



INSTALLATION & OPERATION MANUAL

Before operating this product, please read the instructions carefully and save this manual for future use.

TETSBP70SV1



**7 DAYS PROGRAMMING AND NON-PROGRAMMABLE
USED WITH SINGLE STAGE, HEAT PUMP SYSTEM**



**Single Stage, heat pump system
TOUCH SCREEN THERMOSTATE**

TETSBP70SV1

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READ THIS MANUAL

Inside you will find many helpful hints on how to use and maintain your air conditioner properly. Just a little preventative care on your part can save you a great deal of time and money over the life of your air conditioner. You'll find many answers to common problems in the chart of troubleshooting tips. If you review the chart of Troubleshooting Tips first, you may not need to call for service



Single Stage, heat pump system
TOUCH SCREEN THERMOSTATE

TETSBP70SV1

SPECIFICATION

Power Supply:	Dual Power 24VAC or Battery Powered
Terminal Load:	1.0A per terminal, 3.0A maximum total load
Set Point Temperature Range:	45°F to 95°F (7°C to 35°C)
Operating Ambient:	30°F to 105°F (0°C to 40°C)
Operating Humidity:	90% non-condensing max
Shipping Temperature range:	-4°F to +150°F (-20°C to 65°C)
Dimensions:	5.9" X 4.5" X 1.2" / (150mm X 115mm X 32mm)
Color:	White

FEATURES

- Apply with Single stage and Heat Pump system
- Large LCD display with backlight, continuous backlight option
- Menu Driven Programming
- The screen displays the set temperature, the room temperature and current time simultaneously
- Fan switch with on and auto
- Auto change over
- Permanent user setting retention during power loss, no batteries are required.
- Optional 7 day programing and non programmable.
- Optional temperature display of Celsius or Fahrenheit scale
- Both Vacation mold and hold duration mode available for comfort and energy saving
- Air filter change indicator
- UV light change indicator



IMPORTANT SAFETY INFORMATION

- Always turn off power at the main power source by unscrewing fuse or switching circuit breaker to the off position before installing, removing, cleaning, or servicing this thermostat
- Read all of the information in this manual before installing this thermostat
- Only a professional contractor should install this thermostat
- All wiring must conform to local and national building and electrical codes and ordinances.
- Use this thermostat only as described in this manual.

INSTALLATION

- 1** Pull the thermostat body off the thermostat base, Forcing or prying on the thermostat will cause Damage to the unit
- 2** Place base over hole in wall and mark mounting hole locations on wall using base as a template
- 3** Move base out of the way. Drill mounting holes. If you are using existing mounting holes and the holes drilled are too large and do not allow you to tighten base snugly, use plastic screw anchors to secure the base.
- 4** Fasten base snugly to wall using mounting holes shown in Figure 3 and two mounting screws. Leveling is for appearance only and will not affect thermostat operation.
- 5** Connect wires to terminal block on base using appropriate wiring schematic (See Figure 4)
- 6** Carefully line the thermostat up with the base and snap into place.

HOME SCREEN DESCRIPTION

TETSBP70SV1 TOUCH SCREEN THERMOSTAT

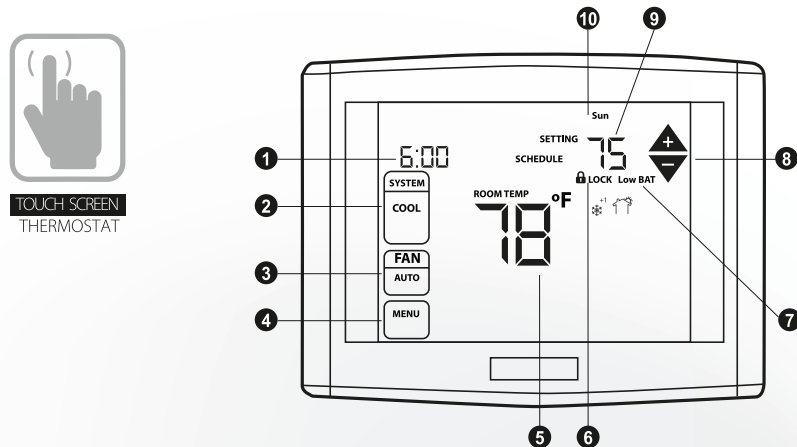


FIGURE 1

- 1** Time of the day
- 2** System Switch
- 3** Fan Switch
- 4** Menu key for entering different modes
- 5** Room Temperature
- 6** Keypad lockout indication
- 7** Low battery indication
- 8** Temperature UP/DOWN used for modified set point
- 9** Set Temperature
- 10** Date of week

THERMOSTAT LCD DISPLAY

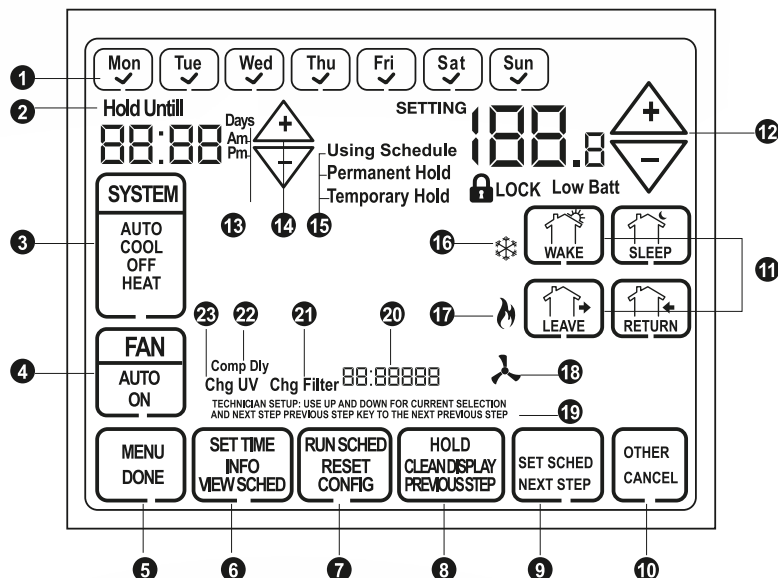


FIGURE 2

- 1 Press **Day(s)** to set program schedule
- 2 "**HOLD UNTIL**" indicates the time when a temporary hold period will end
- 3 Press to select system type
- 4 Press to select fan operation
- 5 Press "**MENU**" to display first function menu of button (6) (7) (8) (9) (10) Press "**DOWN**" to confirm current setting
- 6 Press "**SET TIME**" to set current time clock. Press "**INFO**" to check outside temperature or inquiry for count back time for changing filter or inquiry for UV light duration hours.
- 7 Press "**RUN SCHED**" to resume program operation. Press "**RESET**" to current program selling or current configuration setting to factory default value. Press "**CONFIG**" to set configuration menu item
- 8 Press "**HOLD**" to permanent hold current set point. Press "**CLEAN DISPLAY**" for entering 30 second count back time for cleaning the display. Press "**PREVIOUS STEP**" for going back to last configuration menu item.
- 9 Press "**SET SCHED**" for setting schedule for each days of the week. Press "**NEXT STEP**" for going forward to next configuration menu item or next day of week when setting schedule.
- 10 Press "**OTHER**" for entering the second function menu of (5) (7) (8) (10). Press, "**CANCEL**" to disregard current setting and go back to last operation
- 11 Press "**WAKE**" "**LEAVE**" "**RETURN**" "**SLEEP**" to choose the 4 setting period of each day when setting program schedule
- 12 Press **UP** and **DOWN** for modifying set point
- 13 "**Days**" displays during steps in setting vacation duration days or count back days of vacation duration days "**AM**" indicate current time clock is in the morning. "**PM**" indicates current time clock is in the afternoon.
- 14 Press **UP** and **DOWN** for setting current time clock or setting time in programming or changing selections in configuration menu or setting the time when a temporary hold period will end.
- 15 "**USING SCHEDULE**" displays when thermostat is operating under presetting schedule. "**PERMANENT HOLD**" displays when thermostat is in permanent hold setting temperature period. "**TEMPORARY HOLD**" displays when thermostat is in temporary hole setting temperature period
- 16 ❄️ Displays when first stage cooling activate
- 17 🔥 Displays when first stage heating activate
- 18 🌀 Displays when circulating fan activate
- 19 "**TECHNICIAN SET UP: USE UP AND DOWN FOR CURRENT SELECTION AND NEXT STEP, PREVIOUS STEP KEY TO THE NEXT PREVIOUS STEP**" displays to help technician how to operate in configuration mode
- 20 Indicate current status of the thermostat
- 21 "**CHG FILTER**" displays indicate changing filter count back has expired
- 22 "**COMP DLY**" displays when compressor delay lock out activate
- 23 "**CHG UV**" displays when changing UV duration days has expired

BATTERY LOCATION

Batteries are optional (to provide backup power) if your thermostat was wired to run on AC power when installed. 2 "AA" alkaline batteries.

BATTERY REPLACEMENT

Install fresh batteries immediately when the Low Batt warning begins flashing. The warning flashes about 60 days before batteries are depleted. Even if the warning does not appear, you should replace batteries once a year or before leaving home for more than 1 month.

To replace batteries, set system to **OFF**, remove thermostat from wall and install the batteries in the rear along the top of the thermostat. (See figure 3)

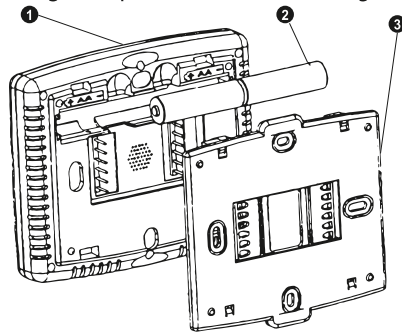
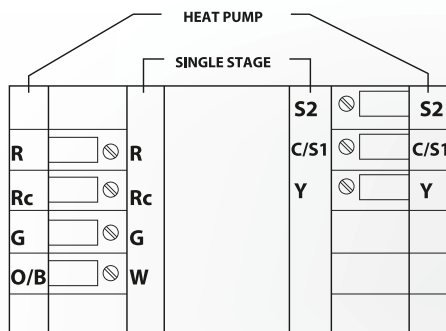


FIGURE 3

- 1 Front Panel
- 2 2 "AA" Batteries
- 3 Base

WIRING DIAGRAMS

FIGURE 4



- [1] Power supply
- [2] Remove jumper for 2-transformer system
- [3] Optional 24VAC common connection
- [4] Common connection must come from cooling transformer
- [5] O/B set to control as either O or B in configuration menu item 3

Wiring guide

1H/1C System (1 transformer)

Rc	Power [1]
R	(R+Rc joined by jumper)
W	Heat Relay
Y	Compressor Contactor
G	Fan relay
C/S1	24VAC Common/Remote sensor [3,4]
S2	Remote sensor

Wiring guide

1H/1C System (2 transformer)

Rc	Power (cooling transformer) [1,2]
R	Power (heating transformer) [1,2]
W	Heat Relay
Y	Compressor Contactor
G	Fan relay
C/S1	24VAC Common/Remote sensor [3,4]
S2	Remote sensor

Wiring guide

1H/1C Heat Pump (no auxiliary heat)

Rc	Power [1]
R	(R+Rc joined by jumper)
Y	Compressor relay
O/B	Changeover valve [5]
G	Fan relay
C/S1	24VAC Common/Remote sensor [3]
S2	Remote sensor

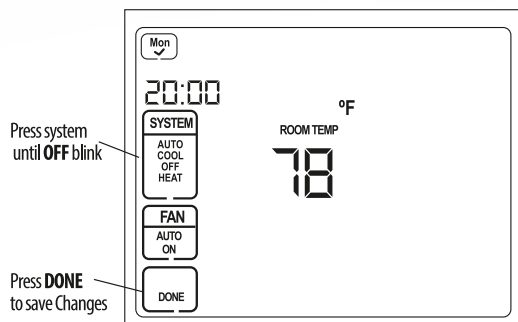


Single Stage, heat pump system
TOUCH SCREEN THERMOSTATE

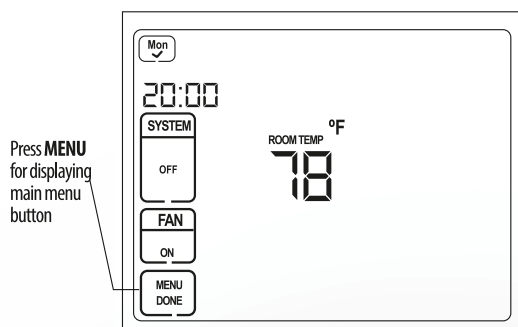
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CONFIGURATION MENU

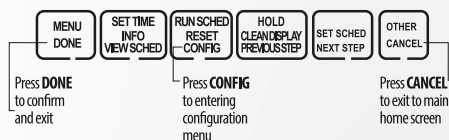
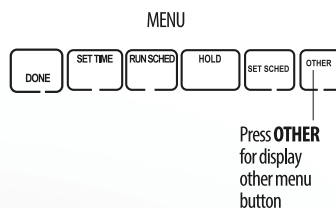
The configuration menu allows you to set certain thermostat operating characteristics to your system or personal requirements.



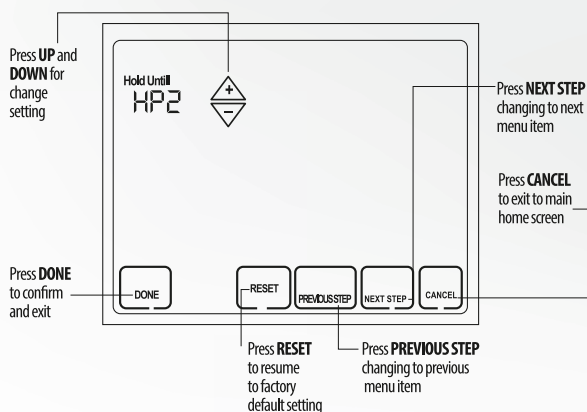
- 1 To enter the configuration menu switch off the thermostat.



- 2 Press **MENU** for display main button, then press **OTHER** for display other menu button.



- 3 Press **CONFIG** for entering configuration menu, change setting according to following figure. For resume factory default setting, press **RESET** and confirm by pressing **DONE**.



1H	HP1	ITEM	Press Buttons	Displayed (Factory Defaults)	Press ▲ or ▼ to select	Comments
		1	NEXT STEP	SYSTEM (1H)	1H, HP1,	Select control system
	NA	2	NEXT STEP	BLoWER (HA)	HA, HE	HA: Gas heating, Furnaces controls blower HE: Electric heating. Thermostat controls blower
NA		3	NEXT STEP	0 or b (b)	0 or b	0: O/B terminal controls in cooling b: O/B terminal controls in heating
		4	NEXT STEP	CHANGE (0)	0,1	0: Manual changeover 1: Auto changeover
		5	NEXT STEP	DbaNd (3)	2,3,4,5,6,7,8,9	Auto changeover dead band
		6	NEXT STEP	RECVRY (OF)	OF, ON	Intelligent Recovery operation
		7	NEXT STEP	HCYCLE (FA)	FA, SL	Heating cycle rate
		8	NEXT STEP	CCYCLE (FA)	FA, SL	Cooling cycle rate
		9	NEXT STEP	DELAY (5)	0,5	Select compressor lockout delay
		10	NEXT STEP	LIGHT (2)	1,2,3	Select backlight display
		11	NEXT STEP	CALIBR (0)	+4 TO -4	Select Temperature Calibration
		12	NEXT STEP	°F OR °C (F)	°F OR °C	Select °F or °C Readout
		13	NEXT STEP	PRGM (7)	0,7	7: 7-day program / 0: non-program
		14	NEXT STEP	FTLTER (00)	00-12	Select filter replacement run time
		15	NEXT STEP	UVLAMP (UF)	UO or UF	Select UV lamp replacement run time
		16	NEXT STEP	CLOCK (24)	24, 12	Selection of time scale
		17	NEXT STEP	SENSOR (0)	0,1,3	Remote sensor option
		18	NEXT STEP	VOICE (YES)	YES, NO	Select audible beeper On/off
		19	NEXT STEP	LOCK (unL)	PAL, unL, FUL	Select keypad lockout option

1 SYSTEM TYPE OPTION

1 H: 1 heat /1 cool conventional

HP 1: 1 compressor heat pump

2 FAN CONTROL OPTION

HA: Gas heating, Furnace controls blower

HE: Electric heating, Thermostat controls blower

3 CHANGEOVER VALVE OPTION

This option apply only to HP1 setting in system type option

0: O/B terminal controls in cooling

B: O/B terminal controls in heating

4 MANUAL/AUTO CHANGEOVER OPTION

0: Manual changeover

1: Auto changeover

5 AUTO CHANGEOVER DEAD BAN OPTION

Option: 2~9°F, factory default setting is 3°F, which means cooling set temperature must be 3°F higher above heating set temperature if **Manual/Auto** changeover option is selected at 1 and **SYSTEM** button is set at **AUTO**.

6 INTELLIGENT RECOVERY OPERATION

The thermostat has an intelligent recovery function that brings your room temperature to the set temperature at exactly the pre-set time by turning on the heating earlier. Select **ON** to activate the intelligent recovery function. Select **OFF** to deactivate the intelligent recovery function. intelligent recovery function doesn't activate when program setting to non-programmable.

7 HEATING CYCLE RATE.

FA: Fast rate, heating will activate 0.6°F below set point

SL: Slow rate, heating will activate 1.2°F below set point

8 COOLLING CYCLE RATE

FA: Fast rate, cooling will activate 1.2°F above set point

SL: Slow rate, cooling will activate 1.7°F above set point

9 SELECT COMPRESSOR LOCKOUT DELAY

To protect the compressor from short cycling, you can select compressor off-time cycle between 0 or 5 minutes. When the thermostat compressor time delay occurs "**COMP DLY**" display during compressor lockout.

10 SELECT DISPLAY BACKLIGHT

The display backlight improves display contrast in low lighting conditions. Select **1** for NO backlight Display. Select **2** for the backlight to come on for approximately 30 seconds when any button of the thermostat is touched. Select **3** for the backlight to remain on continuously.

NOTE: When operated from batteries (No "C" terminal connection, or if AC power goes off), the LCD continuously display of backlight will be disabled

11 SELECT TEMPERATURE RECALIBRATION

This feature allows you to adjust the displayed room temperature up to 4° higher or lower. Your thermostat can be accurately calibrated to match your previous thermostat. The current or adjusted room temperature will be displayed on the display.

12 SELECT "°F" OR "°C" READOUT

Changes the display readout to Centigrade or Fahrenheit as required.

13 PROGRAM OPTIONS

7: Select 7-day program function for the thermostat

0: Select non-program function for the thermostat

14 SELECT FILTER REPLACEMENT RUN TIME

The thermostat will display the "CHG FILTER" after a set time of operation. This is a reminder to change or clean your air filter. This time can be set from 0 to 12 months in 1-month increments. Selection of "00" WILL CANCEL THIS FEATURE. You can check the count back time and clear it by following step

1. Press **MENU** button for displaying main button
2. Press **OTHER** button for displaying other button
3. Press **INFO** to inquiry for the count back change filter time
4. When "CHG FILLER" is displayed, **RESET** button will be shown when inquiry for count back time. Press **RESET** and then press **DOWN** to reset the timer. This resets the timer and starts counting the hours until the next filter change.

15 SELECT UV LAMP REPLACEMENT RUN TIME

This is the reminder to change UV lamp. Select **UF** means you have canceled the feature. Select **U0** starts to counting for 0 day to 400 days. The thermostat will display "CHG UV" when UV time (400 days) has expired. You can check the duration run time and clear it by following step

1. Press **MENU** button for displaying main button
2. Press **OTHER** button for displaying other button
3. Press **INFO** to inquiry for the UV duration time. If displays shows the counter back time of filter change replacement. Press **INFO** again. UV duration time will appear.
4. When "CHG UV" is displayed. **RESET** button will be shown when inquiry for UV lamp duration time. Press **RESET** and then press **DOWN** to reset the timer. This resets the timer and starts counting the duration days

16 SELECTION OF TIME SCALE

Select 12 for 12 hours display for time clock and select 24 for 24 hours display for time clock

17 REMOTE SENSOR OPTION

0: No remote sensor

1: Outdoor sensor (*display only*). Assuming 1 is selected if an optional outdoor sensor is installed. **INFO:** will display in Home screen. Press **INFO** for inquiry for the outside temperature.

3: Indoor sensor. If 3 is selected and the thermostat is installed with an indoor remote sensor. Display will show the read temperature from the indoor sensor.

18 SELECT AUDIBLE BEEPER ON/OFF

Select **YES**. Thermostat will beep when any button touched

Select **NO**. Thermostat wills turn off the voice

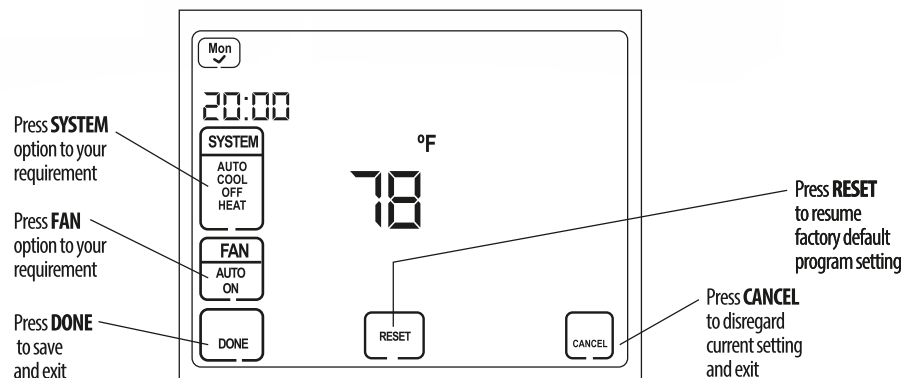
19 SELECT KEYPAD LOCKOUT ON OR OFF

UNL-unlock. All keys are available. Screen is unlocked

PAL-partially locked. All key functions are locked except **SYSTEM** key; temperature **UP** and **DOWN** keys and the **CANCEL** key. Enter Configuration setup to unlock the screen

FUL-fully locked. Screen is folly locked except **SYSTEM** key. Enter Configuration setup to unlock the screen

OPERATING YOUR THERMOSTAT



CHOOSE THE FAN SETTING (AUTO OR ON)

Fan **AUTO** is the most commonly selected setting and runs the fan only when the heating or cooling system is on. Fan **ON** selection runs the fan continuously for increased air circulation or to allow additional air cleaning.

CHOOSE THE FAN SETTING (COOL, OFF, HEAT, AUTO)

Press the **SYSTEM** setting

Heat: Thermostat controls only the heating system

Cool: Thermostat controls only the cooling system

Auto: Auto Changeover is used in areas where both heating and cooling may be required on the same day

When **SYSTEM** button set to **AUTO**, the thermostat automatically select heating or cooling depending on the indoor temperature. Heat and cool settings must be over the dead band value which is set at **AUTO** changeover dead band (*configuration menu item 5*) if heat and cool setting is lower than the dead band, thermostat will auto change to heat or cool according to the current set temperature and the dead band setting.

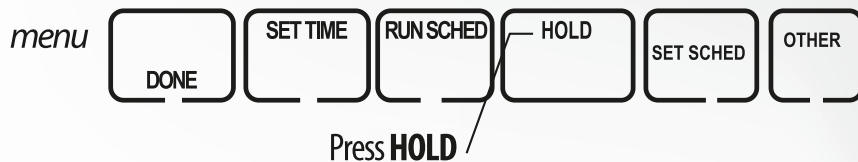
MANUAL OPERATION FOR NON-PROGRAMMABLE THERMOSTATS

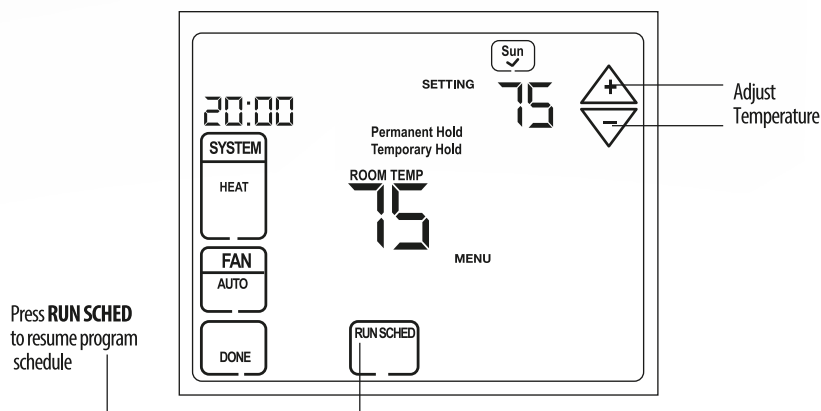
Press the **SYSTEM** button to select **Heat** or **Cool** and use the **▲** or **▼** buttons to adjust the temperature to your desired setting. After selecting your desired settings you can also press the **SYSTEM** button to select **AUTO** to allow the thermostat to automatically change between **Heat** and **Cool** if **AUTO** changeover option is set to **1**.

MANUAL OPERATION FOR PROGRAMMABLE THERMOSTATS

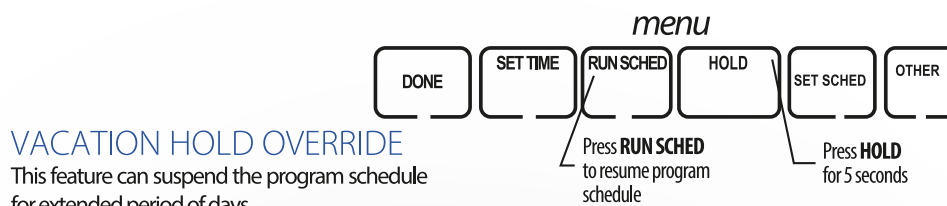
This operation applies only when Program option is set to programmable.

PERMANENT HOLD OVERRIDE





Press **HOLD** to permanently adjust the temperature. This will turn off the program schedule. Whatever temperature you set will be maintained 24 hours a day, until you manually change it, or press **RUN SCHED** to cancel "HOLD" and resume the program schedule.



VACATION HOLD OVERRIDE

This feature can suspend the program schedule for extended period of days.

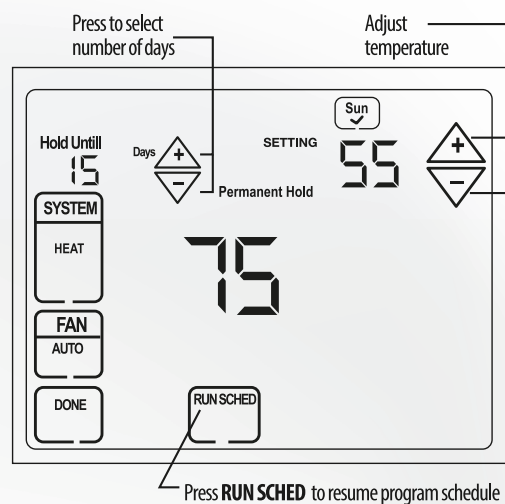
Press **HOLD** for 5 seconds.

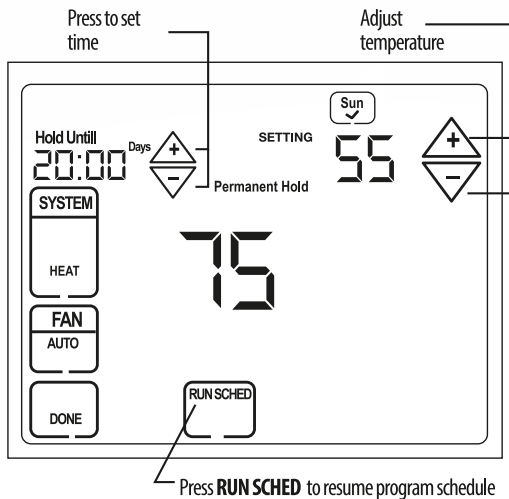
Press **▲** or **▼** to set the temperature you want, then press **▲** or **▼** to set time of day you want to schedule to resume when you return.

Whatever temperature you set will be maintained 24 hours a day for the number of days you select.

After these numbers of days have elapsed, the previously programmed schedule will resume at the time you set.

If you return earlier than expected, press **RUN SCHED** to resume the program schedule.





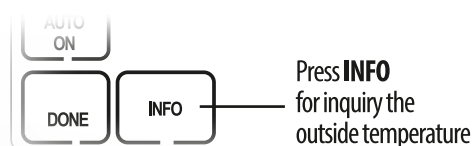
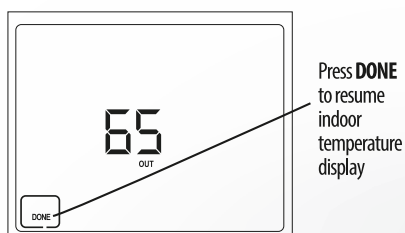
TEMPORARY HOLD OVERRIDE

Inquiry for outside temperature

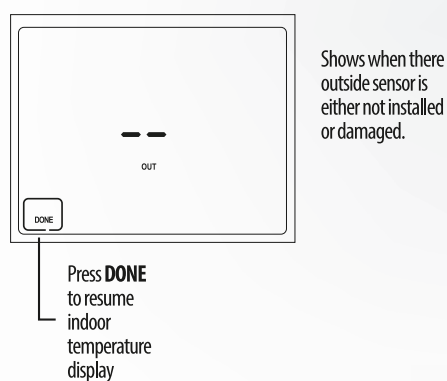
Press **+** or **-** immediately adjust the temperature. This will temporarily override the temperature setting for the current time period.

The new temperature will be maintained until the time you set. When the timer expires, the program schedule will resume and set the temperature to the level you've programmed for the current time period.

To cancel the temporary setting at any time. Press **RUN SCHED**. The program schedule will resume.



When remote sensor option is set to 1 or 2, **INFO** will display in home screen. Press **INFO** for inquiring outside temperature. Thermostat will display outside temperature.



Inquiry for filter count back time

This operation is only available when filter replacement time is set. Configuration menu item 17 explains the way for inquiry for the count back time.

Inquiry for UV lamp duration time

This operation is only available when UV lamp duration time is set. Configuration menu item 18 explains the way for inquiry for the UV lamp duration time.

SCREEN CLEANING

Press **CLEAN DISPLAY** to lock the screen for cleaning. The screen will remain locked for 30 seconds so you can clean the screen without changing any setting. After 30 seconds, press **DONE** to resume normal Operation, or press **CLEAN DISPLAY** again if you require more time for cleaning.

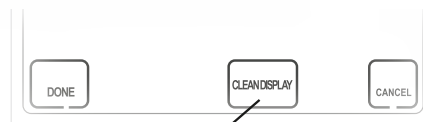
Note: Do not spray any liquid directly on the Thermostat. Spray liquids onto a cloth, then use the damp cloth to clean the screen. Use water or household glass cleaner. Avoid abrasive cleansers

Screen lock

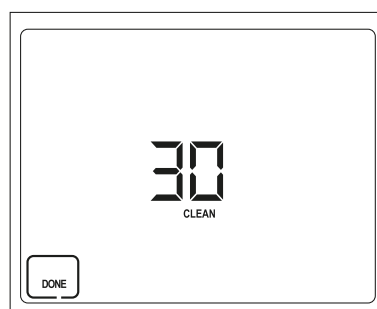
To prevent tampering, the screen can be partially or fully locked. Configuration menu item 24 explain the way to partially or fully locked the screen

Special feature

Intelligent Recovery: See configuration menu item 6- Intelligent Recovery operation.



Press **CLEAN DISPLAY**
Screen lock timer
(count back 30 seconds)



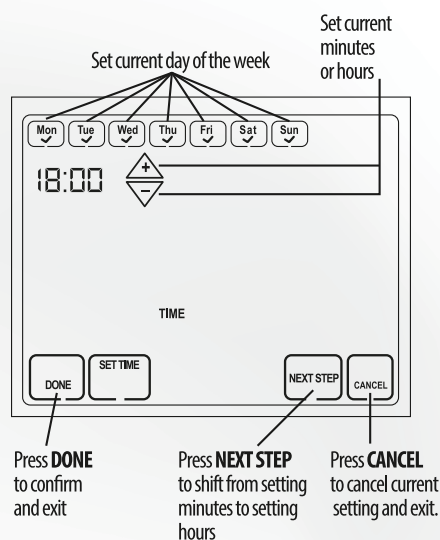
PROGRAMMING

Set Current Time clock and Day of the week

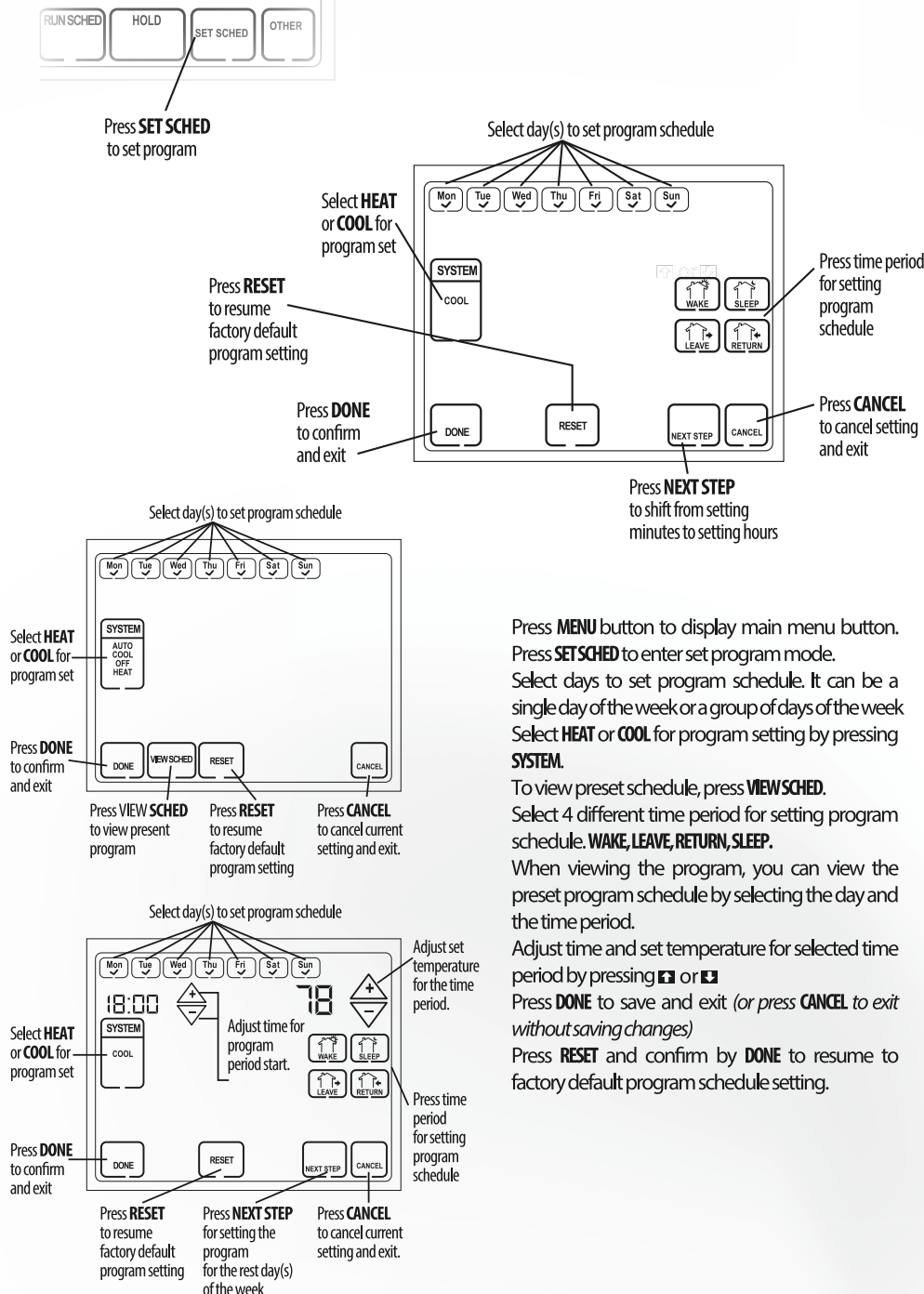
Press **MENU** for displaying main menu button. Press **SET TIME** button to enter to the clock-setting mode. Press the day to set current day of the week.

Press **+** or **-** to adjust the minutes or hours. Press **NEXT STEP** to shift between setting minutes and setting hours.

Press **DONE** to save & exit (or press **CANCEL** to exit without changing the time).



ADJUST PROGRAM SCHEDULES



Press **MENU** button to display main menu button.
Press **SET SCHED** to enter set program mode.
Select days to set program schedule. It can be a single day of the week or a group of days of the week
Select **HEAT** or **COOL** for program setting by pressing **SYSTEM**.

To view preset schedule, press **VIEW SCHED**.

Select 4 different time period for setting program schedule. **WAKE, LEAVE, RETURN, SLEEP**.

When viewing the program, you can view the preset program schedule by selecting the day and the time period.

Adjust time and set temperature for selected time period by pressing **+** or **-**

Press **DONE** to save and exit (or press **CANCEL** to exit without saving changes)

Press **RESET** and confirm by **DONE** to resume to factory default program schedule setting.

FACTORY DEFAULT PRE-PROGRAM

The thermostat is programmed with the energy saving settings shown in the table below for all days of the week. If this program suits your needs, simply set the thermostat clock and press the **RUN**. The table below shows the factory set heating and cooling schedule for all days of the week

	Wake Up (Morning)		Leave For Work (Day)		Return Home (Evening)		Go To Bed (Night)	
Heating Program	6:00	70°F 21°C	8:00	62°F 16°C	17:00	70°F 21°C	22:00	62°F 16°C
Cooling Program	6:00	78°F 25°C	8:00	85°F 29°C	17:00	78°F 25°C	22:00	85°F 29°C

PLANNING YOUR PROGRAM

The Heating and Cooling Program schedules below allow you to pencil in your own program times and temperatures.

Keep the following guidelines in mind when planning your program

- In Heating, lower temperatures will save energy
- In Cooling, higher temperatures will save energy
- If you plan on using Auto Changeover, set the heating temperature below the cooling set temperature for more than the value of pre-set dead band (See configuration menu item 5).

WORKSHEET FOR RE-PROGRAMMING 7 DAYS PROGRAM

Heating Program	Wake Up (Morning)		Leave For Work (Day)		Return Home (Evening)		Go To Bed (Night)	
Mon								
Tue								
Wed								
Thu								
Fri								
Sat								
Sun								

WARRANTY POLICY

WARRANTS THE FOLLOWING:

Only cataloged products sold to distributors are warranted to the original purchaser, and to be free from defects in material and workmanship, for a period of one (1) year from the date of purchase, unless specified in writing for a different period. Prior to returning this product to us, the purchaser shall give us notice in writing stating how this product fails to fulfill this warranty. No product shall be accepted for repair or replacement without a required written notice and without prior written authorization and shipping address having been received by the purchaser. Only our factory is authorized to perform services under this warranty.

Transportation charges are to be prepaid by the purchaser.

This warranty does not extend to any product that has been subjected to misuse, abuse, neglect, accidents, alternations, improper installation or use in violation of the printed instructions furnished by us. This warranty neither applies to batteries nor deterioration of nor damage to the product caused by the use of faulty batteries.

WE SHALL, NOT IN ANY EVENT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. This warranty gives you specific legal rights, and you also have other rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, or implied warranties, so the above limitations or exclusion may not apply to you.



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