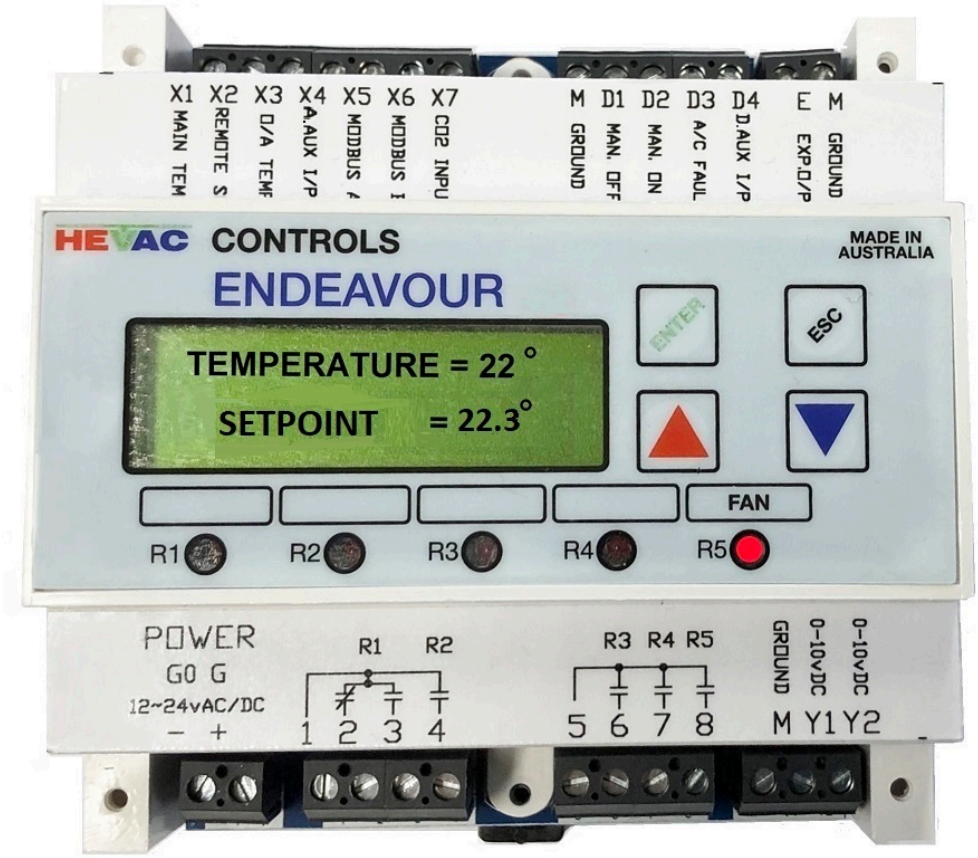
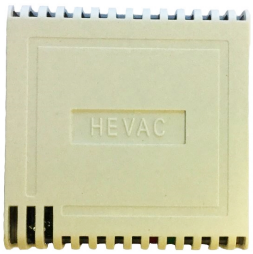
HEVAC
Control Agencies

TO VIEW FULL ENDEAVOUR OPERTIONAL MANUAL CLICK ON THE QR CODE

ENDEAVOUR PRESET FOR NIGHT PURGE ONLY



ROOM SENSOR



OUTDOOR TEMP. SENSOR

ENDEAVOUR PRESET FOR BASIC NIGHT PURGE VENT OPERATION ONLY, WITH ALL NORMAL TIME & TEMPERATURE CONTROLLED RELAY FUNCTIONS DISABLED.
DURING A PRESET MONITORING TIME FOR POSSIBLE NIGHT PURGE OPERATION (TYPICALLY 4 - 6 am) IF THE ROOM TEMPERATURE IS MEASURED TO BE ABOVE THE PROGRAMMED SETPOINT AND THE OUTSIDE AIR TEMPERATURE IS COOLER THEN THE ROOM TEMPERATURE, FORCED FAN VENT PURGE OPERATION WILL COMMENCE (CLOSING TERMINALS 5 & 8) WHILST ALL THESE CONDITIONS ARE MET.

THE MAIN SWITCH (TIME SWITCH 1) EX HEVAC WILL HAVE ITS USUAL ON & OFF DAY TIME SWITCHING EVENTS DISABLED , BUT CAN BE REINSTATED IF UN-CONTROLLED FAN OPERATION IS STILL REQUIRED DURING NORMAL OCCUPANCY HOURS FOR VENTILATION REQUIREMENTS. ALSO A SHORT DURATION TIMER OPERATION CABN BE ADDED TO START FAN OPERATION BY CONNECTION OF A NORMALLY OPEN PUSH BUTTON TO TERMINALS M & D2 (or X1).

WITH THIS SETUP EX HEVAC FOR NIGHT PURGE ONLY OPERATION ONLY THE NIGHT PURGE TIME SWITCH WILL CAUSE FAN OPERATION FROM THIS CONTROLLER UNLESS OTHERWISE PROGRAMMED.

THE AUXILARY TIME SWITCH IS STILL AVAILABLE FOR AN INDEPENDENT TIME SWITCH OPERATION CONTROLLING ONE OF THE CONTROLLERS RELAYS PROGRAMMED FOR THIS PURPOSE.

Technical Data

General Specifications

Operating Voltage	12 to 24 Volts AC or DC
Power Consumption	
At 24vDC Volts	MAX. 150mA
At 24vAC Volts	4 VA
Switching Capacity of Relays	
Voltage	AC 1….250 Volts
Current	8.0 (2.5) Amps
Set point Setting Range	1-99 oC in 0.1 oC Increments
Relay Switch ON Points (Dead band)	0.1-19.9 oC
Relay Hysteresis (Switching Differential)	0.1-9.9 oC
Relay to Energise Time Delay	0.1-42 Minutes
Y1/Y2 Output Voltage Range (*NOTE MINIMUM & MAXIMUM Y OUTPUT VOLTAGE USER ADJUSTABLE*)	0-10VDC
Y1/Y2 Start Point (Dead band)	0-19.9 oC
Y1/Y2 Range (Proportional Band)	0.5-25 oC
Y1/Y2 Integral action (P+I triggers >10% P output)	Off-60 minutes

ANALOG INPUTS

X1 : Main Temperature Sensor Input configurable (with jumper & software) as Active (0-10vdc OR 4-20mA ~0 to 100c (adjustable) or Passive (4.2k@22c).
X2 : Remote Set point configurable (with jumper & software) as passive using 10K potentiometer (18-25c Range) or 0-10vdc (top end range configurable).
X3 : Outside temperature sensor configurable (with jumper & software) as Active (0-10vor 4-20mA ~0-100c) or Passive (4.2k@22c). Optional use for O/A S/P reset.
X4 : Universal input configurable (with jumper & software) for auxiliary control loop to control spare relays or analogue outputs or humidity measurement induced reset of the controllers operating temperature setpoint.

X7 : Room or R/A Duct CO2 Sensor input to override economy cycle operation or used to control spare internal relays (R1-4) for on/off CO2 control interlocks.

Communication :

Terminal's X5 & X6 configurable for RS485 MODBUS communication.
X7 can be set to ground (via an internal 100 ohm resistor) for use as a comms shield connection if not used as a CO2 sensor connection.

Output Indication:

Relay On/Off Status	5 x Red LED
LCD Display	2 x 16 character LCD
Display Resolution	0.1 Increments

Technical Data (Cont.)

Environmental Conditions	Operation	
	Ambient Temperature	0...45oC
	Humidity	< 85 % RH (Non Condensing)
	Storage and Transport	
	Ambient Temperature	-5...65oC
	Humidity	< 90 % RH (Non Condensing)
Product Standards	COMPLIES TO ALL RELEVENT AUSTRALIAN STANDARDS including 6mm segregation between high & low voltage connections	
Weight	Including Packaging	600 grams
Housing	Colour	Grey
	Material	ABS POLYCARB
	UV Stabilised	YES
	Fire Retardant	YES
	Size	L105mm x W105mm x D60mm
	Mounting Method	35mm Din Rail Mountable

Terminal Designations

X1 Main Temperature Sensor Input (Passive or Active)

X2 Remote S/P input (Passive or Active)

X3 O/A sensor input (Passive or Active)

X4 Auxiliary analogue input (Passive or Active)

X5 MODBUS RS485 - A Terminal

X6 MODBUS RS485 - B Terminal

X7 CO2 sensor (default) or MODBUS SHIELD (GND)

M Common sensor & signal ground

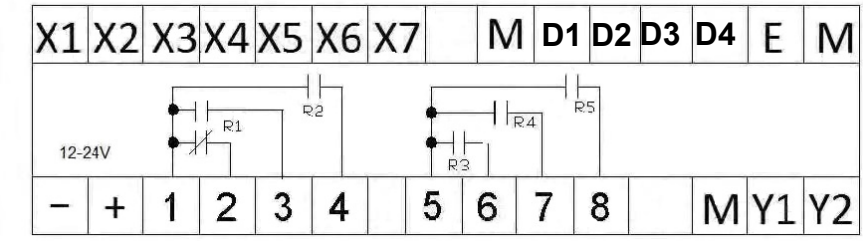
D1 Manual System OFF

D2 Manual System ON &/or AHR trigger input

D3 External FAULT I/P (for indication)

D4 External On/Off status I/P for BMS monitoring

E & M future Expansion module local comms.



- 12-24 Volt Supply Neutral (internally connected to terminals M)

+ 12-24 Volt AC or DC Supply Active

1 Relay 1 & 2 Common

2 Relay 1 Normally Closed

3 Relay 1 Normally Open

4 Relay 2 Normally Open

5 Relay 3,4 & 5 Common

6 Relay 3 Normally Open

7 Relay 4 Normally Open

8 Relay 5 Normally Open FAN / T.SW.1

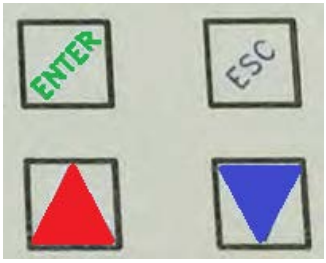
M Signal ground

Y1 Analog Modulating Output 0-10 vDC

Y2 Analog Modulating Output 0-10 vDC

USER INTERFACE

The controllers face plate has four push buttons to access & edit controller settings.



"**ENTER**" ACTS AS THE SAVE OR MENU OPEN BUTTON

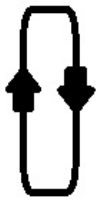
"**ESC**" ACTS AS THE EXIT OR JUMP BACK TO PREVIOUS MENU BUTTON

"**UP** & "**DOWN**" BUTTONS ADJUST SETPOINT, SCROLL MENUS & TO EDIT VALUES.

The controller has a backlit (16x2) LCD screen & 5 red LED's to give controller input & output status. The LCD screen will automatically cycle through relevant screens displaying applicable information as per the users programmed use of the controller. The screen can alternatively be set to not scroll and manually moved to next display by pressing the escape button.

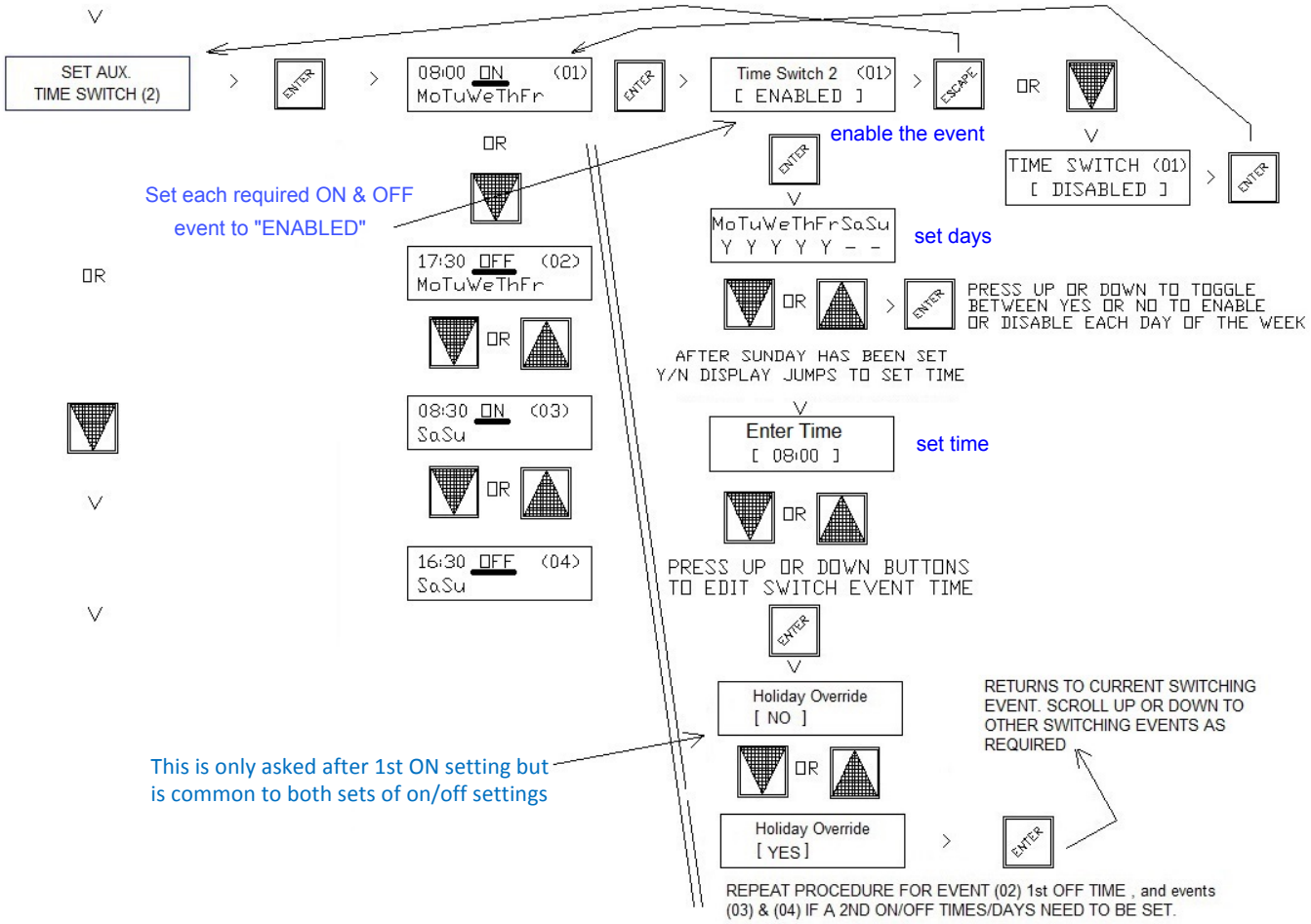
To access the menu list as shown on page 7, press the ENTER button & use the UP & DOWN arrow buttons to scroll through the menus, pressing ENTER to open a particular menu to edit.

The LCD screens will automatically cycle through each relevant display unless the display is set to not scroll.



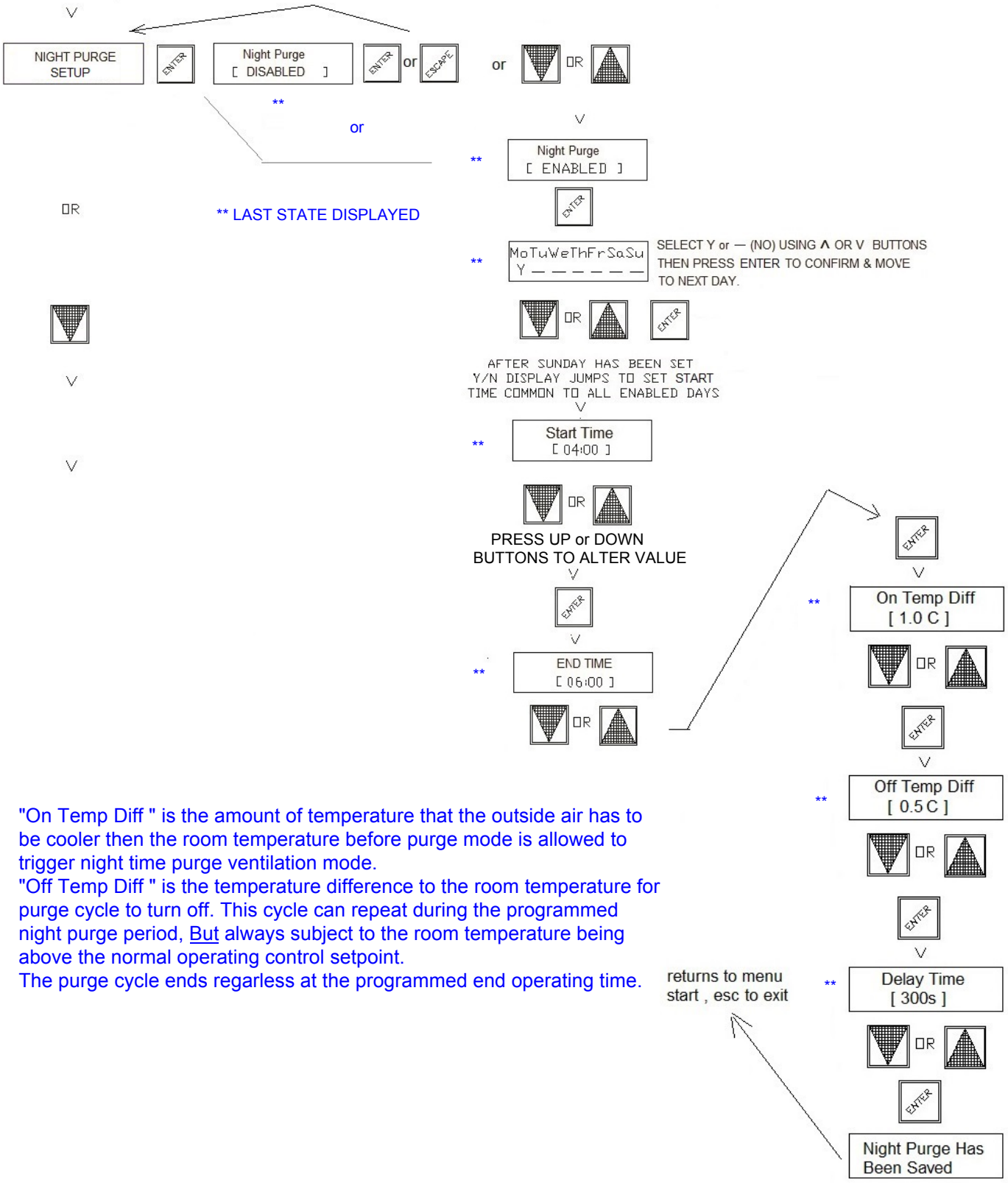
SET AUXiliary TIME SWITCH (2)

The controller's independent Auxiliary Time Switch (2), if enabled for use, can be assigned to any spare relay not already used, and is assigned to a spare relay in the Relay Programming Menu. The Auxiliary Time Switch is basically intended as a simple auxiliary time switch for controlling other equipment not directly associated with temperature control ie : toilet exhaust fans etc, and is programmed using a more conventional time switch technique with programmable "ON" time events followed by "OFF" time events for the relevant days of the week. Note : This Auxiliary time switch has only two sets of ON & OFF settings (paired events) which would typically cover the separate on & off times for week days and weekends. To edit settings, press the fascia button labeled "ENTER" and scroll down through the menu tree until "SET AUX TIME SWITCH (2) "is displayed. Press the "ENTER" button to open this menu. If previously unused the 1st event (01) will display "**UNUSED**". Press the ENTER button to start editing. Press the UP button to change this event to "ENABLED" which is the 1st fixed "ON" event. Press ENTER which will then display an LCD screen to 'enable' the required days , use the UP / DOWN & ENTER buttons to sequentially set "**Y**" to all days that are to be enabled for this 1st (same) "ON" time (leave as "**--**" for disabled days) .After Sunday is entered the display will jump to the "ON" time setting screen - use the UP / DOWN buttons to set the "ON" time, then press ENTER. The controller will then ask should this Auxiliary Time Switch be overridden (to OFF) by the programmed holidays ? (as set in the controllers "HOLIDAY" assignment menu), set "YES" or "NO" using the controller's UP / DOWN buttons and press ENTER. The display returns to this event screen (01). Press the DOWN arrow button to move to the next event screen (02) which is the 1st fixed "OFF" event setting screen, which is in respect to the previous "ON" setting -press ENTER. IF not already "ENABLED" press the DOWN arrow button to ENABLE this event, Press ENTER. Repeat the Y / -- setting for each day of the week which should be set to match the previous "ON" settings, then set the common "OFF" time for these days, press ENTER. Press the ESC button to exit Time Switch 2 programming if only one common on/off times for the week is required **or** press the DOWN arrow button until event (03) is displayed which is a 2nd (fixed as) 'ON' setting ~ Repeat the procedure per events (01) & (02) to set the ON (03) & OFF (04) times & days for these events. The Auxiliary Time Switch is now programmed , press "ESC" a few times to exit out to the main running screen.



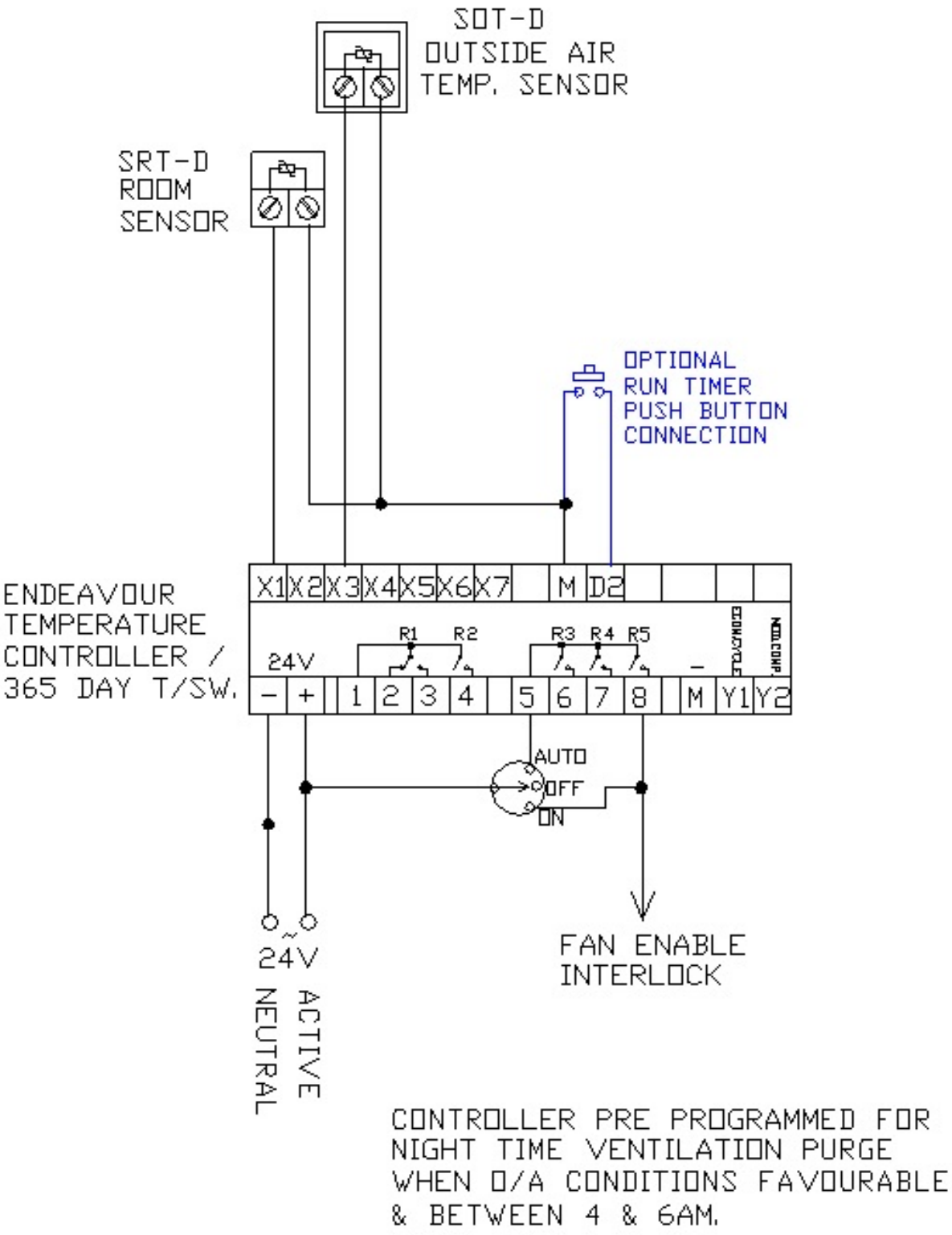
NIGHT PURGE SETUP

With this feature enabled it is possible to setup a low running cost building night time ventilation purge cycle, to vent built up heat from within the building with cooler outside air in order to reduce the cost of mechanical cooling during occupancy hours at startup. During the user programmable **enable times**, if the **room temperature is above the main set point** and the measured **outdoor temperature is cooler** by an adjustable amount to the room temperature, this software will cause the supply fan (connected to relay 5) to energise & the modulating motorised economy cycle dampers (connected to analog output Y1) to reposition to the full fresh air mode. These output states are maintained until the room temperature drops to a settable temperature difference in relation to the outside air temperature or / & the O/A temperature rises above the room temperature setpoint, or the enable time ends.



"On Temp Diff " is the amount of temperature that the outside air has to be cooler then the room temperature before purge mode is allowed to trigger night time purge ventilation mode.
"Off Temp Diff " is the temperature difference to the room temperature for purge cycle to turn off. This cycle can repeat during the programmed night purge period, But always subject to the room temperature being above the normal operating control setpoint.
The purge cycle ends regarless at the programmed end operating time.

TYPICAL CONNECTIONS



CONTROLLER PRE PROGRAMMED FOR NIGHT TIME VENTILATION PURGE WHEN O/A CONDITIONS FAVOURABLE & BETWEEN 4 & 6AM.