# Smart Temp™ ISIS
## User Manual

**Congratulations on the purchase of your new Electronic Thermostat!**

*Your new Smart Temp ISIS thermostat has been built using the best components and design philosophy currently available. As a result, if properly installed your new electronic programmable thermostat will provide you with many years of trouble free and reliable service.*

*Your Smart Temp ISIS Thermostat has been designed to be an attractive, highly reliable and easy to use thermostat. By taking the time to read and understand these simple instructions you can take advantage of many of the capabilities that are offered in the ISIS.*

## Overview

*To assist in your understanding and use of the Isis, a brief description of the functions and controls is given below. A more complete step-by-step instruction on using the ISIS is given later in the manual.*

### ON / OFF Button
To turn the ISIS on, press the ON/OFF button. To turn the ISIS off press and hold the ON/OFF button for 3 seconds. The Green ON/STBY LED will be illuminated when the ISIS is on.

### Set Buttons
The set (or desired) room temperature can be adjusted by pressing the plus or minus SET buttons on the face of the ISIS. Each press will increase or decrease the set temperature by 1 deg C. The ISIS is a single set point thermostat. For example, setting the desired temperature at 21 deg C will bring on the AC heating if the room temperature falls below 20 deg C and bring on the AC cooling if the room temperature raises above 22 deg C. (Depending on the Deadband values set by the installer)

### Prog Button
The ISIS is a 7 day programmable thermostat. This programmability permits you to set the days and times that the ISIS automatically turns you AC System on and off. You access these settings from the PROG button.

### Clock Button.
The ISIS relies on an inbuilt real time clock to turn the system off and on at the times required. The Clock button is used to set this real time clock.

### OVERRIDE button
Pressing this button will turn the AC system on (in the last mode and at the last set temperature) for an installer pre-set period of time. This override can be activated regardless of whether the ISIS is in the manual OFF mode (Green ON/STBY LED off), or the programmed STOP mode (Green ON/STBY LED on). When the override is active a flashing clock symbol will be shown in the lower centre of the LCD.
To turn off the override simply press the OVERRIDE button once again.

### Mode Button
The MODE button cycles the ISIS through Heat only, Cool Only, Auto-Change over or Fan only operational modes. These modes are detailed below.

*Heat only mode* The ISIS will turn on the AC Heating when the room temperature falls below the set temperature. In Heat only mode the ISIS will not bring on the AC Cooling regardless of the room and Set Temperature. In Heat only mode the word "HEAT" will be displayed in the LCD.

*Cool only mode* - The ISIS will turn on the AC Cooling when the room temperature raises above the set temperature. In Cool only mode the ISIS will not bring on the AC Heating regardless of the room and Set Temperature. In Cool only mode the word "COOL" will be displayed in the LCD.

*Auto-change over mode* - The ISIS will turn on the AC Heating if the room temperature falls below the SET temperature and the AC Cooling if the room temperature rises above the SET temperature. Auto changeover mode is indicated by words, "HEAT" & "COOL" in the LCD.

*Fan Only mode.* In Fan only mode the ISIS will turn on the system fan for continuous operation. The ISIS will not control the AC heating or cooling system regardless of the room and set temperature. In Fan only mode a small fan symbol will appear in the lower left of the LCD.

### Auto Fan Button
The ISIS can control the system fan in two ways. Each press of the Auto Fan button alternates the ISIS between Auto fan mode or continuous (Occupied) fan mode.

*Auto Fan Mode* - The fan will run only while the AC system is heating or cooling. When the need for Heating or cooling stops, so does the fan.

*Continuous Fan Mode* (Occupied Fan). - In this mode, the fan will turn on when the ISIS is on and remain on until the ISIS turns off. The fan will remain on during this time regardless of whether there is a need to bring on the AC system heating or cooling.

Please note - As the ISIS is a start / stop thermostat, when the system is OFF (either in programmable or manual modes) the fan is also off.

### Alarm / Limits
This button has multiple functions. It is used to enter the LOCK menu, the installer menu and to cancel any equipment fault, over or under temperature alarms that are present. These functions are described later in the document.

### ON/STBY LED
As the ISIS has two operational modes, two descriptions of this LED's functions are given.

*The ISIS in manual ON/OFF Mode.*
This LED is illuminated when the ISIS is active and is not illuminated when the ISIS is off.
This LED flashes when the 4-minute compressor short cycle protection delay is active.

*The ISIS in Programmable Mode.*
This LED is always illuminated regardless of whether the ISIS is in Start (System running) or Stop (System off) mode to indicate that the AC system is under ISIS control.
This LED flashes when the 4-minute compressor short cycle protection delay is active.

### ALARM LED
As well as being an AC controller, the ISIS is also capable of activating a remote alarm should the room temperature fall out of a pre set temperature range. As well as an alarm LED, the ISIS is also fitted with a normally open contact that closes when an alarm condition exists.
If the AC equipment is fitted with a fault output, this can also activate the Alarm led and fault relay if appropriately wired.

## Important Considerations

### Remote Sensors

Pict 1

For security and convenience the ISIS may be installed in a more remote or secure location. In such applications the ISIS will measure the temperature in the room to be controlled via a remotely connected temperature sensor(s). Pict 1 shows the Smart Temp adjustable version of this sensor.
It is important that consideration is given to this sensor as placing hot items (such as kettles or urns) or cold items (such as chest freezers) under or in the vicinity of these sensors could result in uncomfortable room temperatures.

### Override
The ISIS has an after hour run on timer. This timer can be activated by pressing the OVERRIDE button on the front of the thermostat, or alternatively via a remotely wired switch. *(Often, where there is a remote sensor installed and the override option is used, the override switch will be mounted on the remote sensor).*
To turn off the override simply press the override switch again.

### Keyboard Lock
For added security and to prevent un-authorised tampering with the ISIS program or temperature settings the ISIS has a PIN protected key board lock. When this lock is active, the only buttons that will respond are the OVERRIDE button and the Alarm Reset button.
The procedure to lock and unlock the ISIS is provided in the Installation manual. Only authorised persons will pe provided with this information in an effort to maintain the security of the thermostat.

*Smart Temp Australia*

*Making Life Comfortable*

# Smart Temp™

# ISIS
## Installation Instructions

*The ISIS from Smart Temp Australia P/L is a multistage auto change-over programmable thermostat. It offers industry leading features, an impressive warranty and is extremely simple to use and set up. By taking the time to follow these instructions the ISIS will perform faultlessly and provide the end user with many years of trouble free service.*

Use this installer instruction sheet for mounting and setting up the ISIS, and the User manual for information on programming and setting the real time clock etc.

## Mounting the ISIS or Optional Remote Sensor.
The ISIS can only be as accurate as the temperature sensor permits. It is therefore essential that the ISIS (or remote sensor(s)) are installed in a location that is typical of the ambient room temperature. Do not install the ISIS in a draft, near a floor/wall/roof register. Consideration also needs to be given to drafts that may be present near external opening doors, chillers or windows. Where possible mount the ISIS or temperature sensor out of direct sunlight and on internal walls.

Further, when mounting the ISIS be aware of drafts that may travel down the inside of walls, (especially if mounted on external walls). It is important to fully block all cable entry holes to prevent any of these drafts effecting the internally mounted ISIS temperature sensor.

It is recommended to mount the ISIS or remote sensors between 1.5 & 1.8 metres from the floor where possible.

## Cabling
Normal "AC style" low voltage cabling can be used for the ISIS control wiring. Where long cable runs are likely for the remote temperature sensor and/or remote override switch it is recommended that screened cable be used, especially where this cable is run close to high voltage electrical wiring.
**Do not used twisted DATA cable (CAT 5)**.

## Wiring
Refer to the wiring diagrams on the reverse of this sheet to connect the ISIS to the equipment. Please note, the ISIS is both a Heat Pump & Heat Cool thermostat. The mode of operation is selected with clearly marked jumpers. It is important that you have the jumpers in the correct position for the type of AC equipment installed.

## Programming & Set Up

**DO NOT INSTALL THE LITHIUM BACK UP BATTERY UNTIL AFTER THE REAL TIME CLOCK HAS BEEN SET.**

After first connecting the AC power to the ISIS it is important to wait 15 ~ 20 seconds before attempting to press any buttons, this gives the ISIS time to "BOOT UP" and run its internal diagnostics routine. The ISIS will FAIL this initial BOOT sequence if the lithium battery is installed at this point. If the battery has been mistakenly installed at this point, remove the battery, power the ISIS down and wait 2~3 minutes before re applying power to the ISIS.

Use the programming instructions supplied in the user manual to set the realtime clock and program the ISIS to the end user requirements.

After the ISIS has been set up and programmed insert the lithium battery into the battery holder on the base of the main PCB.

Turn of the power to the ISIS wait 10 seconds and re connect the power to confirm that the ISIS retains memory and the backup battery and electronics functions correctly.

With the ISIS in Auto Change Over mode, test all thermostat modes by both raising the set temperature above the ambient temperature and verifying correct heater operation. Next lower the set temperature to below the ambient temperature and verify the correct operation of the cooling equipment.

## Advanced Installer Functions

The ISIS has two concealed menus that are used to either fully lock the thermostat (or restrict the temperature control range) or to adjust the advanced installer functions. Each menu uses its own security code. It is important that these security codes are only given to authorised persons as these codes are fixed in ePROM and cannot be changed. If these codes are compromised then unauthorised persons will be able to make changes that will effect the performance or efficiency of the AC system.

## Locking & Unlocking the ISIS
Press the ALARM / RESET button. The ISIS will display "C50". Using the Set - button adjust this to read "C45". Press the ALARM / RESET to enter the Lock menu. Pressing the ALARM / RESET button again will lock the ISIS.
Repeat this procedure to unlock the ISIS.

## Setting Advanced Functions.
Press the ALARM / RESET button. The ISIS will display "C50". Using the Set + button adjust this to read "C55". Press the ALARM / RESET again to enter the Setup menu.

The ISIS will display "HL XX" This is the highest value you wish the user to be able to adjust the set temperature to. This value can be adjusted using the Set + or SET - buttons. Default value is 31

Press the ALARM / RESET button again to display "LL XX" This is the lowest value you wish the user to be able to adjust the set temperature to. This value can be adjusted using the Set + or SET - buttons. Default value is 16

Press the ALARM / RESET button again to display "HA XX" This is the value you wish the ISIS to activate the over temperature alarm. This value can be adjusted using the Set + or SET - buttons. Default value is 45

Press the ALARM / RESET button again to display "LA XX" This is the value you wish the ISIS to activate the under temperature alarm. This value can be adjusted using the Set + or SET - buttons. Default value is 04

Press the ALARM / RESET button again to display "Db XX" This permits adjustment of the dead band value, which is the value in deg C between heat and cool modes that you wish the ISIS to remain idle. This value can be adjusted using the Set + or SET - buttons. Default value is 1 deg C.
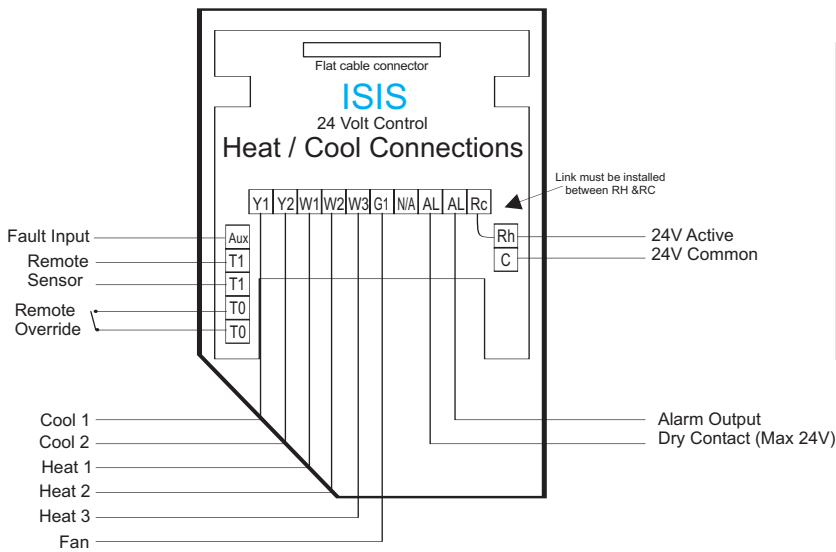
Press the ALARM / RESET button again to display "Ot XX" This activates the ISIS optimised start function "Ot 00" is optimised start off. "Ot 01"is optimised start on. This value can be adjusted using the Set + or SET - buttons. Default value is "OO" (off). Optimised start will Start the ISIS before the programmed start time to ensure the area is at the desired temperature by the programmed start time.

Press the ALARM / RESET button again to display "AH XX" This sets the ISIS After Hours run on time period. This value can be adjusted to values between "0" and "4" hours using the Set + or SET - buttons.
Default value is "02" *(Use "00" to set the after hours run on time period to Off)*

Press the ALARM / RESET button again to display " t 00" This permits you to adjust the temperature calibration of the thermostats temperature sensor. This value can be adjusted to values between "-6 c" and "+6 c" using the Set + or SET - buttons. Default value is "00" (Calibration Offset is nil)

Press the ALARM / RESET button again to return the ISIS to normal mode.
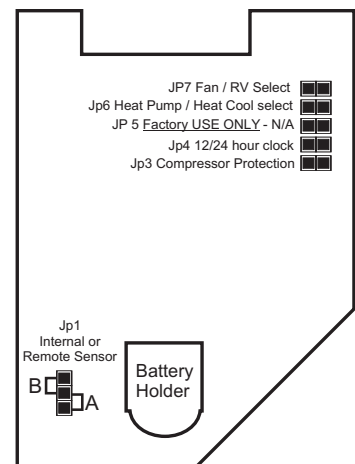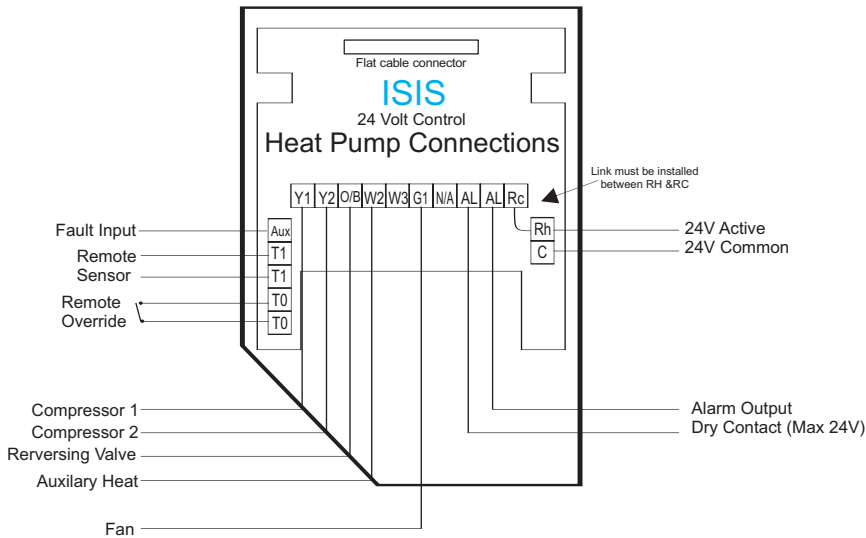
# Electrical Diagram

## ISIS
### 24 Volt Control
### Heat / Cool Connections

Flat cable connector

| Y1 | Y2 | W1 | W2 | W3 | G1 | N/A | AL | AL | Rc |

Link must be installed between RH &RC

Fault Input — Aux
Remote Sensor — T1 / T1
Remote Override — T0 / T0

Rh — 24V Active
C — 24V Common

Cool 1
Cool 2
Heat 1
Heat 2
Heat 3
Fan

Alarm Output
Dry Contact (Max 24V)

### ISIS Heat Cool Configuration

| Jumper Position | JP3 | Jp4 | Jp5 | JP6 | JP7 |
|---|---|---|---|---|---|
| Off | 4 min Time Delay | Clock 24 Hour | N/A | **Must be in this position** | Fan ON immediate with Heat call (Elec. Heat) |
| On | Time Delay Off | Clock AM/PM | N/A | | Fan controlled by plenum switch (Gas. Heat) |

**JP-1** Position A = Internal Sensor
Position B = Remote Sensor

## ISIS
### 24 Volt Control
### Heat Pump Connections

Flat cable connector

| Y1 | Y2 | O/B | W2 | W3 | G1 | N/A | AL | AL | Rc. |

Link must be installed between RH &RC

Fault Input — Aux
Remote Sensor — T1 / T1
Remote Override — T0 / T0

Rh — 24V Active
C — 24V Common

Compressor 1
Compressor 2
Rerversing Valve
Auxilary Heat
Fan

Alarm Output
Dry Contact (Max 24V)

### ISIS Heat Pump Configuration

| Jumper Position | JP3 | Jp4 | Jp5 | JP6 | JP7 |
|---|---|---|---|---|---|
| Off | 4 min Time Delay | Clock 24 Hour | N/A | | Rev Valve Energize "O" (cooling) |
| On | Time Delay Off | Clock AM/PM | N/A | **Must be in this position** | Rev Valve Energize "B" (heating) |

**JP-1** Position A = Internal Sensor
Position B = Remote Sensor

JP7 Fan / RV Select
Jp6 Heat Pump / Heat Cool select
JP 5 Factory USE ONLY - N/A
Jp4 12/24 hour clock
Jp3 Compressor Protection

Jp1 Internal or Remote Sensor
B — A
Battery Holder

Optional Adjustable Remote Sensor
(Non Adjustable and Duct Mount Sensors available)

Smart Temp
SET

## Specifications

| | |
|---|---|
| Range: | 5° to 35° c. |
| Deadband: | 1~5 deg C (Adjustable) |
| Alarms: | 2~45 deg C (Adjustable) |
| After Hours: | 0~4 Hours (Adjustable) |
| Cal Offset: | +/- 6 C (Adjustable) |
| Resolution: | 1°c |
| Accuracy: | +/- 0.3°c |
| Load rating: | 2 Amps @ 24 VAC max. |
| Lithium Bat: | 10 Years (Or 8 weeks accumulated power outage) |
| Voltage: | 24VAC. |
| Connectors: | Screw type. |
| Material: | PC/ABS |
| Weight: | 210g |
| Size: | 82 x 140 x 27 |
| Warranty: | 1 year R.T.B |

Optional 240V Interface available
Smart Pak
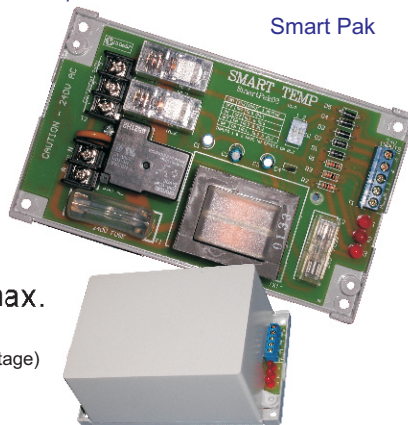
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Optional Smart Pak Cover Shown

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# Programming your ISIS

## Setting the Desired Temperature

Use the SET + button to increase the desired room temperature. Use the SET - button to decrease the desired room temperature. While pressing these buttons the ISIS will display both the SET temperature and the current room temperature on the LCD. Normally the ISIS display will alternate between Temperature Display & Time display.

## Setting the Clock

*Please note. During programming and set up, the ISIS will resume normal mode if no buttons are pressed for 15 seconds. This is an important consideration during set up of the ISIS as if there is to long a period between pressing buttons the thermostat will return to normal mode forcing you to commence the programming procedure from the start.*

As the ISIS can operate as a programmable thermostat it is essential that the clock is set correctly otherwise the ISIS will not operate the AC system at the desired times.

1   Press the CLOCK button once. The Hours will flash in the LCD. Using the Set + or SET - button adjust the hours to the correct time making sure that the AM or PM (if in 12 hour mode) indicator is correct. (Pict 2)

Pict 2

2   Press the CLOCK button again. Now the minutes flash in the LCD. Using the Set + or SET - button adjust the minutes to the correct time. (Pict 3)

Pict 3

3   Press the CLOCK button again. Now the day of the week flash in the LCD. Using the Set + or SET- button adjust the day indication to the correct day. (Pict 4)

Pict 4

4   Press the Clock button once again. The ISIS clock is now set.

## Programming the ISIS to turn on and off at your required times.

*Please note. During programming and set up, the ISIS will resume normal mode if no buttons are pressed for 15 seconds. This is an important consideration during set up of the ISIS as if there is to long a period between pressing buttons the thermostat will return to normal mode forcing you to commence the programming procedure from the start.*

The ISIS is a 7 day programmable thermostat. Each day of the week can have a different start and stop time for each of the program "starts" and program "stops". For example, the ISIS can turn the AC system on at 9:30 am Sunday and off again at noon Sunday.

For simplicity, your ISIS has a default factory installed program of 7:30 AM Start ~ 5:00 PM Stop Monday to Friday. This default program may be modified if required

## To program the ISIS

1   Press the PROG button and the time will flash in the LCD. Monday is displayed and the program indicator on the lower right of the LCD is on. (Pict 5)

2   Press the PROG button again, The Hour flashes, START and Program 1 is displayed. Note that Monday is displayed indicating that this days program is being set. Press the Set + or SET - button to adjust the hours to the time you want the ISIS to turn the AC system on during Monday. (Pict 6)

Pict 5

3   Press the PROG button again, Now the Minutes flash, Press the Set + or SET - button to adjust the minutes to the time you want the ISIS to turn the AC system on. (Pict 7)

Pict 6

4   Press the PROG button; the Hour flashes again but this time the word STOP is displayed in the LCD. Using the Set + or SET - button adjust the hours to the time you wish the ISIS to turn the AC system OFF. (Pict 8)

Pict 7

5   Press the PROG button again and the minutes flash. Using the Set + or SET - button adjust the minutes to the time you wish the ISIS to turn the AC system OFF. (Pict 9)

6   Press the PROG button again; the Hour flashes again with the word START shown in the

Pict 8

LCD but this time we are adjusting the Start time for the Tuesday program.

7   Repeat steps 2 through 6 to adjust the hours and minutes of the remaining Monday to Sunday start and stop times. (Pict 10)
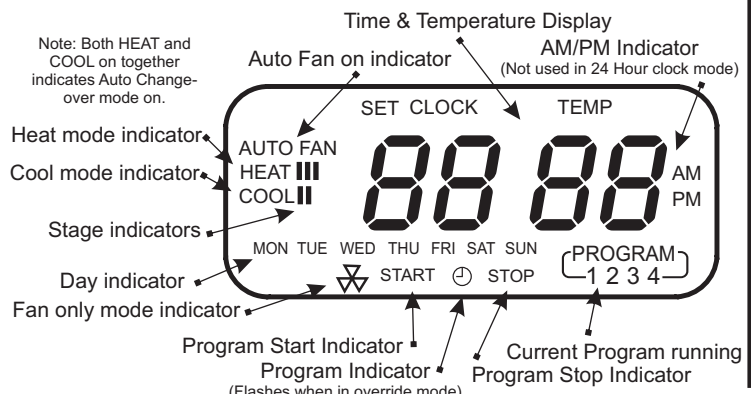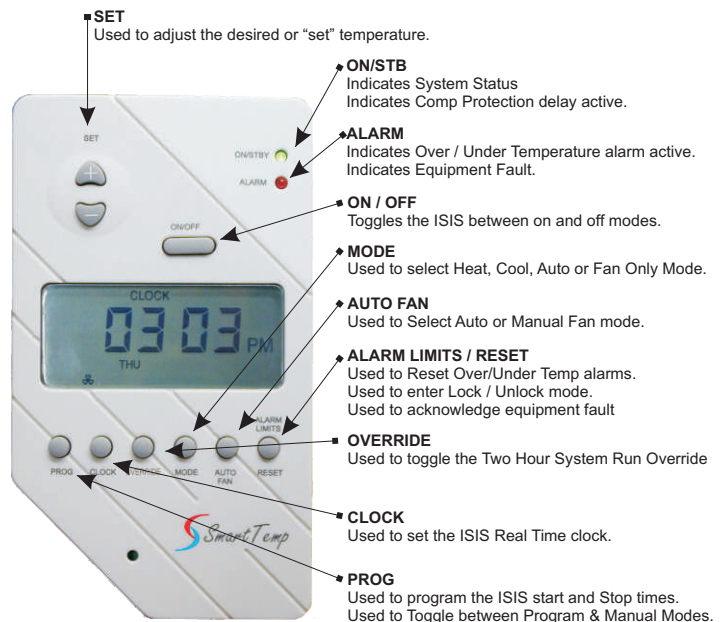
Pict 9

**Should you wish the ISIS to remain in the OFF mode completely for one day (I.E. Sunday) set the Start & Stop times to the same value.**

Pict 10

*TIP: Press the clock button to advance rapidly through the days while in program mode.*

**Please note**. The ISIS is able to operate as a manual (non programmable thermostat) or as a 7 day programmable thermostat as previously described.

To operate the ISIS in <u>Non Program</u> or manual mode (Not under any automatic time clock control) press and hold the PROG button for 5 seconds. When the ISIS is running in non program mode the program indicator in the lower right of the ISIS LCD will be missing. This ISIS can then be manually turned off and on when required with the ON/Off button. To reactivate program mode simply press and hold the "prog" button for 5 seconds until the Program indicator is active.

**SET**
Used to adjust the desired or "set" temperature.

**ON/STB**
Indicates System Status
Indicates Comp Protection delay active.

**ALARM**
Indicates Over / Under Temperature alarm active.
Indicates Equipment Fault.

**ON / OFF**
Toggles the ISIS between on and off modes.

**MODE**
Used to select Heat, Cool, Auto or Fan Only Mode.

**AUTO FAN**
Used to Select Auto or Manual Fan mode.

**ALARM LIMITS / RESET**
Used to Reset Over/Under Temp alarms.
Used to enter Lock / Unlock mode.
Used to acknowledge equipment fault

**OVERRIDE**
Used to toggle the Two Hour System Run Override

**CLOCK**
Used to set the ISIS Real Time clock.

**PROG**
Used to program the ISIS start and Stop times.
Used to Toggle between Program & Manual Modes.

Note: Both HEAT and COOL on together indicates Auto Change-over mode on.

Time & Temperature Display

AM/PM Indicator
(Not used in 24 Hour clock mode)

Auto Fan on indicator

Heat mode indicator

Cool mode indicator

Stage indicators

Day indicator

Fan only mode indicator

Program Start Indicator

Program Indicator
(Flashes when in override mode)

Program Stop Indicator

Current Program running

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