Specifications

Supply Voltage	240VAC @ 0.07Amps or 24VAC @ 0.380Amps
Relays	240V @ 12A max (resistive) Fan / Comp1,2,3, Aux Ht, Rv O/B)
Fuses (Equipment)	15 Amps Maximum 3AG
Control Range	Minus 10 to 50C
Control Type	Heat pump (with O/B terminals) or heat cool
Stage Separation	0.5 ~ 5C (adjustable)
Dead band	Minimum 1 C (adjustable)
Resolution	0.5C
Economy Function range.	0 to room temp - 0.5C (Adjustable)
Delays	0~30 Sec Start (Random) 10 Sec Comp delay after fan on start. 10 Sec min stage delay 4 Min Comp restart delay (Sw2) 4 min fan purge on stop
Run On Timer	0~12 hours (adjustable)
Installed Sensor Profiles	10K NTC (Default - Smart Temp) 2K NTC (Regulator Compatible) 2K PTC (HEVAC Compatible) 4K NTC (HEVAC Compatible) 50K NTC Various Manufacturers)
Sensor response delays	Runing120 second average.
Case Size	146 x 109 x 65 (with Terminals covers)
LCD	12.5mm 3.5 digit reflective 12' O'clock
Switch Settings	Sw1 - Heat Pump / Heat Cool select Sw2 - 4min Comp delay on/off Sw3 - Th2 input Sensor / Remote set point Sw4 - Keyboard lock on/off
Remote Set point Range	Set By Heating / Cooling value (-10~50Max)
Remote Set point input	10K linear
Sensor Inputs	All Auto-detect - Open Circuit is OFF Momentary Short Circuit Th1 - AH time run Permanent short circuit any input - OFF
Storage Temperature	-10 to 75C
Operating temperature	0 to 60C
Mounting Method	35mm Din Rail & Surface mount
Warranty	24 months - return to base
Country of manufacture	Australia - By Smart Temp Australia P/L
Package Contents	1 Only HVAC-32A Digital Controller 2 Only Terminal Covers (HVAC-32A C) 1 Only Standard room sensor (10K NTC) P/N H-RS01 Installer Manual & Accessory guide

The HVAC-32A has been designed to be an extremely simple to use and install commercial A/C controller. If when setting up the HVAC-32A you encounter a difficultly then Smart Temp Australia or our authorised distributors and resellers are available to assist with any issue that may have.
Simply contact Smart Temp or our authorised agents for prompt & friendly service.

www.thermostat.com.au
Phone +61 3 9763 0094
Fax +61 3 9773 0098

Due to continued product development Smart Temp reserves the right to change these specifications without notice.

HVAC-32A

Digital Multistage Air Conditioning Controller with inbuilt Outside Air Economy function

Operation Manual

- Australian made with highest quality components.
- 3 stage heat & cool, auxiliary heat and fan control.
- Random equipment start delay (0~30 seconds).
- 4 Min fan purge on shutdown.
- Heat pump (with OB terminals) & heat cool logic.
- Relay & 0~10V heating & cooling outputs.
- Integrated outside air economy function (requires optional sensor).
- Fully fused & MOV protected 12Amp relays.
- Set a "OFF" heating and cooling temperature (Setback mode).
- Pulse modulating heating output.
- In built protection from RFI / EMF for added reliability.
- Temperature high & low input select.
- Safety shutoff on all sensor faults.

Thank you for selecting the Smart Temp HVAC-32A Commercial DIN rail mounted thermostat.

The Smart Temp HVAC-32A thermostat has been built using the best components and design philosophy. As a benefit of this, if properly installed this electronic thermostat will provide many years of trouble free and reliable service.

Please take the time to read these simple instruction to familiarise yourself with the function and features offered in this product.

Index

Commissioning

The HVAC-32A for all of its advanced function and capability is a surprisingly simple commercial Heating, Ventilation and Air Conditioning controller to test.

To test, turn the HVAC-32A on by either close circuiting the “RUN” terminals or by briefly shorting the main room temperature sensor (to activate the After Hours timer).

Note the current room temperature as displayed in the LCD.

To Test the heating mode raise the HEAT set point above the current room temperature. After any set delays have elapsed the Heat LED will blink (indicating heating has been called) and appropriate relays will close to bring the A/C system into Heating Mode. Check to make sure the A/C equipment connected to the HVAC-32A is heating.

To Test the cooling mode lower the COOL set point below the current room temperature. After any set delays have elapsed, the Cool LED will blink (indicating cooling has been called and appropriate relays will close to bring the A/C system into Cooling Mode. Check to make sure the A/C equipment connected to the HVAC-32A is cooling.

Return the heating and cooling set points to their correct settings.

Troubleshooting.

Symptom	**Probable Cause**
No LCD / No LEDS	Check power supply to the HVAC-32A either 24V or 240V must be supplied.
HVAC-32 is on but no outputs.	If room temp LED is OFF - check the “RUN” input is closed or link installed pulse main temp sensor to activate A/H timer If room temp LED is ON - Check internal 15A equipment fuse - replace if blown.
In HP mode (Sw1 on) AC system heats when it should cool, or cools when it should heat	Check correct connection of reversing valve wires. Reverse if necessary.
A/C System cycles heat - cool - heat	Check the Heat & Cool set points - widen if necessary Disable the “SAL” combined High & Low select function, Try using the “SHL” or “SCH” modes only Turn Sw2 ON - 4 min compressor delays.
Room sensor “Appears” inaccurate	Check Sensor location (away from vents, windows etc) Check the sensor calibration (advanced installer menu) If using RS-03
Economy cycle not operating	Ensure a working outside air sensor is fitted. Check outside air cut off value. Ensure HVAC-32A is ON and in cooling mode.
High (or Low select not functioning)	Ensure a working room sensor is fitted to the remote input Ensure Sw3 is ON Ensure this function is activated (see advanced installer functions for information on setting this function).

Advanced Sensor configurations (Sw3 ON)

The HVAC-32A uses the Room & Remote temperature inputs for room temperature readings as well as for advanced functions. An open circuit on these inputs will disable the readings or shut the HVAC-32A down. A short pulse on Th1will initiate a after hours countdown timer.

Room Sensor
Open Circuit - Shut HVAC-32A down
Momentary Short - Activate A/H Run timer.
Permanent Short - Fault - Shut down.

Remote Sensor
Open Circuit - Sensor Off Line
Permanent Short - Fault - Sensor Off Line.

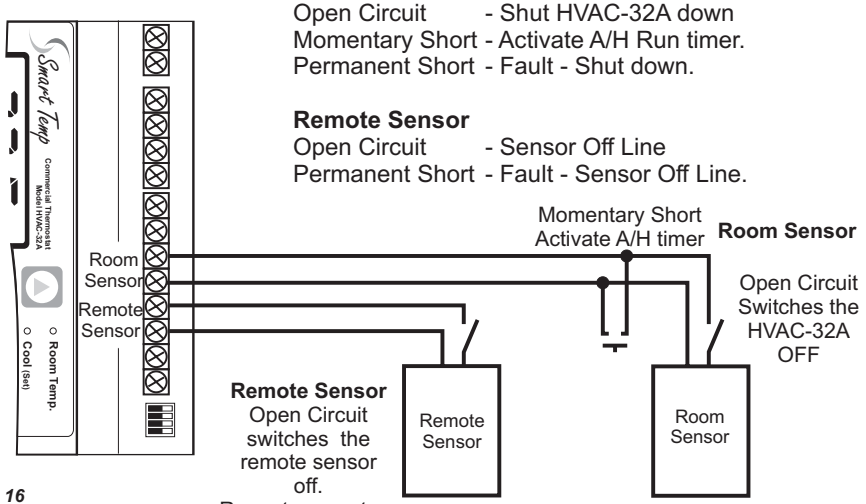


Fig 16

Remote Set point Adjustment (Sw3 OFF)

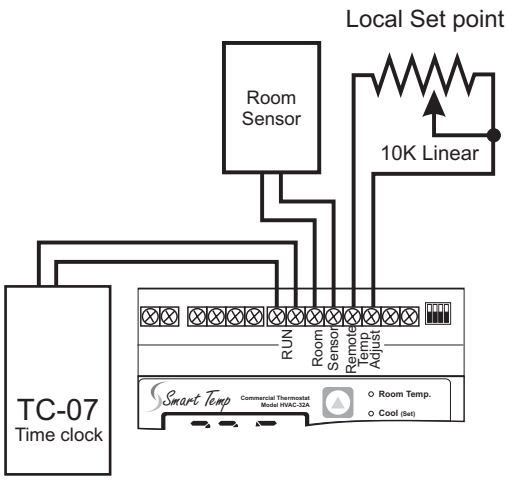


Fig 17

The HVAC-32A can use the remote room temperature sensor input as a remote temperature adjustment input by turning Sw3 to the OFF position.

In this mode, the set temperature of the HVAC-32A can be altered between the cooling and heating set points.

Example - Set Cool to 25c
Set Heat to 20c

Using a 10K linear potentiometer a desired set point between 20 & 25C can be selected from a convenient remote location.

Installation

The HVAC-32A can be mounted in any convenient location. If high voltage is connected to the HVAC-32A consideration should be given to the safe placement of the HVAC-32A as the terminals can be easily exposed by removing the two terminal covers. *(Fig 1)*

The HVAC-32A has been designed to be surface or DIN rail mounted. Ideal locations for placement include in a switch board, a utility space or within the A/C unit itself. Areas that are excessively hot (+70c) damp or are electrically noisy (such as close to variable speed drives) should not be considered as these may cause premature failure of the HVAC-32A or erratic response.

Terminal covers (with break out tabs)are provided. These can be used or discarded at the installers preference.

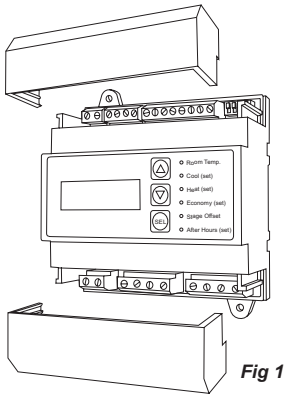


Fig 1

The HVAC-32A can be either line powered (240VAC) or 24 volt powered - **DO NOT** apply power to both inputs.

All relays in the HVAC-32A are voltage free rated at a maximum of 12Amps resistive, 240VAC.
An internal 15amp 3AG fuse protects the wiring, the HVAC-32A and the A/C equipment from excessive current draw.

4 DIP switches (in the top right under the terminal protector) are provided for setting time delays and equipment control modes - This is explained fully in other parts of this manual. It is recommended that these switches be set prior to power up.

The HVAC-32A relies on remote temperature sensors to measure the room and outside air temperature(s). Careful consideration must be given to placement of these sensors. The room sensors should be placed at 1.5 metres from the floor and in a location that will represent the desired temperature of the entire area. The sensors should be placed away from direct sunlight, on a internal wall if possible and away from drafts or other sources of warm or cool air.

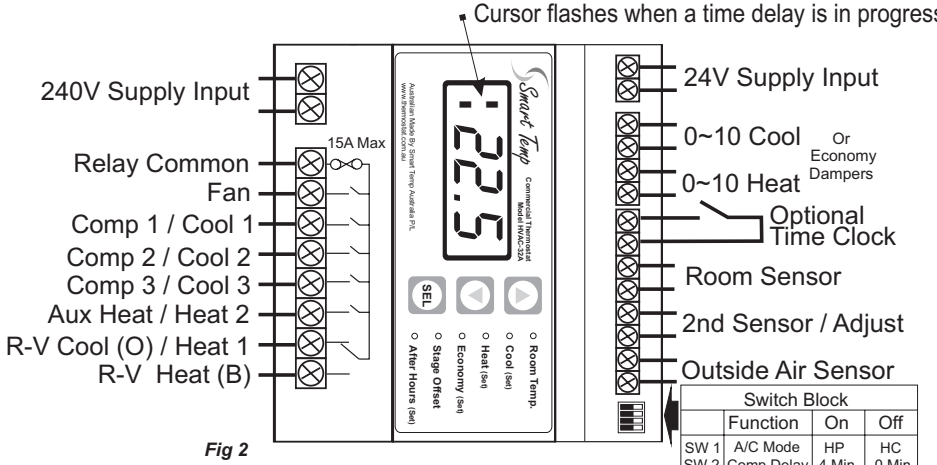


Fig 2

Switch Block			
	Function	On	Off
SW 1	A/C Mode	HP	HC
SW 2	Comp Delay	4 Min	0 Min
SW 3	2nd Input	Sensor	Adjust
SW 4	Keyboard Lock	On	Off

DIP Switch Settings

SW 1 **Used to select either HP (Heat Pump) or HC (Heat / Cool) mode.**
SW1 ON - HP (Heat pump) mode.
Compressors are switched for both heating AND cooling. Heating OR cooling is determined by the reversing valve output. *fig 3*

SW1 OFF - HC (Heat with add on Cool) mode.
The cooling only outputs are switch for cooling and separate heating outputs are switch for heating. *fig 4*

SW 2 **Used to select compressor delays.**
To protect against compressor short cycling, a 4 min compressor start delay can be switched on. SW2 ON - Compressor delay is on.
Two large dots on the LCD will flash when ever any delay is in progress

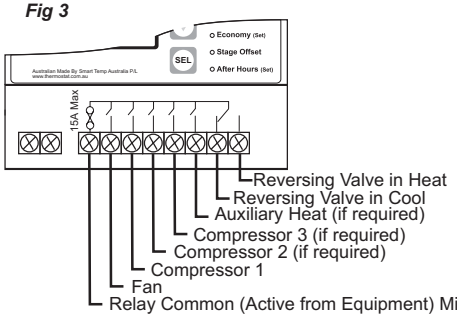
SW 3 **Used to select the function of the 2nd sensor input.**
The HVAC-32A has two room temperature sensor inputs. The 2nd input can be configured as an additional room temperature sensor input or alternatively as a remote set point adjustment. SW3 ON - Room Sensor. SW3 OFF - Adjust

SW 4 **Keyboard Lock**
When this switch is on the 3 keyboard buttons are disabled. When a button is pressed with switch 4 on. the word “LOC”will be shown in the LCD.

Typical Wiring Examples

Heat Pump Wiring (SW1 ON)

Fig 3

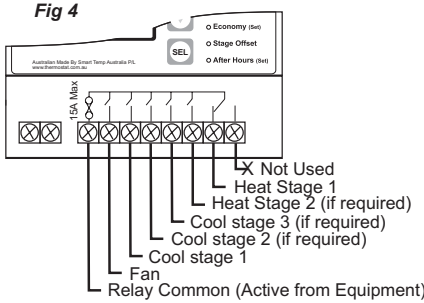


Start Up Sequence.
1 Start signal received (from Th1 Input or Time clock input).
2 Random delay timer starts (0 to 30 seconds delay start).
3 Fan starts.
4 If required - reversing valve changes state (heat or cool).
5 If required - Compressor 1 Starts.
6 If required - 10 second delay - Compressor 2 starts.
7 If required - 10 second delay - Compressor 3 starts.
8 If required - 10 second delay - Auxiliary heat starts.

Shut down sequence
1 Reverse of above.
2 Fan purge for 3 minutes after last compressor stops.

Heat Cool Wiring (SW1 OFF)

Fig 4



Start Up Sequence.
1 Start signal received (from Th1 Input or Time clock input).
2 Random delay timer starts (0 to 30 seconds delay starts).
3 Fan starts.
4 If required - Cooling or Heating 1 Starts.
5 If required - 10 second delay - Cooling or Heating 2 Starts.
6 If required - 10 second delay - Cooling 3 Starts.

Shut down sequence
1 Reverse of above.
2 Fan purge for 3 minutes after last heat or cool call.

Typical 0-10V Wiring

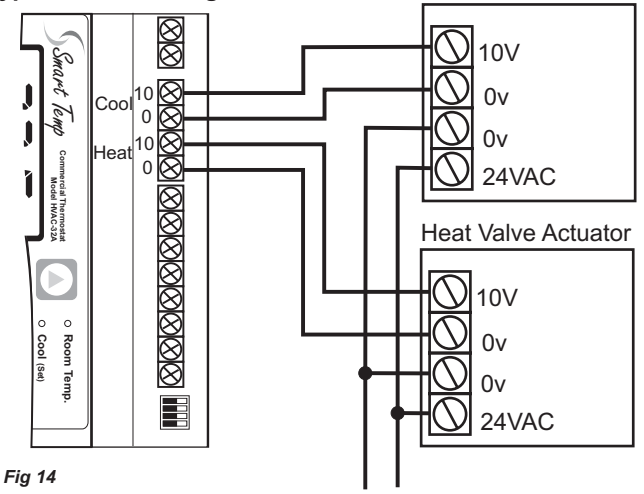


Fig 14

When using 3 wire actuators the 0-10V “0” terminal should be joined with the “0” volt power terminal.

24V actuators are shown. Other voltage actuators can also be used if desired.

If required, the output range of the HVAC-32A can be changed from 0-10v to 2-10v.
See the advanced installer menu for more information on this function.

24 Volt supply voltage

Using Multiple room sensors (SW 3 ON)

Multiple room temperature sensors can be installed in up to two groups if a large area temperature must be controlled. Depending on the configuration, RT-01 or RT-02 (averaging) sensors may be required for this application.

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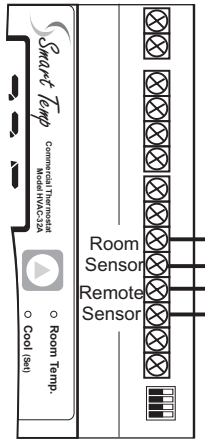
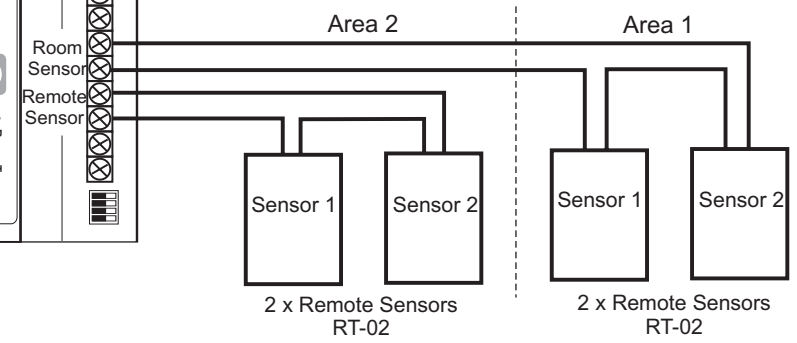


Fig 15

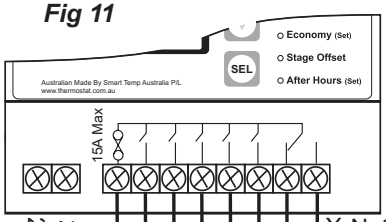
These two separate groups temperature sensor(s) can either be averaged by the HVAC-32A or a High (or Low) select function for heating and cooling can be activated. These functions are described in the advanced installer function menu.

Using inline switches, these areas sensors can be locally switched on or off for added flexibility of design.



Typical Heat Cool Wiring (DIP SW1 OFF)

Fig 11



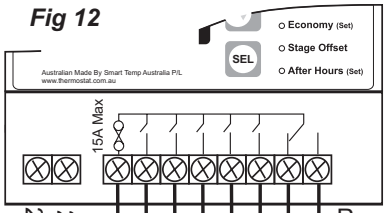
Note 1: To power the HVAC-32A
24V can be applied to the 24V input
OR
240V can be applied to the 240 input.

DO NOT apply both 24V and 240 V to the HVAC-32A power inputs at the same time or damage will result.

240VAC Neutral
240VAC Active
X Not Used
Heat Stage 1
Heat Stage 2 (if required)
Cool stage 3 (if required)
Cool stage 2 (if required)
Cool stage 1
Fan
Relay Common (Active from Equipment Any Voltage to 240VAC)
see note 1 above

Typical Heat Pump Wiring (DIP SW1 ON)

Fig 12

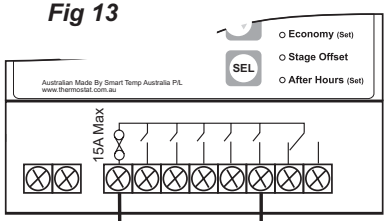


Note 2: A heat pump systems reversing valve will energise in either Heating OR cooling mode only.
Use only the heat or cool terminal only
- NOT BOTH -
If the system is heating when it should be cooling or visa versa, change the reversing valve wiring to the other reversing valve terminal

240VAC Neutral
240VAC Active
Reversing Valve in Heat
Reversing Valve in Cool
see note 2 above
Auxiliary Heat (if required)
Compressor 3 (if required)
Compressor 2 (if required)
Compressor 1
Fan
Relay Common (Active from Equipment) Mv to 240VAC
see note 1 above

Pulse Width Modulating Heating (Activated from advanced installer menu)

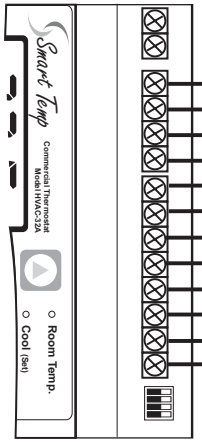
Fig 13



The heating PWM output uses the Aux Heat/W2 output to switch the heating elements (Sw1 on or off). This function can be used in conjunction with a normal A/C system capability although not shown in this drawing.
See page 10 for information on this function.

Auxiliary Heat (if required)
Relay Common (Active from Equipment) Mv to 240VAC

Fig 5



0~10 Cool
0~10 Heat
Or Economy Dampers
Link or Time Clock
Room Sensor
2nd Sensor / Adjust
Outside Air Sensor

0-10V Cool
This output will operate in parallel with the relay output for cooling. The further the room temperature is above the cooling set temperature the greater the voltage output.

0-10 V Heat
This output will operate in parallel with the relay output for heating. The further the room temperature is below the heating set temperature the greater the voltage output.

The 0-10V heating and cooling outputs will be assigned for the economy mode damper control when the optional out side air sensor is fitted. This is explained later in this manual.

Time Clock Input
When this circuit is closed the HVAC-32A will operate. When this circuit is open the HVAC-23A will shut down. This input is ideally suited to be connected to the TC-07 seven day time clock module from Smart Temp or a remote Off/On switch.
Note The HVAC-32A can also be started and stoped using the main temperature sensor input provided the “RUN” input is closed. See room sensor input below.

Room Sensor input
The HVAC-32A measures the room temperate from the sensor connected to this input. If an open circuit is detected at this input the HVAC-32A will interpret this as a “shutdown” request and begin the shut down process (regardless of the clock input status). If a momentary (less than 2 second) short circuit is detected at this input the HVAC-32A will start and run for the number of hours set in the “After Hours” period When this countdown time has expired the HVAC-32A will shut off again.

2nd Sensor / Adjust
SW3 ON.
In this mode, the HVAC-32A uses this input as a second room temperature sensor input. When used as a room temperature input, this value can be averaged (with weighting applied if necessary) or used as High / Low Select. These functions are explained in the Advanced installer instructions section of this manual.

SW3 OFF.
In this mode this input is used as a remote room set point adjustment. Using a 10K linear potentiometer connected to this input the set point of the HVAC-32A can be remotely adjusted between the vales entered into the Cooling set point (the High Limit) and Heating set point (the Low Limit) values. For example, setting a heating set point of 20 C and a cooling set point of 25C the range of adjustment for this input is 20 to 25C.

Outside Air Sensor
When the outside air sensor fitted the HVAC-32A will automatically enter “Economy Mode”. When in this mode the HVAC-32A will use the outside air (if suitable) to cool rather than use the A/C system. This function is described below.

Installer Settings

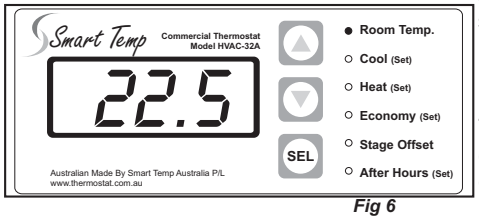


Fig 6

Using advanced digital processing, the HVAC-32A has been built to be very accurate and extremely simple to install and set up. Following the simple steps detailed below the HVAC-32A will be set up in a matter of moments.

The HVAC-32A uses its 6 LEDS in conjunction with the LCD to display the current status of the system, set points and permit adjustments where applicable.

When no buttons have been pressed, the HVAC-32A will display the current room temperature. Tapping the select button will advance you through the various setup options. The red LEDS will inidicate the current value selected and where applicable permit its adjustment with the Up & Down buttons.

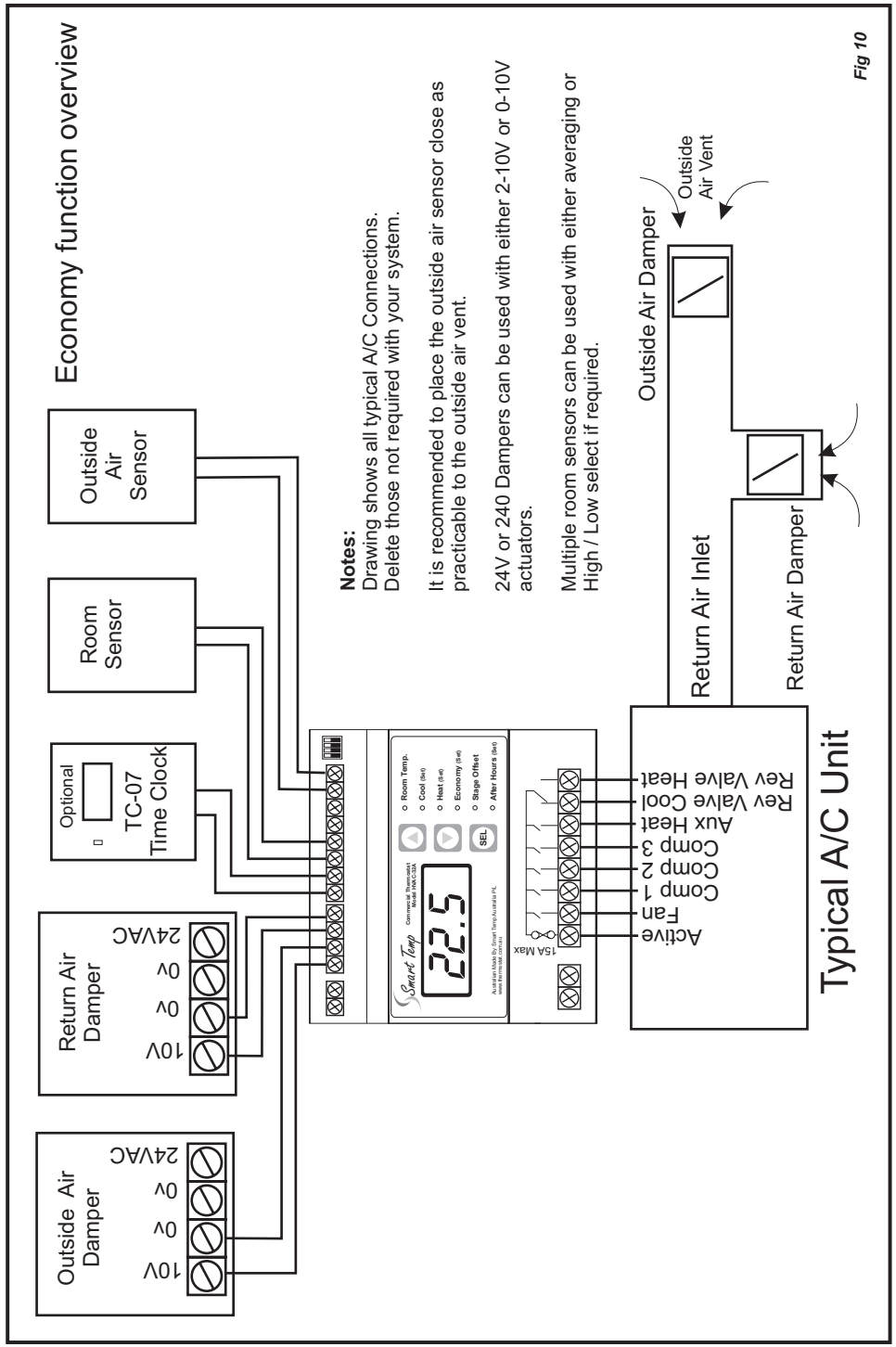
With each press of the select button the HVAC-32A will advance through the cool set point, the heat set point, the economy set point, the stage offset and the after hours period. Each of these values can be adjusted with the UP & Down buttons if necessary. If no button press has been detected within 5 seconds the LCD will resume to display the current room temperature.

Room Temp
LED ON - The HVAC-32A is on and the current room temperature is displayed.
All LED's Off - HVAC-32A is OFF.
Note: If the word "OFF" is shown in the LCD the room sensor is open circuit.

Cool (Set)
Default value is 23C. Range is -9 to 50c
LED ON - The HVAC-32A is displaying the COOL set point value (adjust if necessary)
If the LED is blinking the HVAC-32A is calling cool mode from the A/C system.
Note, the HVAC-32A will maintain a minimum of 1 deg C between the Heat and Cool set points. Adjusting the cooling set point lower than the heating set point will "push" the heat set point down to maintain the minimum 1 deg C separation.

HEAT (Set)
Default value is 20C. Range is -10 to 49c
LED ON - HVAC-32A is displaying the HEAT set point value (adjust if necessary)
If the LED is blinking the HVAC-32A is calling heat mode from the A/C system.
Note, the HVAC-32A will maintain a minimum of 1 deg C between the Heat and Cool set points. Adjusting the heating set point higher than the current cooling set point will "push" the cool set point up to maintain the minimum 1 deg separation.

Economy (Set)
Default value is 12C. Range is 0 to 22c
LED ON - The HVAC-32A is displaying the LOW economy cut of value. The economy cut of value is the outside air temperature that is considered too cool to use for economy cooling. If the LED is blinking the economy function is active and outside air is being used to cool. The cooling outputs will be off.



Typical wiring Examples

Economy Function

The HVAC-32A has an inbuilt economy function. To activate this function all that is required is to install the optional outside air temperature sensor (P/N H-RS01) and the necessary dampers. The HVAC-32A will automatically reassign the 0-10V heating and cooling outputs to control the inside and outside air dampers when the outside air senor is fitted .

Operational Logic

If cooling is required and the outside air is at least 0.5C cooler than the current room temperature the HVAC-32A will open the outside air damper while closing the return air damper to draw in the cooler outside air to cool the building. While outside air is being used the A/C unit cooling will be switched off.

As the room temperature reaches the set point the outside air damper will slowly close while the return air damper opens mixing outside and inside air to maintain the desired set point. This prevents the building from over cooling if the outside air is too cold.

If outside air is too warm to provide adequate cooling, either because of the desired set point is low or the temperature of the outside air is high, the HVAC-32A will use the A/C system cooling capacity to cool.

When desired, a low outside air temperature limit can be set. This is a temperature considered too cool to introduce into the building for cooling. When the outside air is at or below this threshold the outside air economy function will be suspended and normal HVAC-32A operation will begin using full inside air. (i.e the outside air damper will close and the return air damper will open. The A/C systems cooling function only will then be used to cool the building.)

The steps for wiring and programming the economy function is detailed below.

1. When the HVAC-32A is displaying the room temperature, press the select button 3 times. (Past Cool set, Heat set then to Economy set)
2. The LED will be on next to the word “Economy” indicating this value can be adjusted if required.
3. Using the Up or Down button, enter the low economy cut of value - This is the outside temperature considered too cool to use - so the economy function will be disabled if the outside air temperature is below this value.
4. Fit the optional outside air sensor (P/N H-RS01) and place it outside in a area close to the outside air inlet.
5. The 0-10V heating output is reassigned to control the outside air damper & the 0-10V cooling output is reassigned to control the return air damper. Use the wiring example below to connect the 0-10V (or 2-10V) economy dampers.

Stage Offset
Default value is 1.5 C. Range is 0.5 to 5c
LED ON - The HVAC-32A is a multistage controllers. This value permits the adjustment of subsequent stages of heating and cooling from set point. By setting a lower value the stages will be called closer to set point using more energy but ensuring the area set temperature is reached quickly. By setting a higher value less energy is used however the room temperature will take longer to reach set point and may not be maintained as easily.
This LED does NOT flash

After Hours (Set)
Default value is 2. Range is 0 to 12 hours
LED ON - The HVAC-32A is displaying the after hours countdown run timer in hours (adjust if necessary). If the LED is flashing the HVAC-32A after hours run timer is active.

The after hours run timer is activated (or deactivated) by momentarily shorting the room sensor (TH1) input. This LED will flash when ever this timer is running.

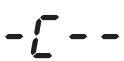
Advanced installer options

The HVAC-32A is capable of advanced control capabilities. By Pressing and **HOLDING** the select button for 5 seconds, the advanced installer mode can be accessed.
All LEDS will flash briefly to indicate the advanced installer mode has been entered.
If no buttons have been pressed for 20 seconds you will be exited from the advanced installer menu.

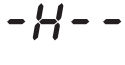
Once in the advanced installer mode, tapping the select button will cycle between the following items. Where applicable these values can be adjusted with the Up and Down buttons.

Default values are shown in the examples below

Sensor Calibration.
The LCD will show “C” for Calibration and a number between -5 and +5, the current offset value. Factory default is “C-0” (no calibration offset)
This permits the installer to add an offset to the reading of the main room temperature sensor if required. Using the UP & Down buttons up to 5 deg can be added or subtracted from the room temperature sensors displayed value. Please note. The HVAC-32A temperature sensors are very accurate therefore it is extremely unlikely that this value should ever need to be altered. Please check the room sensor location, sensor averaging or high / low select values (described in the advanced installer menu) for errors before making any adjustments to this value.



Cool Setback Value.
The LCD shows “-C--” (Default off) which is the cooling temperature to maintain when the HVAC-32A is off. This value can be adjusted between 0 and 40C. This function if set is used to ensure a maximum room temperature is not exceeded when the building is unoccupied.



Heat Setback Value.
The LCD shows “-H--” (Default off) which is the heating temperature to maintain when the HVAC-32A is off. This value can be adjusted between 0 and 40C. This function if set is used to ensure a minimum room temperature is not exceeded when the building is unoccupied.

Temperature SensorType Select

T= XX permits you to select the appropriate temperature profile to match the sensor connected to the TH1 input. This function permits the HVAC-32A to use temperature sensors other than the standard sensors supplied by Smart Temp.

When selecting the sensors profiles please be sure to note the "-" minus or "+" plus symbol as some profiles use a positive temperature coefficient while others have a negative temperature coefficient.

- -T 10 is the standard Smart Temp non adjustable sensor.
- -T 2 is the temperature profile required to use a Regulator (TM) 2K NTC sensor. (Compatible with all TR2100 series)
- +T 2 is the temperature profile required to use a HEVAC (TM) 2K PTC sensor. (Compatible with HTC4 & HTC2 series)
- -T 4 is the temperature profile required to use a HEVAC (TM) 4K NTC sensor. (Compatible with HTC5 & HTC3 series)
- +T50 is the temperature profile required to use a Smart Temp adjustable sensor (p/n RS-03)

Remote Sensor Weighting Value

This function permits you to apply a weighting factor to the remoteTH2 sensor. R5 indicates 50:50 weighting between Th1 & Th2 inputs. Should it be desired this weighting can be changed from r 1 (Th2 sensor 10% TH1 sensor 90%) to R10 (100% Th2 sensor 0% Th1 sensor).

Pulse Width Modulating Heating

Traditionary, heating elements are 100% on until the set point is reached then switched 100% off. This control method can cause the heating set point to be exceeded as the heating elements slowly cool down after switch off.
The HVAC-32A is capable of controlling heating elements using a variable frequency On/Off cycle to modulate the heating output of a heating element.

The HVAC-32A will "pulse" (On /OFF cycle) the Auxiliary Heat / Heat 2 relay output. A heating element connected to this output when this mode is enabled will progressively reduce its "average" heat output as the set point is approached, preventing the heating set point being overshot.

Default value is "--" off. Range is "- -" to "10". This value is the temperature where the heating elements are on for a 100% duty cycle. Above this value to set point the heating elements will begin to progressively modulate to off.

Analogue Output Span

The HVAC-32A has heating and cooling Analogue outputs. As with the PWM heating elements described above, these outputs can be spaned to suit the valve sizes used. If A=3 (default) the analogue outputs will be at 10V when the difference between the room and set temperature is greater than 3 deg. This value can be adjusted between 1 & 9.

Analogue Output Range.

The Analogue output range can be changed from 0~10V (Ar=0) to 2~10v (Ar=2) by using the Up and Down buttons to suit the requirements of the device the HVAC-32A must control. Default is "0-10"

High / Low Select

The HVAC-32A if required can High or Low select the temperature as measured by both the Main & 2nd temperature inputs. The default value is "S - -" (Off)
"SHL" Select Heating Low. In this mode, when heating the HVAC-32A will use the lowest temperature as measured from both the Main and 2nd temperature inputs and it will heat until the LOWEST of the two temperature inputs reaches the desired heating set point. The cooling function will remain unchanged (usually an average of the two temperatures).

"SCH" Select Cooling High. In this mode, when cooling the HVAC-32A will use the Highest temperature as measured from both the Main and 2nd temperature input and it will Cool until the Highest of the two temperature inputs reaches the desired cooling set point. The Heating function will remain unchanged (usually an average of the two temperatures).

"SAL" Select All. In this mode, the HVAC-32A will use the Highest temperature as measured from both the Main and 2nd temperature input as the current room temperature for Cooling AND the Lowest of the two temperatures when Heating. It is an addition of the "SHL" & "SCH" functions as described above.
Note: use this function with caution - ensure a sufficient dead band between the heating and cooling set point has been chosen.

Sensor 1 Mode

Normally when the main room sensor (sensor 1 or Th1) is open circuited the HVAC-32A will completely shut down. If this option is set to S1F (sensor 1 fan), the indoor fan (only) will continue to run when the room sensor is open circuited provided the clock input is active. This in effect permits you to set a "Ventilation mode" simply by open circuiting the room temperature sensor.

Powering the HVAC-32A

The HVAC-32A can be powered from either a 240VAC **or** 24VAC supply.
Under NO circumstance connect both a 240VAC supply and 24VAC supply or damage NOT covered by warranty may result.
The 24V input is under the top "Low voltage" cover . Marked 24VAC
The 240V input is under the bottom "High voltage" cover. Marked 240VAC

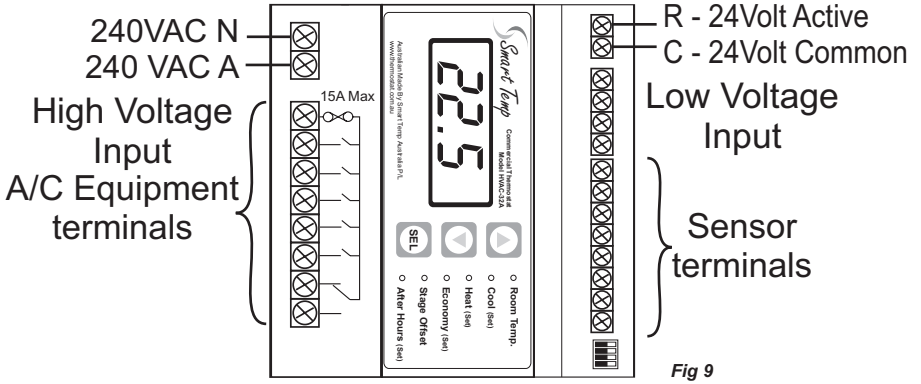


Fig 9