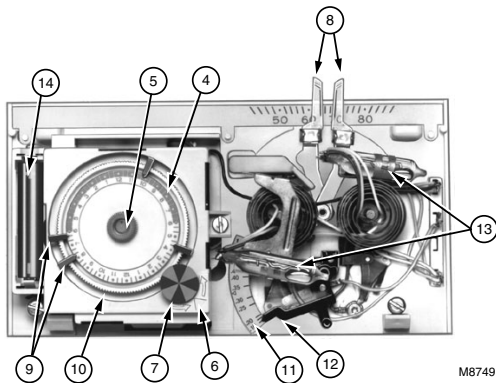
## Features of Your Thermostat

- 1 FLIP-UP COVER. Lift up cover to set timer for energy savings and normal temperature periods .
- 2 THERMOSTAT COVER. Lift up cover and remove to adjust heat anticipator or install batteries.
- 3 THERMOMETER. Provides accurate room temperature reading.
- 4 TIMER. Provides 24-hour slotted dial to hold the programming pins.
- 5 TIMER SETTING KNOB. Turn clockwise to match the correct a.m. or p.m. time to the time indicator.
- 6 TIME INDICATOR. Arrowhead indicates time for 24-hour dial.
- 7 PROGRAM INDEX WHEEL. Controls high and low temperature at specific time of day as set by program pins. Can be moved to temporarily override a schedule.



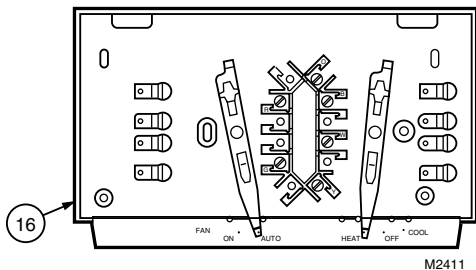
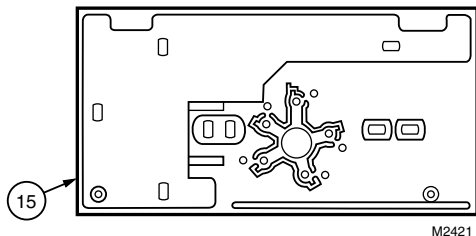
M8750

- ⑧ **TEMPERATURE SETTING LEVERS.** Left (blue mark) controls the low temperature; right (red mark) controls the high temperature.
- ⑨ **PROGRAM PINS.** Must be inserted into 24-hour timer dial slots to control program index wheel.
- ⑩ **PIN SLOTS.** Located on 24-hour dial at ten minute intervals for program pin insertion.
- ⑪ **HEAT ANTICIPATOR SCALE PLATE.** Calibrated to match the heating system current draw in amperes.
- ⑫ **ANTICIPATOR SETTING LEVER.** Must be adjusted to match the heating system primary control current.
- ⑬ **BULB AND BIMETAL ELEMENT (2).** Provides automatic temperature control by switching the heating or cooling system on and off.



- ⑭ **AAA ALKALINE BATTERIES (2).** Included to provide power to the timer.

- ⑮ WALLPLATE Provides mounting base and wiring connections for heating-only thermostat.
- ⑯ SUBBASE Provides mounting base, wiring connections and manual switching control for heating/cooling thermostat.



# Reviewing Your Family Schedule

Write the answers to the following questions in the spaces provided to determine the program that fits your family schedule.

	SUMMER	WINTER
What comfort temperature would you like to maintain?	_____	_____
What energy savings temperature would you like to maintain?	_____	_____
What time does the first person get up in the morning?	_____	_____
Is anyone home all day?	_____	_____
What times does the last person leave in the morning?	_____	_____
What times does the first person return home in the evening?	_____	_____
What time does the last person go to bed?	_____	_____

# Setting The Temperature

## For Heating:

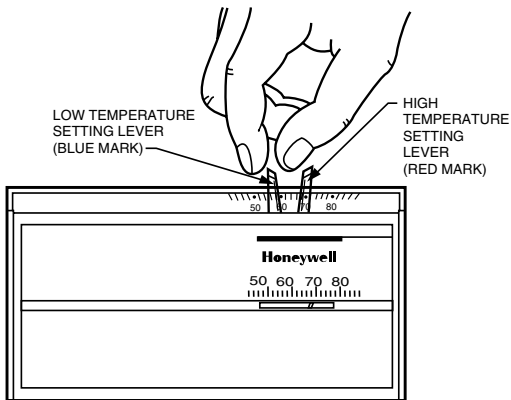
Set the left lever (blue mark) to the energy savings temperature you want when you are sleeping or your home is unoccupied. See Fig. 1.

Set the right lever (red mark) to the temperature you want for normal comfort periods.

NOTE: You may bypass the time program by setting both the red and blue levers to the same temperature setpoint.

## For Cooling (Not Applicable on Heating-only Model):

Set the left lever (blue mark) to the temperature you want for normal comfort periods. Set the right lever (red mark) to the energy savings temperature you want when you are sleeping or your home is unoccupied.



M8751

**Fig. 1—Setting high and low temperature setting levers.**



## Setting Subbase Switches (If Applicable)

The subbase system switch controls system operation as follows:

- HEAT—Heating system is controlled by the thermostat. Cooling system is off.
- COOL—Cooling system is controlled by the thermostat. Heating system is off.
- OFF—Both the heating and cooling systems are off. If the fan switch is in the AUTO position, the fan is also off.
- ON—In a cooling only application, only cooling operates. In a heating only application, only heating operates.

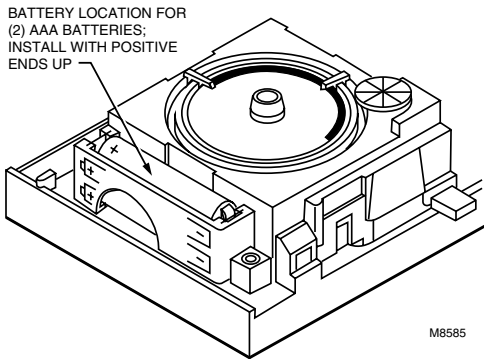
The subbase fan switch controls fan operation as follows:

- ON—Fan operates continuously.
- AUTO—Fan operates with cooling equipment as controlled by the thermostat or with the heating equipment as controlled by the plenum fan switch. In electric heat, heat pump, and fan coil systems, the fan is controlled by the thermostat in heating and cooling.

To switch positions, use thumb or index finger to slide lever to desired position. Stop switch lever in detent over the desired function indicator mark for proper circuit operation.


## Inserting Timer Batteries

Power is supplied to the timer by two AAA alkaline batteries (included.) Install batteries in thermostat as shown. See Fig. 2. One a year, or when batteries are dead, replace with two new AAA alkaline batteries. We recommend Energizer® batteries. The thermostat itself will operate without batteries, but will not operate as a fuel saver.



**Fig. 2—Inserting timer batteries.**



## Setting The Timer

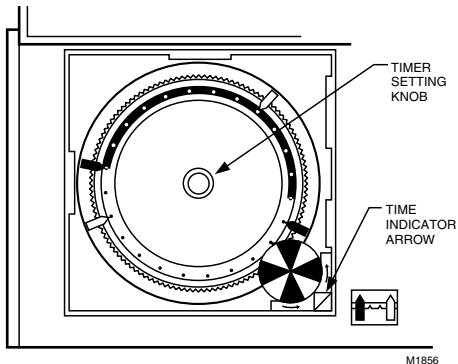
Lift thermostat flip-up cover to find the 24-hour program dial, slotted in ten-minute increments. Adjust the timer to the current time by carefully turning the knob clockwise . Do *not* reverse the knob.

When time is set correctly, the time indicator arrow (see Fig. 3) will point to the correct time and corresponding daytime (light) or nighttime (dark) band of the program dial.

**EXAMPLE:** For 11 p.m., the time indicator arrow will point directly to the dark band on the dial. For 11 a.m., the arrow will point to the light band on the dial.

## Daylight saving time

When daylight saving time starts, carefully move the knob clockwise  one hour. When daylight-saving time ends, carefully move the knob clockwise  23 hours. Do *not* reverse the knob, or damage to the timer mechanism may occur.



**Fig. 3—Setting the timer.**

## Programming

You can program your thermostat to automatically lower and raise the temperature one or more times every 24 hours.

Refer to energy savings chart on the back cover for typical heating and cooling savings with your new thermostat.

### Before setting your program

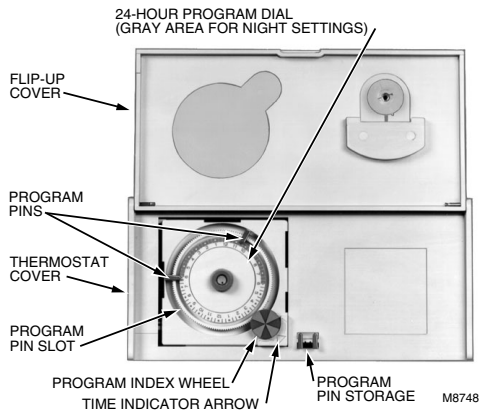
Lift thermostat flip-up cover to find the 24-hour program dial. The slots on the program dial (Fig. 4) are for the program pins that can be inserted at ten-minute intervals.

Three red and three blue program pins are included with your thermostat. The red pins start the high-temperature period; the blue pins start the low-temperature period. A heating program is preprogrammed. A red pin is inserted at 6:00 a.m. for high temperature

(comfort period); a blue pin is inserted at 10:00 p.m. for low temperature (energy saving period). Two additional sets of pins are located in the program pin storage area. You can set up to six temperature changes with the pins supplied. We recommend at least five hours for each energy saving period.

To change the pins or add a new energy saving period—

- To insert a pin, push it straight into the selected notch on the program dial until it is completely seated .
- To remove a pin, press against the program dial and pull the pin straight out. Do *not* attempt to change a pin if it is engaged with the program index wheel.
- On heating/cooling systems, you must reset the pins when the seasons change. You will also probably want to change the lever positions.




**Fig. 4—Program components.**

## Setting the heating program:

- Decide when you want the temperature to reach the comfort level. Find the notch on the dial that is one-half hour before this time and insert a red pin. The half-hour head start gives the furnace time to heat the house before you wake up or arrive home.
- Decide when you want the energy saving period to start and insert a blue pin at the notch that corresponds to this time. After the blue pin engages, the furnace will be off until room temperature drops to the energy saving setpoint.
- You can set both a day and a night program. See Fig. 5 for programming examples.

## Setting the cooling program (not applicable on heating-only model):

- Decide when you want the temperature to reach the comfort level. Find the notch on the dial that is one-half hour before this time and insert a blue pin. The half-hour head start gives the air conditioner time to cool the house before you wake up or arrive home.
- Decide when you want the energy saving period to start and insert a red pin at the notch that corresponds to this time. After the red pin engages, the air conditioner will be off until room temperature rises to the energy saving setpoint.

		WINTER			SUMMER 		
		TEMPERATURE		PROGRAM PIN IN CONTROL	TEMPERATURE		PROGRAM PIN IN CONTROL
		°F	°C		°F	°C	
NIGHT ENERGY SAVING PERIOD	BEGINS 10:00 PM	58	14	BLUE	80	27	RED
	ENDS 6:00 AM	68	20	RED	75	24	BLUE
DAY ENERGY SAVING PERIOD	BEGINS 7:30 AM	58	14	BLUE	80	27	RED
	ENDS 4:00 PM	68	20	RED	75	24	BLUE



NOT APPLICABLE ON HEATING-ONLY MODEL.


M8677

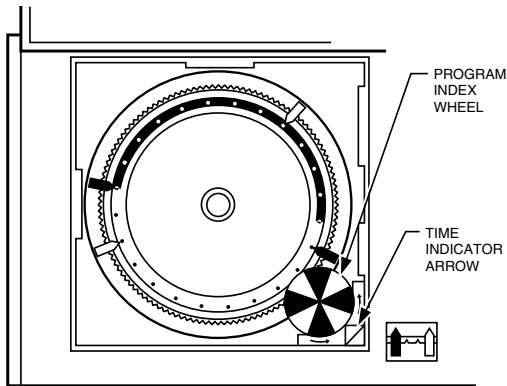
**Fig. 5—Programming examples.**

## Temporarily changing the program

You may temporarily raise or lower the temperature if you come home early, stay up late, plan to be out for the evening, leave on vacation, etc. You can make a temporary change one of two ways—moving the program index wheel or pushing the setting levers together.

*Moving the program index wheel* will change the program just until the next regularly scheduled change is due:

- Lift the thermostat cover.
- Move the program index wheel counter-clockwise  so the time indicator arrow points to the desired color on the dial.

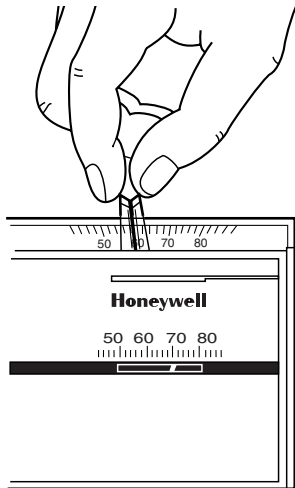


M1857

**EXAMPLE:** If you are currently at the high temperature period and want to switch to the low temperature period, move the wheel from red to blue. If you are currently at the low temperature period and want to switch to the high temperature period, move the wheel from blue to red. The change will be in effect until the next regularly scheduled change.

*Pushing the setting levers together* will hold a particular temperature until you change the levers back. This method is recommended for a long-term absence:


- Simply push both levers to the temperature you wish for system control. This temperature will stay in effect until you change the levers back.






# Troubleshooting

Your Honeywell thermostat requires little or no attention. Most problems can generally be traced to the following:

Problem	Check	Action
No heat.	— system switch. May be in OFF or COOL position. 	Move system switch to HEAT position.
	— fuse or circuit breaker.	If blown or tripped, replace fuse or reset breaker.
	— furnace power switch. May be off.	Move switch to ON.
	— pilot flame (where applicable). May be out.	Relight pilot flame per furnace manufacturer instructions.
	— RH and W thermostat connections.	Turn off power to furnace. Check for correct terminal hookups. Repair any frayed or broken wires. Firmly tighten all terminal screws.


*(continued)*

*Troubleshooting (continued)*

<b>Problem</b>	<b>Check</b>	<b>Action</b>
No heat. <i>(continued)</i>	— other problem.	Contact a qualified service technician for assistance.
Energy savings temperature program 12 hours off.	— program dial for proper day or night phase.	Turn timer ahead 12 hours. Move setting knob clockwise  only.
Rooms do not warm up at programmed time.	— timer program for heating system. May need more time to warm up rooms.	Move red pin one-half hour earlier on the program dial.
Temperature change occurs at the wrong time.	— programs pins for correct time locations.	Relocate pins to desired settings.
Room temperatures are not correct.	— positions of thermostat setpoint levers.	Reset to desired temperatures.
	— position of subbase system switch.	Move to desired operating position.

*(continued)*

Troubleshooting (continued)

Problem	Check	Action
Heat-on time too short.	— anticipator setting. (See Fig. 6.)	Increase anticipator setting by 0.05 Observe heating system operation.
Heat-on time too long.	— anticipator setting. (See Fig. 6.)	Decrease anticipator setting by 0.05. Observe heating system operation.
No cooling. 	— system switch. May be in OFF or HEAT position.	Move switch to COOL position.
	— fuse or circuit breaker.	If fuse is blown or breaker tripped, replace or reset.
	— condensor switch position. Located outdoors and may be turned off.	Move to ON position.
	— Y, G, RC thermostat connections.	Turn off power to cooling system. Check for correct terminal hookups. Repair any frayed or broken wires. Firmly tighten all terminal screws.

(continued)

*Troubleshooting (continued)*

<b>Problem</b>	<b>Check</b>	<b>Action</b>
No cooling. <i>(continued)</i>	— other problem.	Contact a qualified service technician for assistance.
Timer does not run.	— batteries may not have been installed.	Install as shown on page 10.
	— level position of thermostat.	Replace with two new AAA alkaline batteries as shown on page 10.
Thermostat setting and thermometer reading disagree.	— area around thermostat for drafts or radiant heat.	Reinstall thermostat wallplate or subbase. Use a spirit level. Thermostat should be about 5 ft [1.5m] above floor on an inside wall. Contact qualified service technician for change of location.
	— calibration of thermometer.	See instructions on page 22.

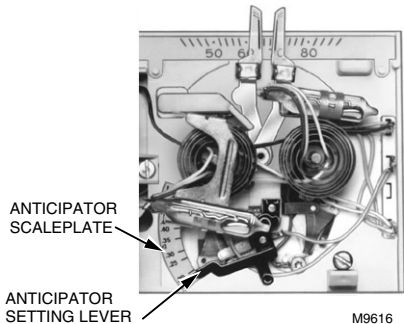
Not applicable on heating-only model.

## Servicing The Thermostat System on-length adjustment

NOTE: Not applicable on CT1503 Millivolt Heat model.

If the thermostat seems to cycle the heating system too fast or too slow, adjust the heating system on-length by moving the anticipator setting lever one indicator mark at a time (Fig. 6); a higher setting will increase heating system on length a lower setting will decrease heating system on-length. Observe the heating system operation after each adjustment.

The heat anticipator must be correctly set. An incorrect setting can result in room temperature swings or burn out the anticipator, which would void the thermostat warranty.



**Fig. 6—Heat anticipator setting.**

**IMPORTANT:** *Most hot water systems require a setting of 1.3 times the valve current rating.*

## Thermometer adjustment

The thermometer was accurately calibrated at the factory and should only need adjustment if it was dropped or mishandled.

If the setpoint lever and the thermometer reading do not agree, follow the procedure below.

Remove thermostat cover and open the flip-up cover.

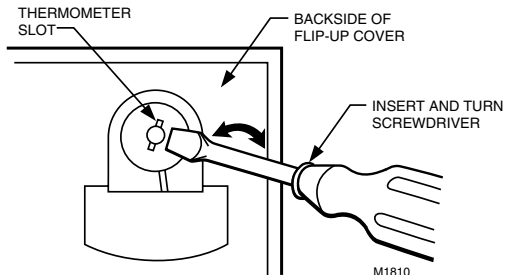
Set the thermostat cover on a table near the thermometer of known accuracy.

Allow at least five minutes for the cover thermometer to sense the area temperature, then compare the readings. Be careful not to touch the thermometer or breathe on it.

If the readings are the same, replace the cover and put the system into operation.

If the readings are different, insert a small screwdriver in the thermometer slot shown in Fig. 7, and turn it until both thermometers read the same.

Replace thermostat cover and put the system into operation.



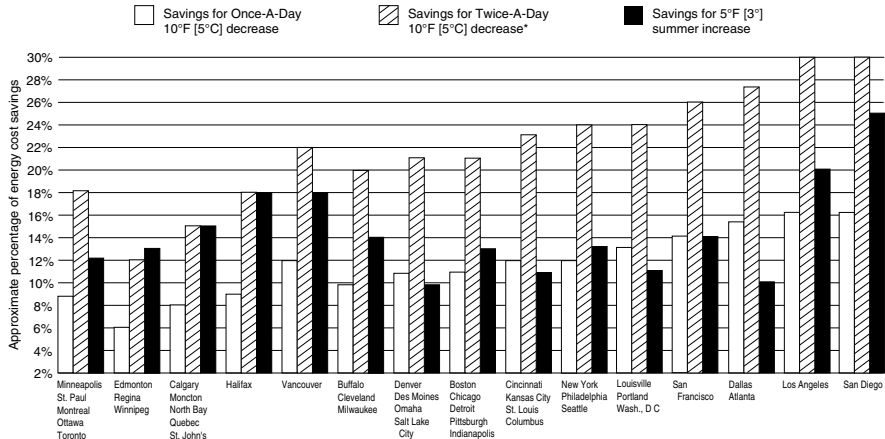
**Fig. 7—Thermometer adjustment.**

## **Toll-free Consumer Services**

If you have questions regarding the Timer Thermostat please visit our web site at [www.honeywell.com/yourhome](http://www.honeywell.com/yourhome) or call the customer information line at 1-800-468-1502.

Before you call, please have the following information available—thermostat model number and date code, kind of heating/cooling system (for example, hot water, warm air, oil, gas, etc.) and number of wires connected to the thermostat.

## TYPICAL ENERGY SAVINGS FOR REPRESENTATIVE CITIES IN THE U.S. AND CANADA



\*Based on 10°F (5°C) decrease—(5°F (3°C) decrease gives approximately 55 percent of these savings).

M2416A







# Limited One-Year Warranty

Honeywell warrants this product, excluding battery, to be free from defects in the workmanship or materials, under normal use and service, for a period of one (1) year from the date of purchase by the consumer. If at any time during the warranty period, the product is defective or malfunctions, Honeywell shall repair or replace it (at Honeywell's option) within a reasonable period of time.

If the product is defective,

- (i) return it, with a bill of sale or other dated proof-of-purchase, to the retailer from which you purchased it, or
- (ii) package it carefully, along with proof-of-purchase (including date of purchase) and a short description of the malfunction, and mail it, postage prepaid, to the following address:

Honeywell Return Goods Department  
Dock 4 MN10-3860  
1885 Douglas Drive North  
Golden Valley, MN 55422

In Canada: Honeywell Limited/Honeywell Limitée  
35 Dynamic Drive  
Scarborough, Ontario  
M1V 4Z9

This warranty does not cover removal or reinstallation costs. This warranty shall not apply if it is shown by Honeywell that the defect or malfunction was caused by damage which occurred while the product was in the possession of a consumer.

Honeywell's sole responsibility shall be to repair or replace the product within the terms stated above. HONEYWELL SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE OF ANY KIND, INCLUDING ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING, DIRECTLY OR INDIRECTLY, FROM ANY BREACH OF ANY WARRANTY, EXPRESS OR IMPLIED, OR ANY OTHER FAILURE OF THIS PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation may not apply to you.

THIS WARRANTY IS THE ONLY EXPRESS WARRANTY HONEYWELL MAKES ON THIS PRODUCT. THE DURATION OF ANY IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IS HEREBY LIMITED TO THE ONE YEAR DURATION OF THIS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

This warranty gives you special legal rights, and you may have other rights which vary from state to state.

If you have any questions concerning this warranty, please write: Honeywell Customer Assistance, MN10-1461, 1885 Douglas Drive North, Golden Valley, MN 55422. In Canada, write Honeywell Limited/Honeywell Limitée, Retail Products ON15-02H, 35 Dynamic Drive, Scarborough, Ontario M1V 4Z9.

# Honeywell

---

## **Home and Building Control**

Honeywell Inc.

1985 Douglas Drive No.

Golden Valley, MN 55422

## **Home and Building Control**

Honeywell Limited—Honeywell Limitée

740 Ellesmere Road

Scarborough, Ontario

M1P 2V9

*Helping You Control Your World*

D.F. ©Honeywell Inc. 1994 Printed in U.S.A.  
Rev. 11-96 Form Number 69-0333—6



[www.honeywell.com/yourhome](http://www.honeywell.com/yourhome)