



INTERIM LEAFLET

ECCO-Y-24v

24v O/A THERMOSTAT

OUTSIDE AIR WALL MOUNT THERMOSTAT FOR INDEPENDANT ECONOMY CYCLE CONTROL OF MODULATING or 2 POSITION ECONOMY CYCLE DAMPERS ACTUATORS.

USED IN CONJUNCTION WITH DSC2 or FORN-6212 RETURN AIR SENSOR/CONTROLLERS

- Australian Made and designed
- Power Supply 24v AC or DC
- 10 Amp (Resistive) Potential free C/O relay contacts
- L.E.D Indication of all output status
- Adjustable Low & High Temp. Limits to Allow/Inhibit Economy cycle.
- Interlocks with Return Air Temp. & CO2 Inputs to Control Econ. Cycle.
- Adjustable Min. Position of Modulating Economy Cycle 0-10v Signal

The ECCO-Y-24v is intended for use as an electronic outside air thermostat designed for independent stand alone control of an economy cycle set of motorised dampers for free cooling when outside temperature is suitable. This solution, although not ideal, is generally the only option if the A/C unit is to be controlled by its propriety thermostat (so called pendant) &/or is sadly not capable of 3rd party control of the A/C units operation & control of additional economy dampers. Optimally this ECCO O/A thermostat would work in conjunction with a Hevac DSC2 return air duct temperature Sensor/Controller, or if CO2 control is also required, a Hevac combination duct Temp./CO2 sensor model FORN-6212 to determine zone demand for cooling & ventilation requirements. Additionally an optional small (cable tied) bullet thermostat model HMT can also be fitted to the A/C units evaporator coil to force a lockout of economy cycle use if the evaporator face temperature exceeds 30c (as a measurement that the A/C unit is actually running in heating mode) even if the return air temperature exceeds the return air sensors setpoint (ie 23c) which would normally cause a call for the free cooling economy cycle use (note does not override a CO2 call for F/A). The ECCO thermostat if used alone, can control on/off two position economy cycle damper motors based purely on outside air temperature measured to be between an adjustable low & high temperature limits, if used in combination with our return air sensor/controller (preferred) the ECCO can independently control, based on O/A & Return Air temperature (+ co2 if required), either 2 position or modulating 0-10v type economy cycle damper motors. We have produced this product to solve an industry problem, but Hevac still recommend, If possible, using our purpose built ENDEAVOUR temperature / time switch controller together with our wide range of sensors for entire control of the A/C system so that zone temperature control is tied to one common setpoint.

Technical Data

General Specifications

Operating Voltage	24 Volts AC or DC
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Power Consumption	
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24 Volts	2 VA
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Switching Capacity of Relay	
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Voltage	AC 0...250 Volts
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Current	10 (3) A
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Minimum O/A temperature limiter S/P	10...22 oC
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Maximum O/A temperature limiter S/P	22...34 oC
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Switching Differential	1 oC (NON Adjustable)
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Output Indications	
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Limit Relay operation	status by on/off Red LED
D3 input (Forced relay on)	status by on/off Red LED
"Y" 0-10vDC	status by brightness of Yellow LED
CO2 0-10vDC	status by brightness of Green LED

Environmental Conditions

Operation	
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Ambient Temperature	0...45oC
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Humidity	< 95 % RH (Non Condensing)
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Storage and Transport	
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Ambient Temperature	-5...65oC
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Humidity	< 90 % RH (Non Condensing)
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Product Standards

Built to Australian standards including pcb voltage segregation requirements.

Weight

Including Packaging	150 grams
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Housing

Colour	Black
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Material	ABS POLYCARB
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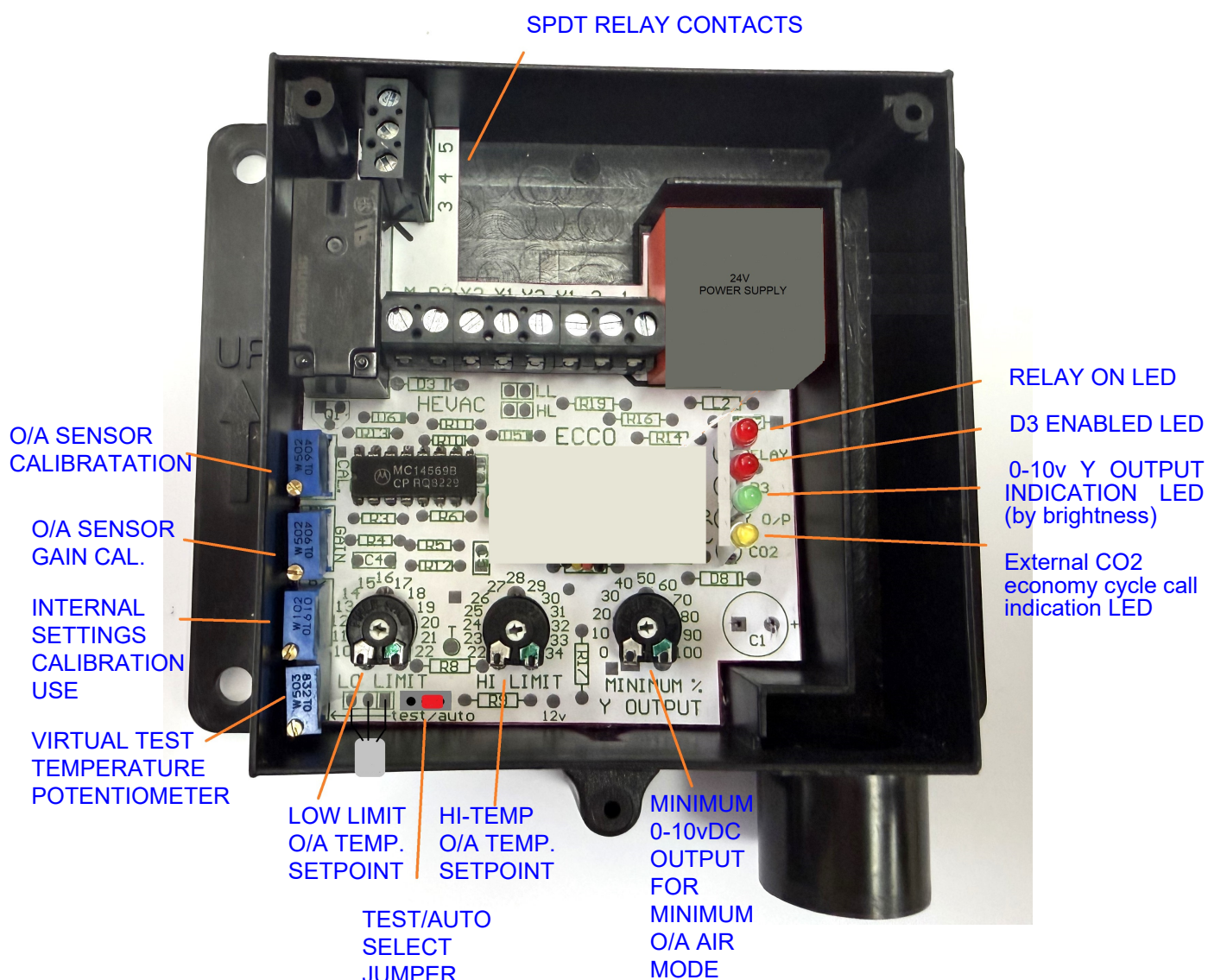
UV Stabilised	YES
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Fire Retardant	YES
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Size	L130mm x W120mm x D35mm
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Mounting Method	Wall mount 4 screw locations
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ECCO THERMOSTAT SETTINGS & ADJUSTMENTS



LOW LIMIT POTENTIOMETER USED TO SET LOW O/A TEMP LIMIT TO ENERGISE RELAY TO INHIBIT FRESH AIR MODE OF ECONOMY CYCLE DAMPERS & CAUSE C/O OF CONTACTS ON TERMINALS.

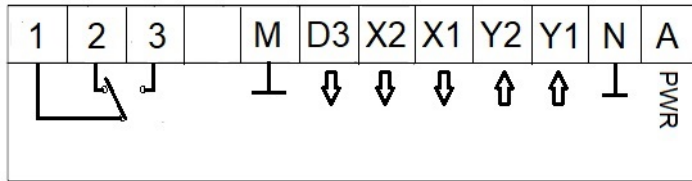
HIGH LIMIT POTENTIOMETER USED TO SET HIGH O/A TEMP LIMIT TO ENERGISE RELAY TO INHIBIT FRESH AIR MODE OF ECONOMY CYCLE DAMPERS & CAUSE C/O OF CONTACTS ON TERMINALS.

MINIMUM POSITION POTENTIOMETER USED TO SET MINIMUM 0-10vDC SIGNAL TO FRESH AIR MODE FOR DAMPERS REGARDLESS OF OUTSIDE AIR TEMPERATURE.

A **TEST JUMPER & POTENTIOMETER** IS PROVIDED TO AID IN TESTING & COMMISSIONING WITH USE OF A TEST MODE JUMPER. FOR TESTING RELOCATE THE JUMPER FROM THE NORMAL "AUTO" POSITION TO THE "TEST MODE" POSITION. THE INTERNAL SENSOR BEAD IS DISCONNECTED AND AN ADJUSTABLE POTENTIOMETER IS USED TO SIMULATE AN OUTDOOR TEMPERATURE.

SENSOR CALIBRATION THE ECCO IS FACTORY CALIBRATED BUT CAN BE TRIMMED BY THE TOP LEFT HAND SIDE POTENTIOMETER MARKED "CAL" IF REQUIRED.

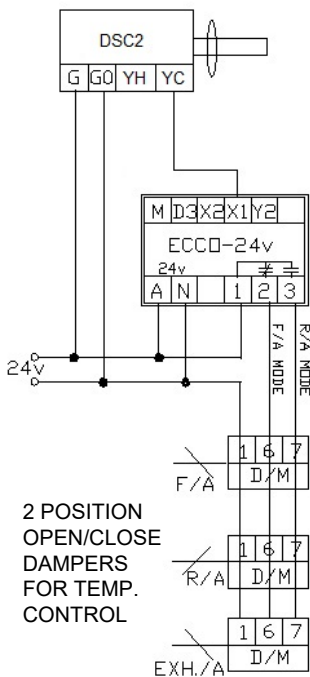
Terminal Designations



1	RELAY COMMON
2	RELAY N/C CONTACT
3	RELAY N/O CONTACT
M	SIGNAL GROUND
D3	RELAY FORCED ON INPUT (from M)
X2	CO2 0-10vDC CONTROL INPUT
X1	TEMP. 0-10vDC CONTROL INPUT
Y2	FRESH AIR 0-10v / 0-100c OUTPUT
Y1	0-10vDC OUTPUT TO ECON. DAMPERS
N	24vAC or DC NEUTRAL POWER (joined to M)
A	24vAC or DC ACTIVE POWER

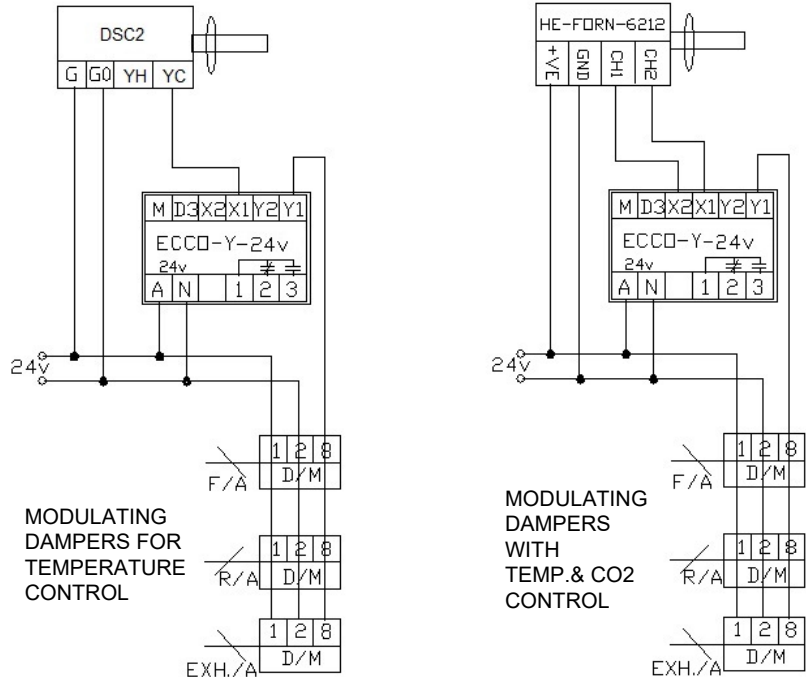
Application Example's

RETURN AIR TEMP. SENSOR / CONTROLLER



BASED ON THE USE OF A **DSC2** R/A DUCT TEMP. SENSOR / CONTROLLER TO DETERMIN ZONE COOLING DEMAND, BUT INTERLOCKED WITH AN **ECCO** O/A THERMOSTAT TO DISABLE F/A MODE OF MOTORISED OPEN/ CLOSE 2 POSITION ECONOMY CYCLE DAMPERS IF OUTSIDE AIR CONDITIONS ARE NOT WITHIN LIMITS

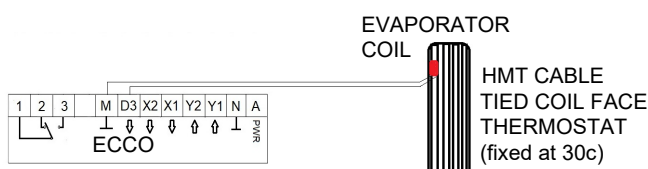
RETURN AIR TEMP. / CO2 SENSOR / CONTROLLER



BASED ON THE USE OF A **DSC12** R/A DUCT TEMP. SENSOR / CONTROLLER TO DETERMIN ZONE COOLING DEMAND, BUT INTERLOCKED WITH AN **ECCO** O/A THERMOSTAT TO DISABLE F/A MODE OF MODULATING MOTORISED ECONOMY CYCLE DAMPERS IF OUTSIDE AIR CONDITIONS ARE NOT WITHIN LIMITS

BASED ON THE USE OF A COMBINATION R/A DUCT TEMP. / CO2 SENSOR CONTROLLER TO DETERMIN ZONE COOLING & CO2 VENTILLATION DEMAND, BUT INTERLOCKED WITH AN **ECCO** O/A THERMOSTAT TO DISABLE F/A MODE OF MODULATING MOTORISED ECONOMY CYCLE DAMPERS IF O/A TEMPERATURE CONDITIONS ARE NOT WITHIN LIMITS

OPTIONAL USE OF HMT MINI THERMOSTAT TO FORCE SHUT DOWN OF ECONOMY CYCLE IF A/C UNIT IS DEEMED TO BE RUNNING IN HEATING MODE (BY PENDANT ROOM THERMOSTAT COMPRESSOR CONTROL) WHEN THE HMT MEASURES EVAPORATOR COIL FACE TO BE ABOVE 30c (AS AN INDICATION A/C UNIT IS RUNNING IN REVERSE CYCLE HEATING MODE). THIS OVERRIDES THE ECCO's TEMPERATURE CALL FOR ECONOMY CYCLE OPERATION EVEN IF O/A TEMPERATURE IS WITHIN THE ECCO's TEMP. LIMIT SETTINGS OR A CONNECTED RETURN AIR SENSOR/CONTROLLER IS TRYING TO USE ECONOMY CYCLE COOLING IF THE R/A TEMPERATURE IS ABOVE ITS PRESET TEMPERATURE S/P ie 23c. THE HMT WILL NOT STOP A CO2 CALL FOR ECONOMY CYCLE. CONNECT THE HMT WIRES TO THE ECCO's "D3 & M" TERMINALS. DIGITAL INPUT D3 CAN ALSO BE USED WITH ANY OTHER TYPE OF INTERLOCK IF FORCED RELAY OPERATION IS DESIRED DUE TO SOME OTHER INTERLOCK..ie A RAIN SENSOR.



HMT mini fixed thermostat supplied with 2 meters of connecting cable. Strap metal body of HMT to evaporator coil pipe to respond to coil temperature above 30c (R/C HEAT MODE)