LEASAM CONTROLS

INDEX

SECTION 1

AIR CONDITIONING CONTROLLERS FOR DOMESTIC PREMISES

AIR CONDITIONING CONTROLLERS FOR COMMERCIAL PREMISES.

COOL ROOM CONTROLLERS

COLD ROOM CONTROLLERS

AIR COOLED CONDENSER MANAGEMENT SYSTEMS

MODEL BM2-7D-4Z

Applications

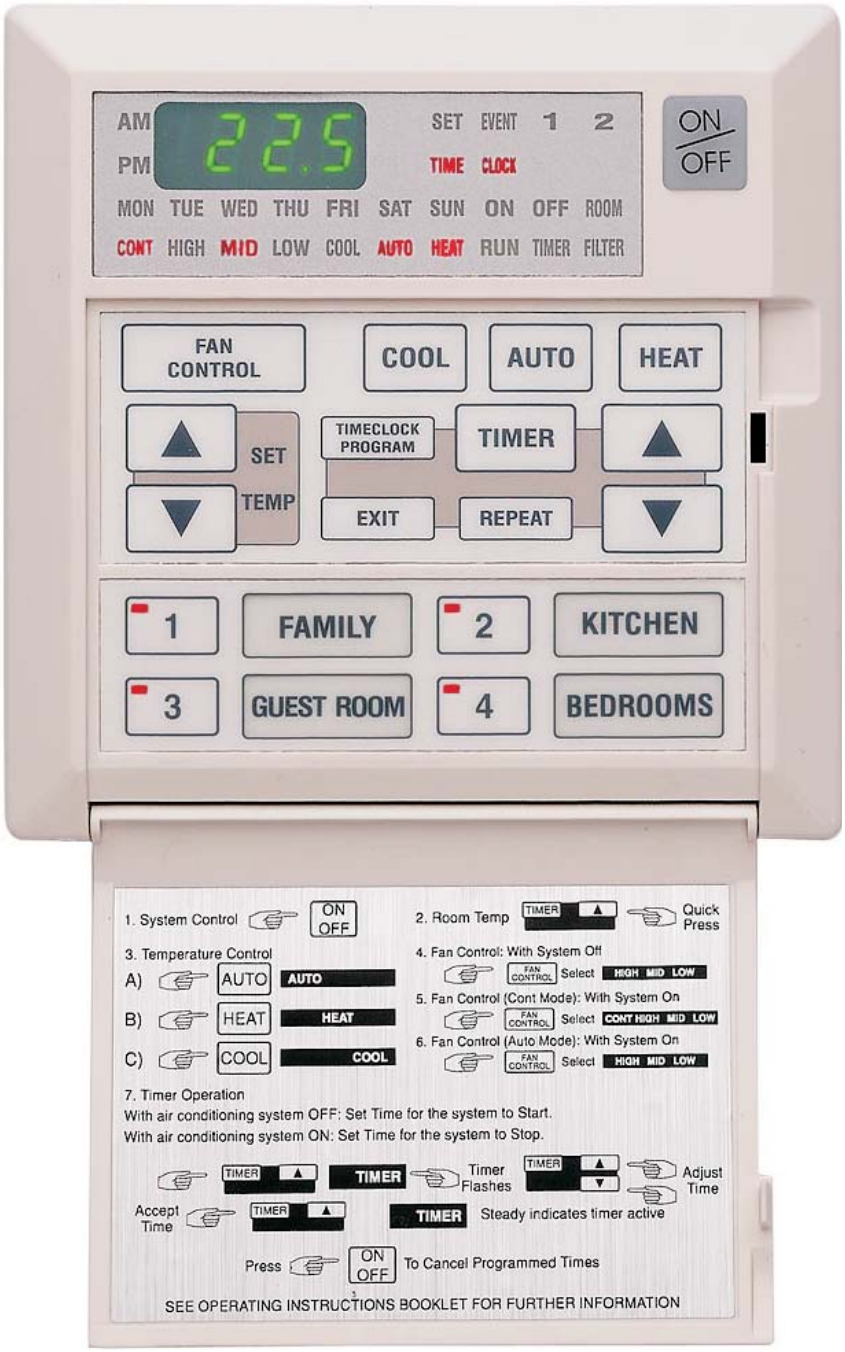
1 Stage Heat pump + Aux Heat.

2 Stage Cool + 1 Stage heat.

1 Stage Cool + 2 Stage Heat.

2 Stage Heat Pump.

3 Stage Heat or 3 Stage Cool.



Features and Benefits

System switch.

7 Day 4 event time clock.

Time clock Battery backup.

24 Hour Countdown Timer.

Zone tracking feature.

4 Zone Control. BM2-7D-4Z only

Dual Wall Control option.

Dual Sensor Control option.

Single, 2 or 3 speed fan control.

Two operating fan modes.

Ventilation control.

Three operating Temperature modes

Temperature set point range limits.

Dirty filter warning.

Home Automation Interface.

Indoor Coil Preheat option.

Sensor calibration.

Add on cool applications.

Fan run-on for electric heating.

240 or 24 vac Control systems.

Australian designed.

Australian Manufactured.

MODEL BM2-7D-GP

Applications

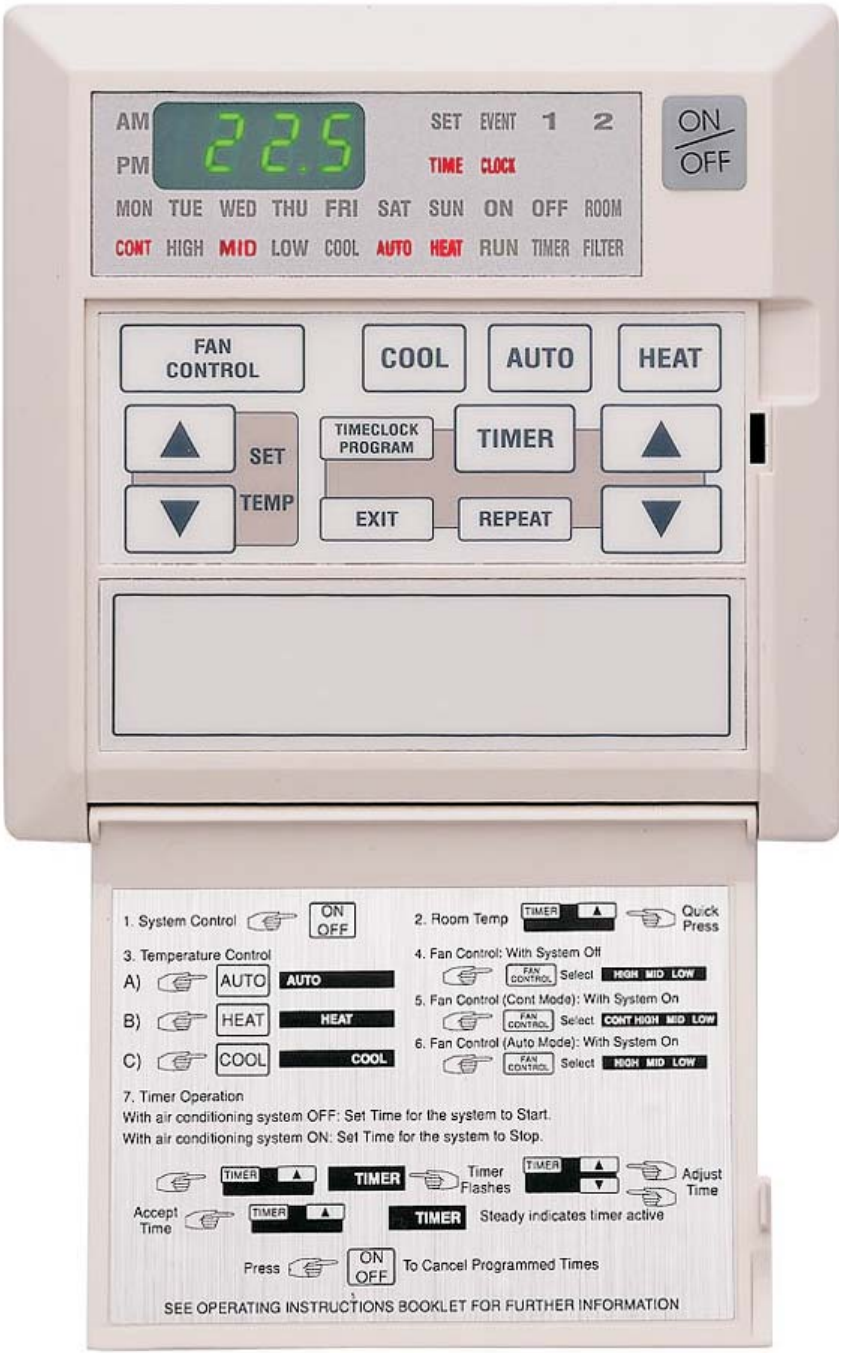
1 Stage Heat pump + Aux Heat.

2 Stage Cool + 1 Stage heat.

1 Stage Cool + 2 Stage Heat.

2 Stage Heat Pump.

3 Stage Heat or 3 Stage Cool.



Features and Benefits

System switch.

7 Day 4 event time clock.

Time clock Battery backup.

24 Hour Countdown Timer.

Zone tracking feature.

4 Zone Control. BM2-7D-4Z only

Dual Wall Control option.

Dual Sensor Control option.

Single, 2 or 3 speed fan control.

Two operating fan modes.

Ventilation control.

Three operating Temperature modes

Temperature set point range limits.

Dirty filter warning.

Home Automation Interface.

Indoor Coil Preheat option.

Sensor calibration.

Add on cool applications.

Fan run-on for electric heating.

240 or 24 vac Control systems.

Australian designed.

Australian Manufactured.

MODELBM2-24H-4Z

Applications

1 Stage Heat pump + Aux Heat.

2 Stage Cool + 1 Stage heat.

1 Stage Cool + 2 Stage Heat.

2 Stage Heat Pump.

3 Stage Heat or 3 Stage Cool.

Features and Benefits

System switch.

24 Hour Countdown Timer.

Zone tracking feature.

4 Zone Control. BM2-24H-4Z only

Dual Wall Control option.

Dual Sensor Control option.

Single, 2 or 3 speed fan control.

Two operating fan modes.

Ventilation control.

Three operating Temperature mod

Temperature set point range limits.

Dirty filter warning.

Home Automation Interface.

Indoor Coil Preheat option.

Sensor calibration.

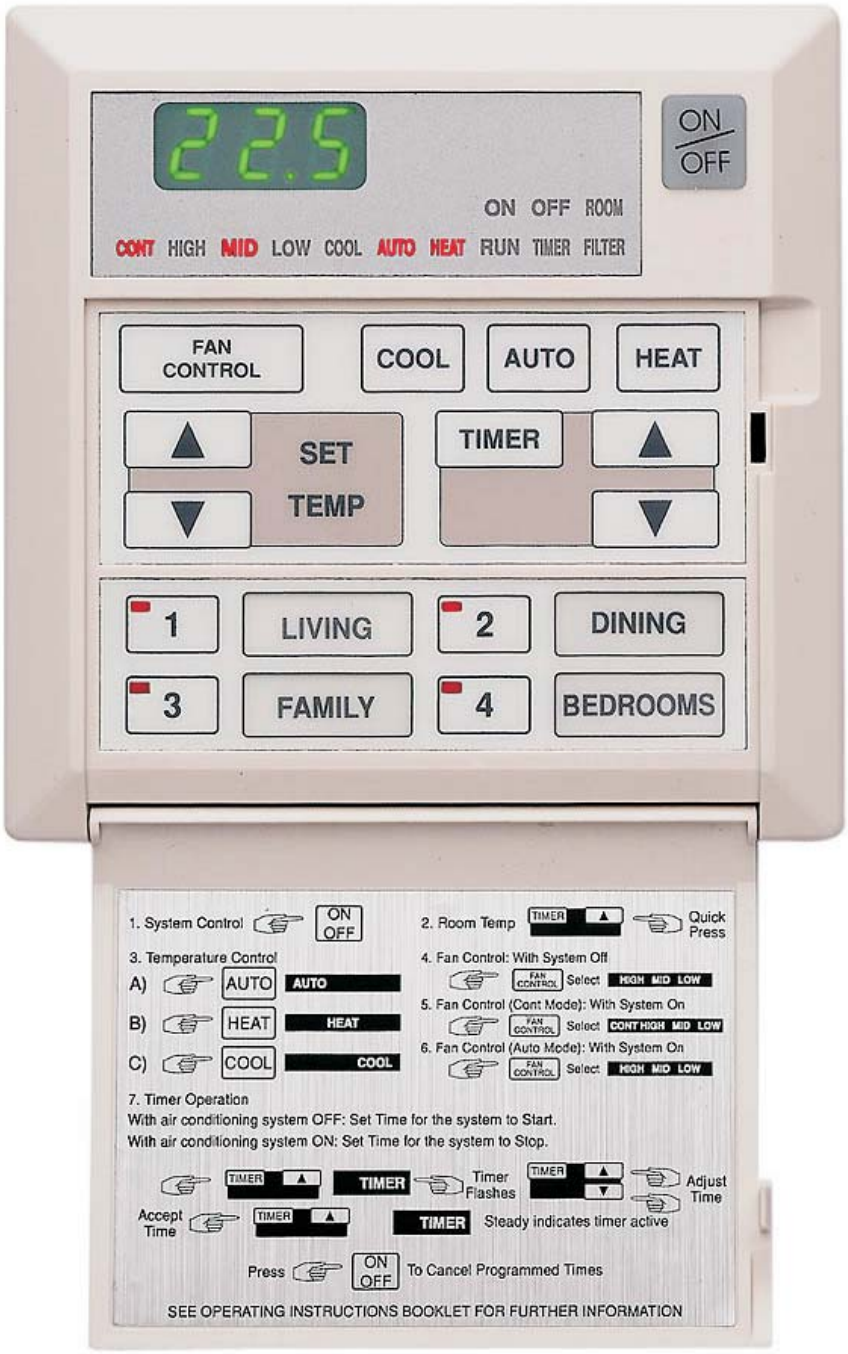
Add on cool applications.

Fan run-on for electric heating.

240 or 24 vac Control systems.

Australian designed.

Australian Manufactured.



MODEL BM2-24H-GP

Applications

1 Stage Heat pump + Aux Heat.

2 Stage Cool + 1 Stage heat.

1 Stage Cool + 2 Stage Heat.

2 Stage Heat Pump.

3 Stage Heat or 3 Stage Cool.

Features and Benefits

System switch.

24 Hour Countdown Timer.

Zone tracking feature.

4 Zone Control. BM2-24H-4Z only

Dual Wall Control option.

Dual Sensor Control option.

Single, 2 or 3 speed fan control.

Two operating fan modes.

Ventilation control.

Three operating Temperature mode

Temperature set point range limits.

Dirty filter warning.

Home Automation Interface.

Indoor Coil Preheat option.

Sensor calibration.

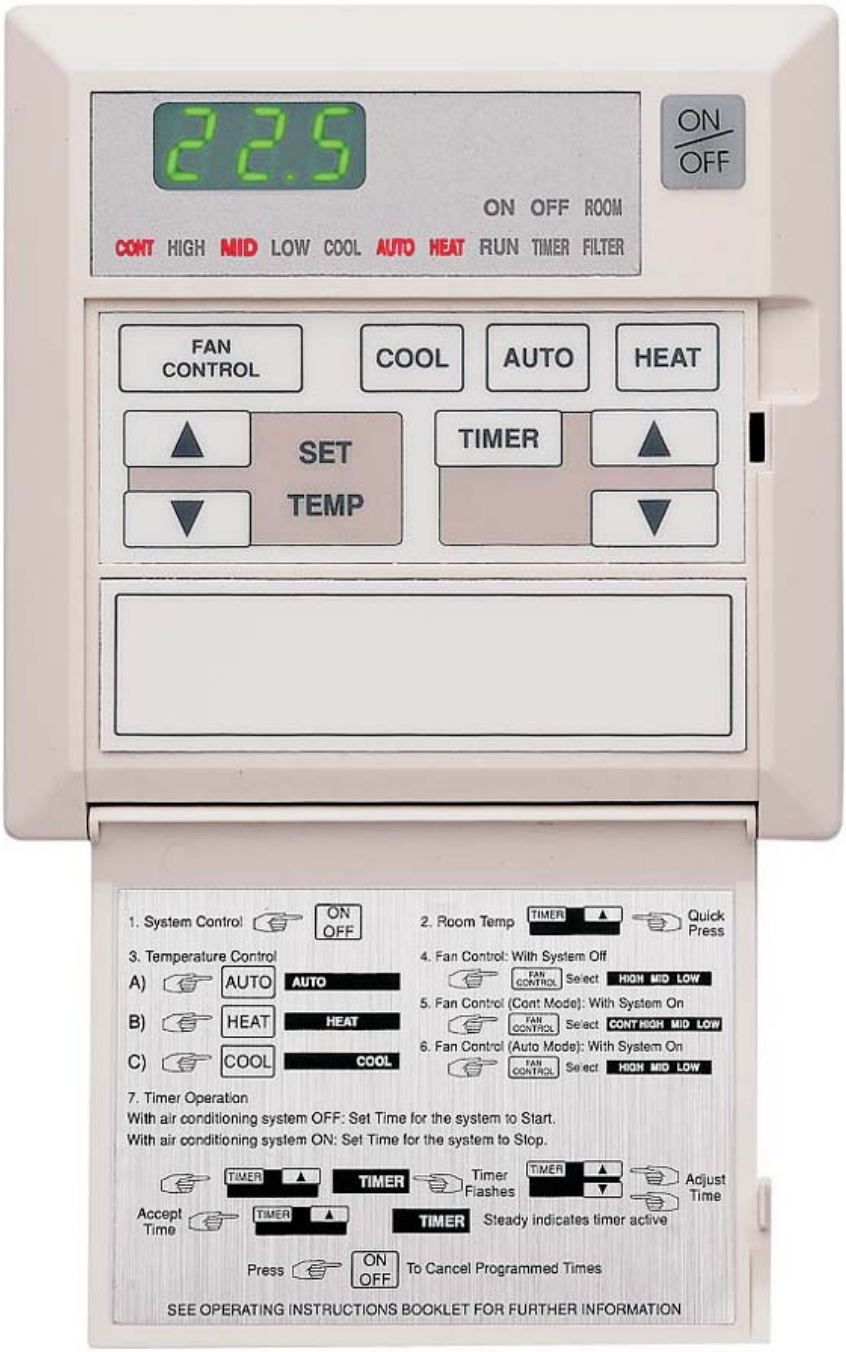
Add on cool applications.

Fan run-on for electric heating.

240 or 24 vac Control systems.

Australian designed.

Australian Manufactured.



MODELBM2-24H-8Z

Applications

1 Stage Heat pump + Aux Heat.

2 Stage Cool + 1 Stage heat.

1 Stage Cool + 2 Stage Heat.

2 Stage Heat Pump.

3 Stage Heat or 3 Stage Cool.

Features and Benefits

System switch.

24 Hour Countdown Timer.

Zone tracking feature.

8 Zone Control.

Dual Wall Control option.

Dual Sensor Control option.

Single, 2 or 3 speed fan control.

Two operating fan modes.

Ventilation control.

Three operating Temperature modes.

Temperature set point range limits.

Dirty filter warning.

Home Automation Interface.

Sensor calibration.

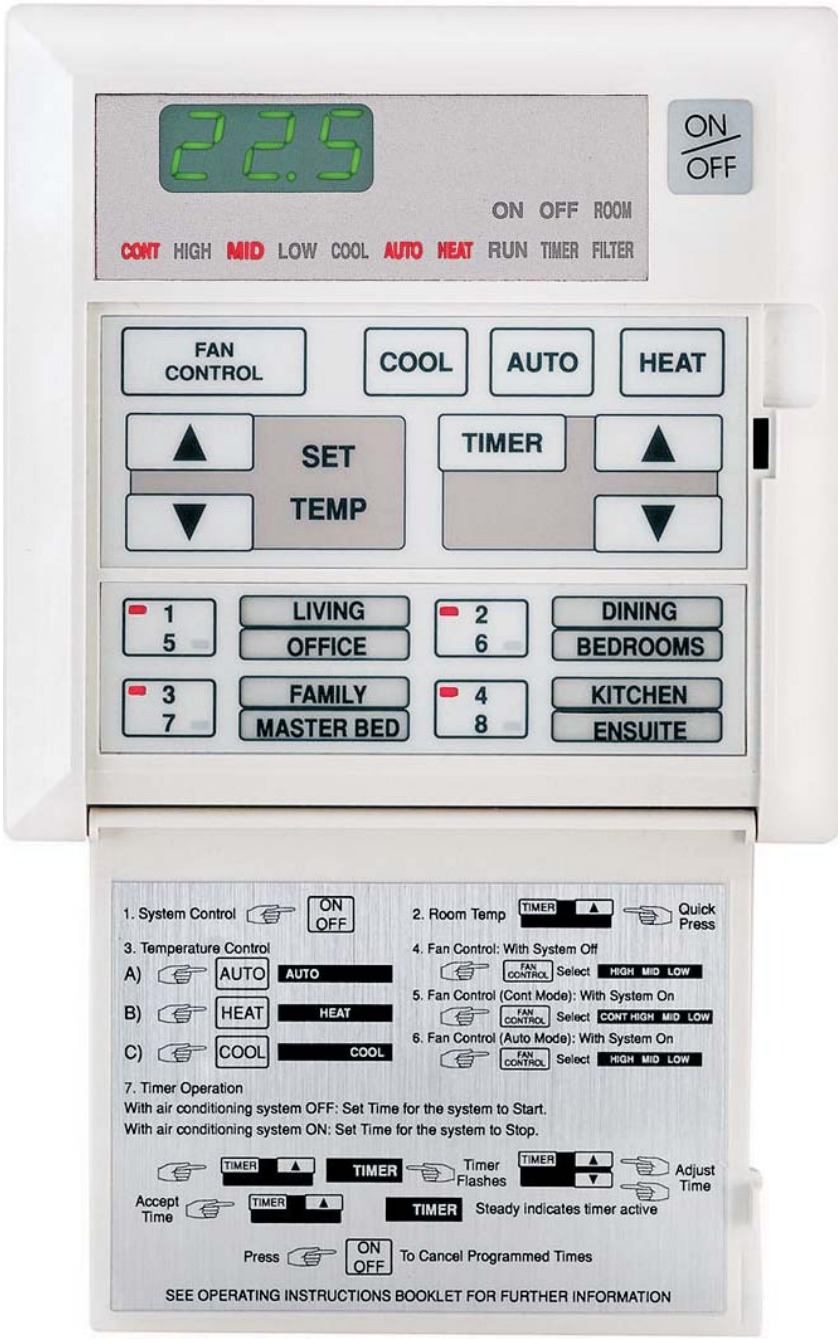
Add on cool applications.

Fan run-on for electric heating.

240 or 24 vac Control systems.

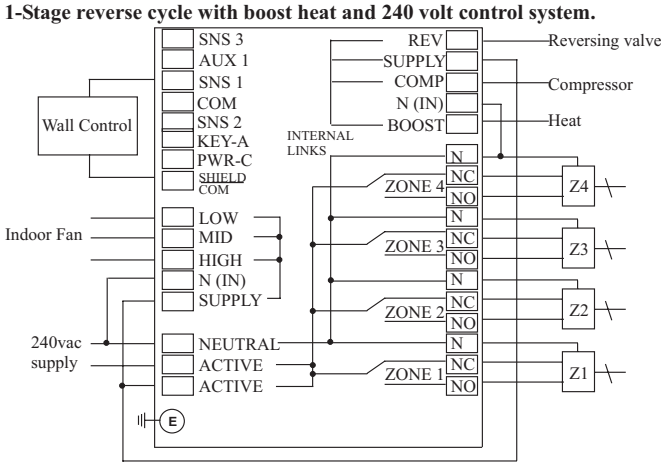
Australian designed.

Australian Manufactured.

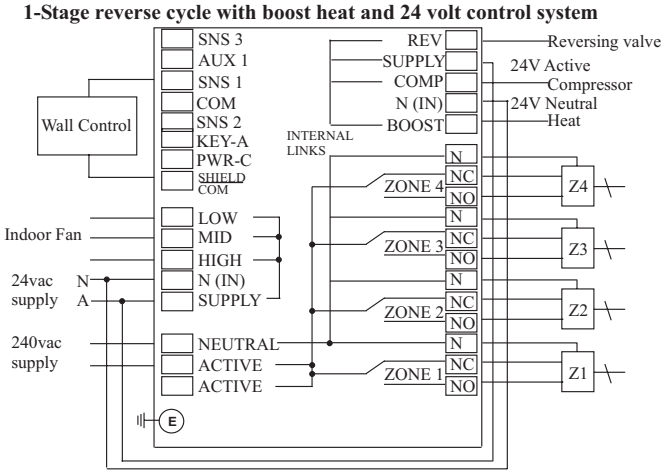


Typical **BM2-24H-4Z and BM2-7D-4Z** connections. Check A/C Unit wiring diagram.

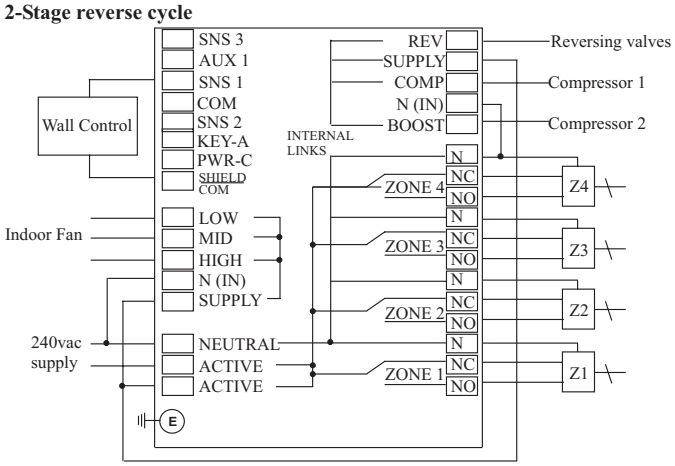
1-Stage reverse cycle with boost heat and 240 volt control system.



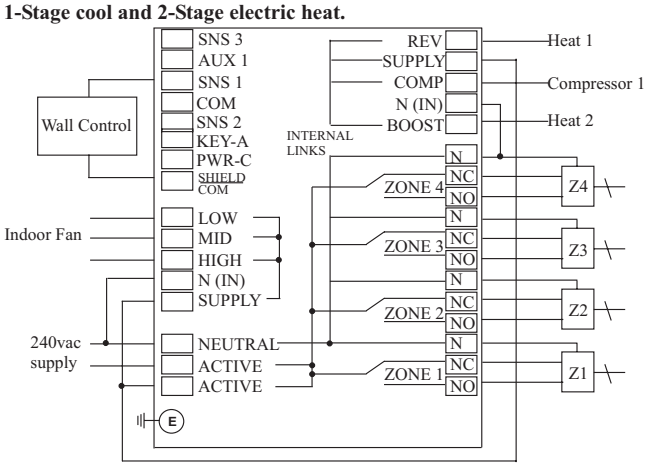
1-Stage reverse cycle with boost heat and 24 volt control system



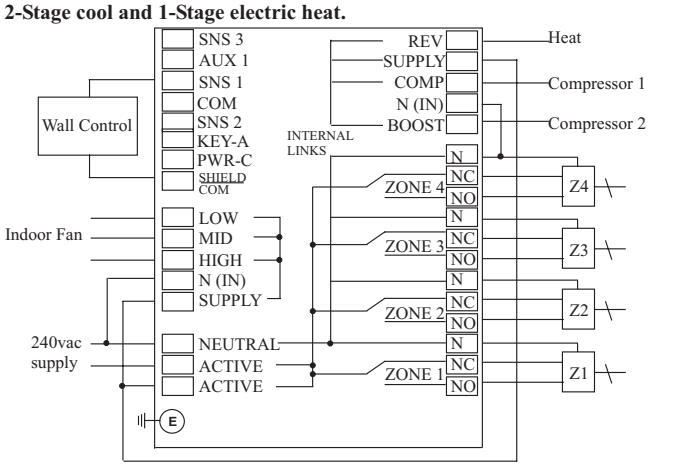
2-Stage reverse cycle



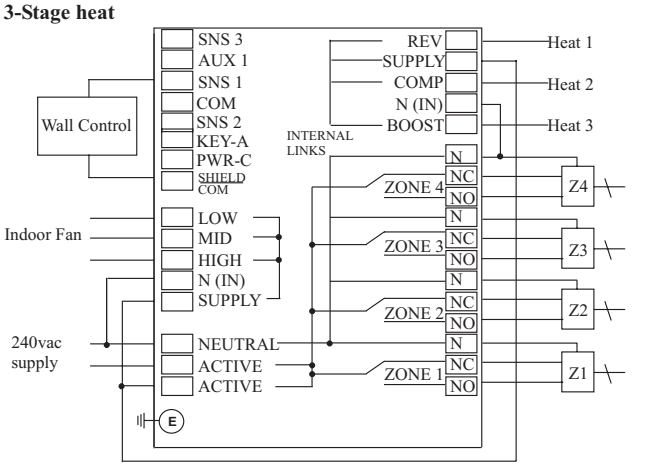
1-Stage cool and 2-Stage electric heat.



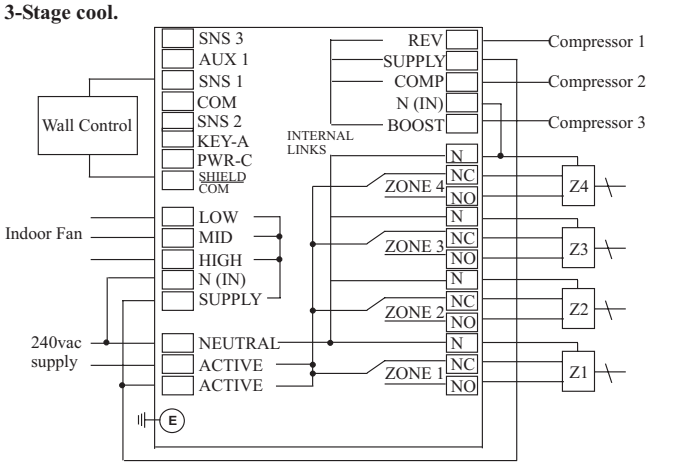
2-Stage cool and 1-Stage electric heat.



3-Stage heat



3-Stage cool.



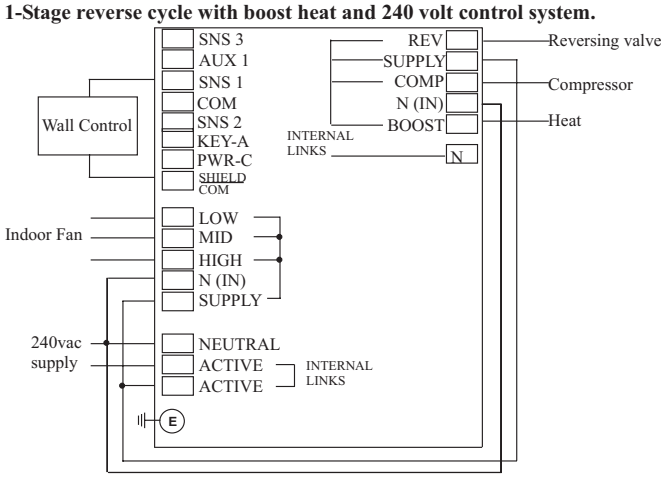
SPECIFICATIONS

Power supply	**240 Volts 50Hz**
Relays. Three(Fan)	**16 Amps Res @ 250 volts**
Relays. Seven.	**1.2 Amps @ 250 volts**
Set point range - adjustable	**16oC to 28oC**
Dead band from heating off to cooling on - adjustable	**1.5K**
Switching differential - adjustable	**0.5K**
Fan run on (Electric heating only) - adjustable	**30 Seconds**
Compressor start delay - adjustable	**0 Seconds**
Sensor. Integral on wall control (remote sensor option)	**10k @ 25oC**
Maximum Wall Controls allowed per system	**2**
Maximum sensors allowed per system	**2**
Recommended cable size	**16/020 shielded**

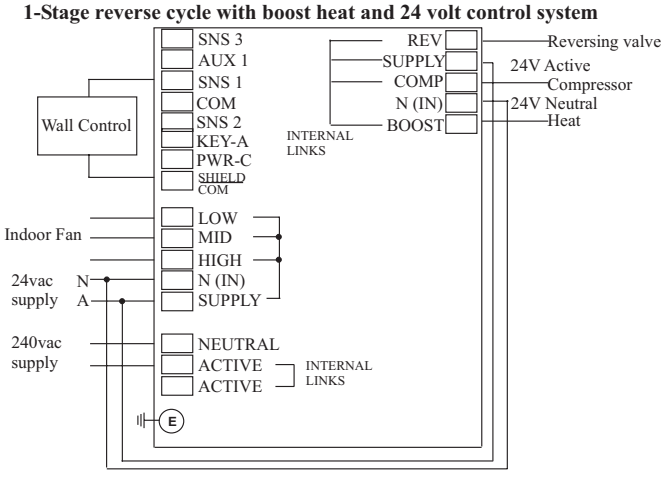
Subject to change without notice.

Typical **BM2-24H-GP and BM2-7D-GP** connections. Check A/C Unit wiring diagram.

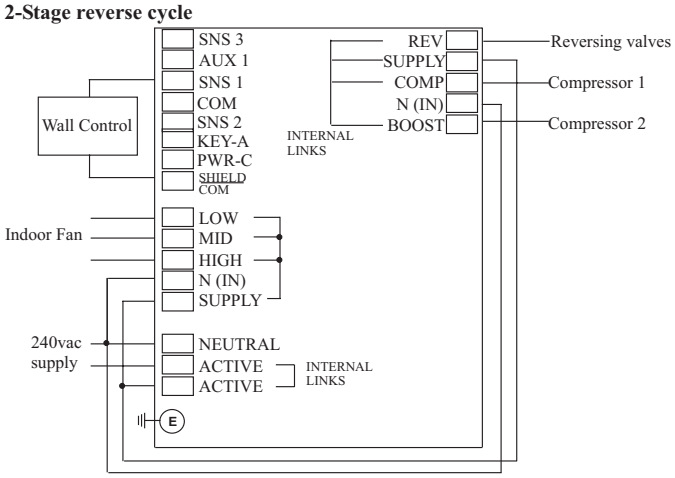
1-Stage reverse cycle with boost heat and 240 volt control system.



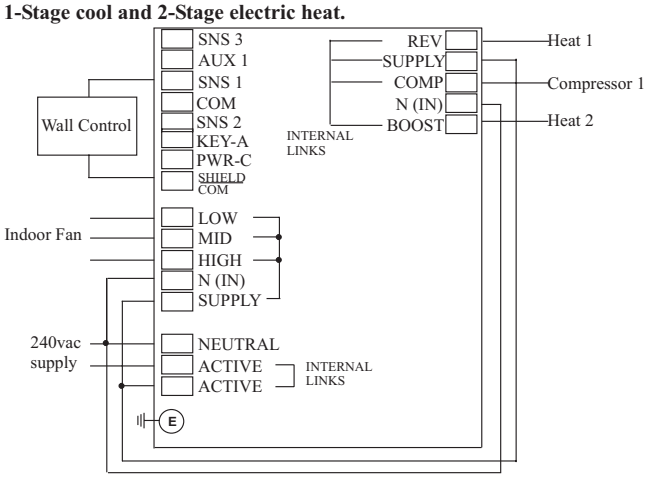
1-Stage reverse cycle with boost heat and 24 volt control system



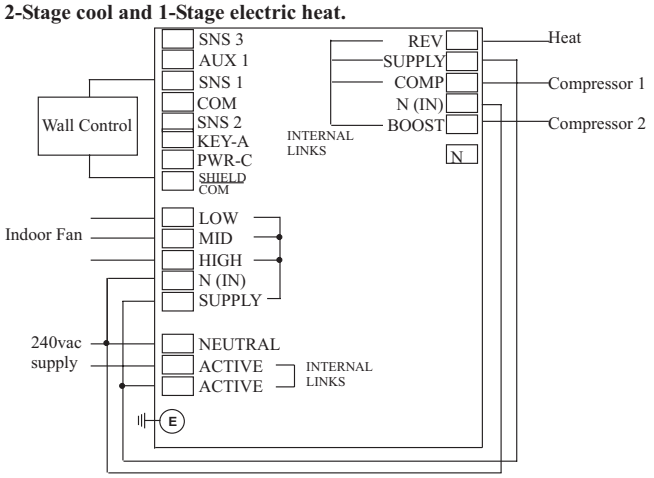
2-Stage reverse cycle



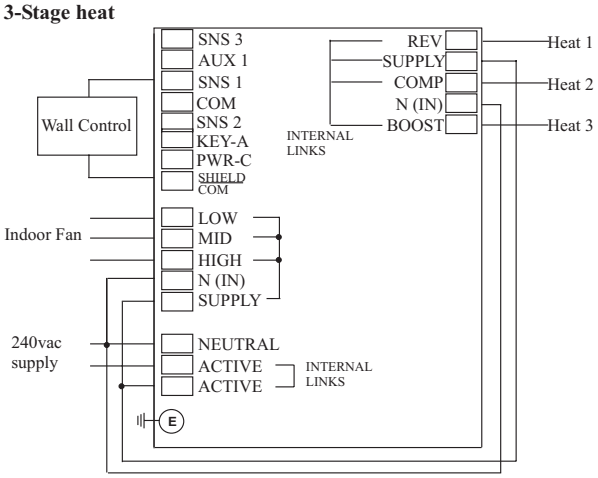
1-Stage cool and 2-Stage electric heat.



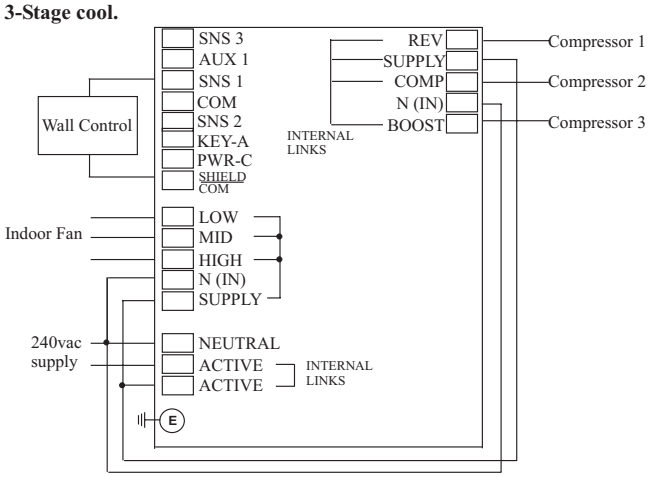
2-Stage cool and 1-Stage electric heat.



3-Stage heat



3-Stage cool.

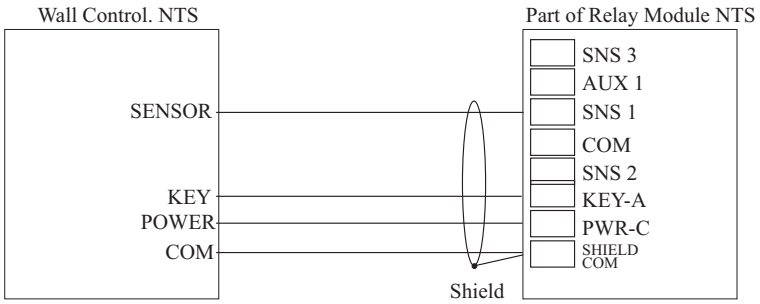


SPECIFICATIONS

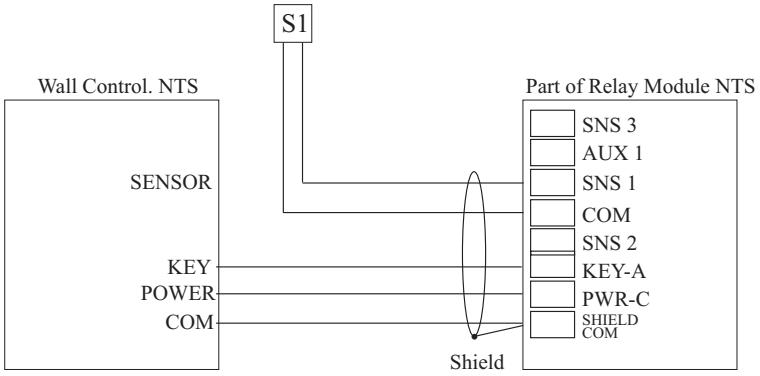
Power supply	**240 Volts 50Hz**
Relays. Three(Fan)	**16 Amps Res @ 250 volts**
Relays. Three	**1.2 Amps @ 250 volts**
Set point range - adjustable	**16oC to 28oC**
Dead band from heating off to cooling on - adjustable	**1.5K**
Switching differential - adjustable	**0.5K**
Fan run on (Electric heating only) - adjustable	**30 Seconds**
Compressor start delay - adjustable	**0 Seconds**
Sensor. Integral on wall control (remote sensor option)	**10k @ 25oC**
Maximum Wall Controls allowed per system	**2**
Maximum sensors allowed per system	**2**
Recommended cable size	**16/020 shielded**

Subject to change without notice.

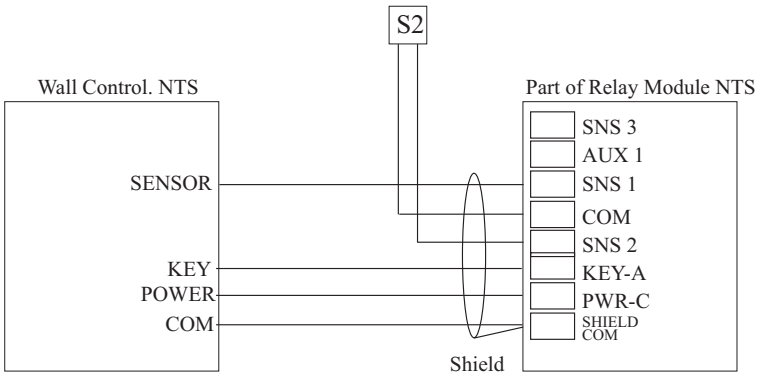
Standard connection



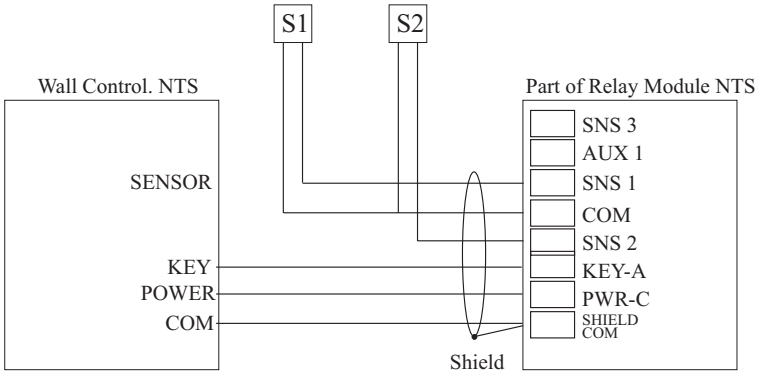
Remote sensor S1. Wall Control sensor not used.



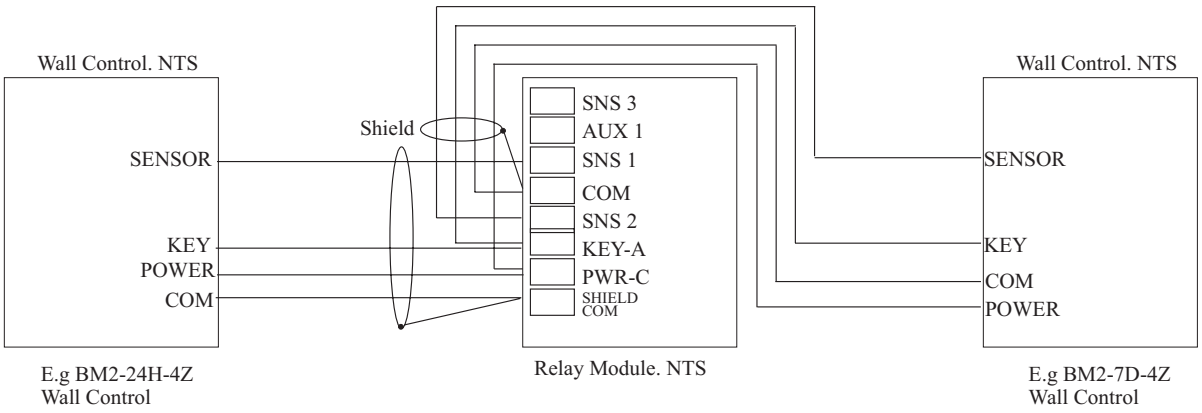
Dual sensor control for zone follow set up. Remote S2 and Wall Control sensor.
NB. If non zone control is used i.e BM2-GPWC, the temperatures sensed at Wall Control and S1 will be averaged.



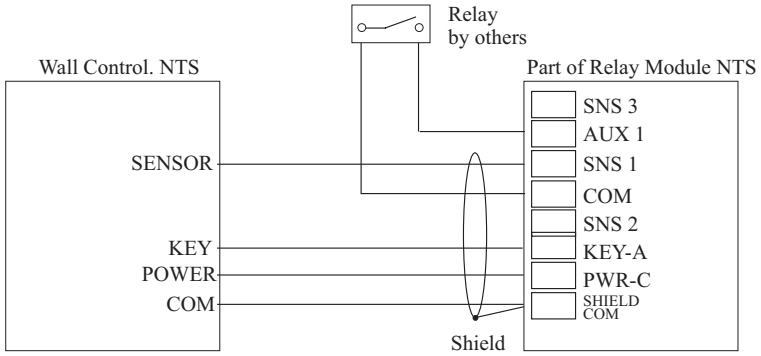
Dual remote sensor for zone follow setup. Wall Control sensor not used.
NB. If non zone control is used i.e BM2-GPWC, the temperatures sensed at the sensors will be averaged.



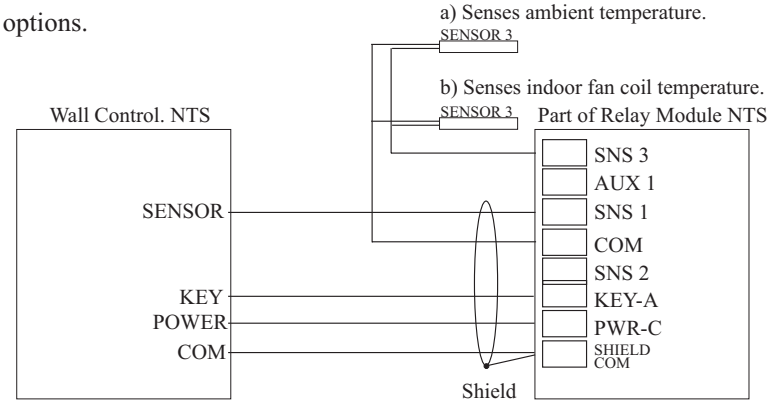
Dual Wall Control connections for zone follow set up. Wall Control Pads can be two of BM2-4ZWC or one BM2-7D4ZWC and one BM2-4ZWC.
NB. If non zone controls are used i.e BM2-GPWC, the temperatures sensed at Wall Controls will be averaged.



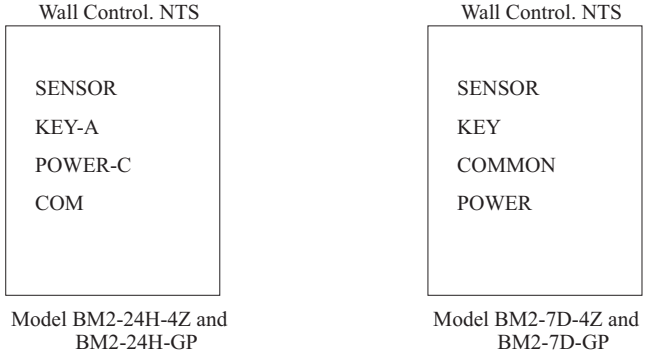
Standard system with external stop/start. I.e Home Automation.



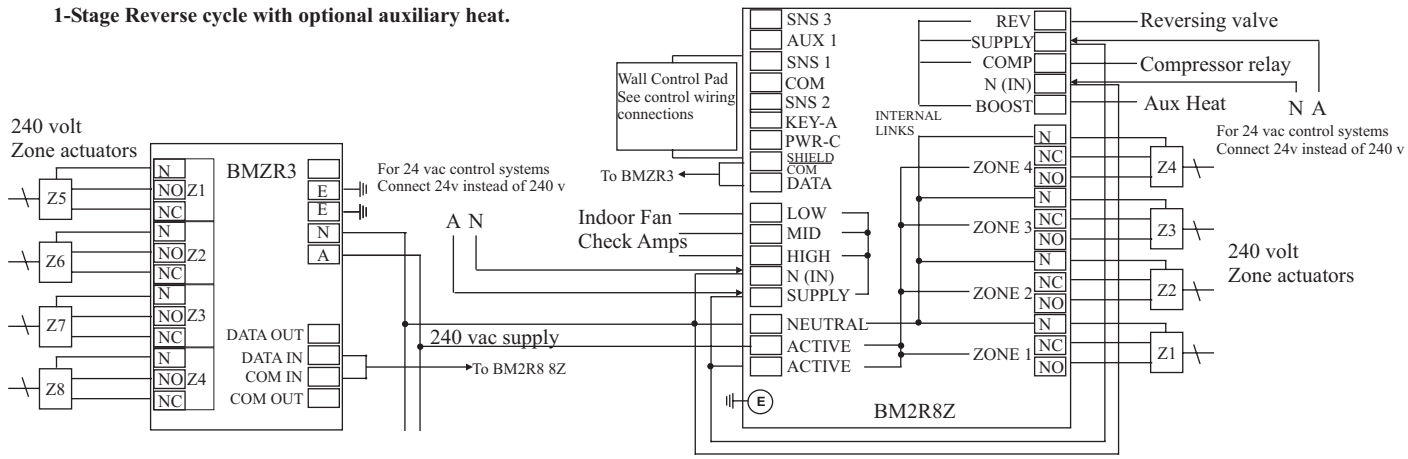
Standard system with sensor 3 options.



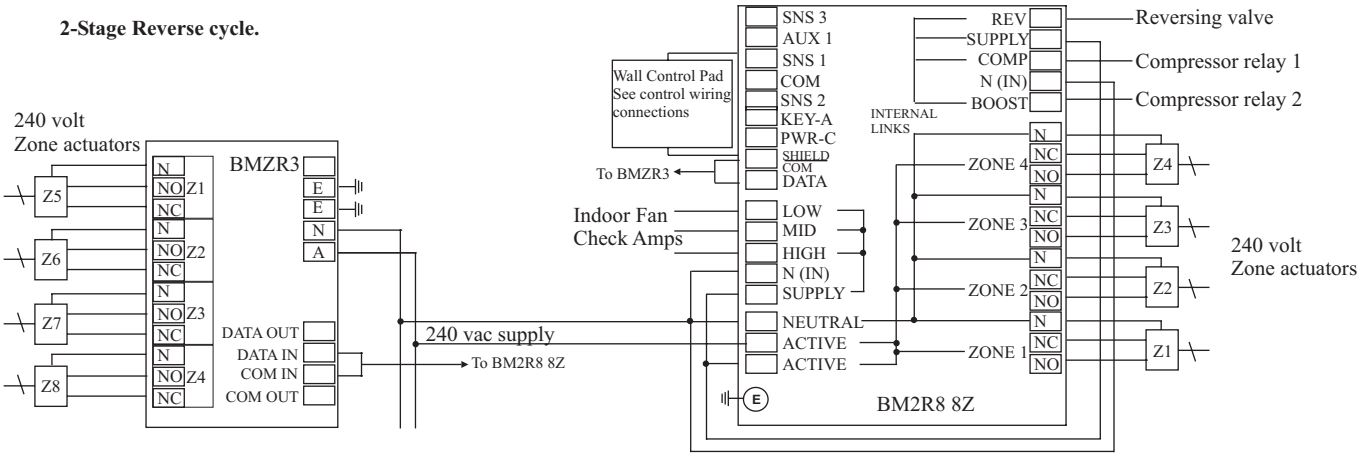
Wall Control Pad terminal layouts.



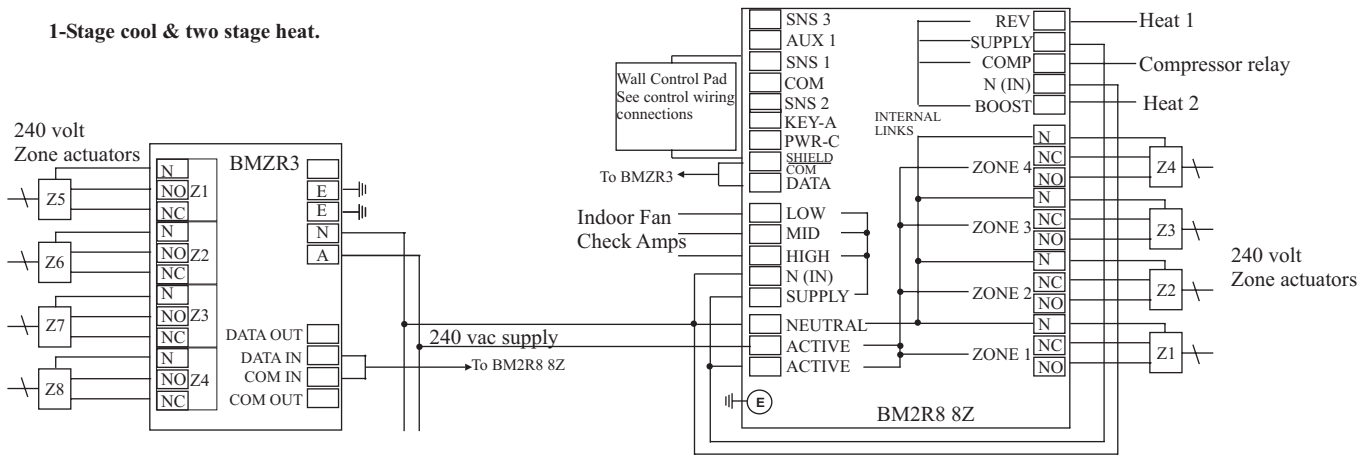
1-Stage Reverse cycle with optional auxiliary heat.



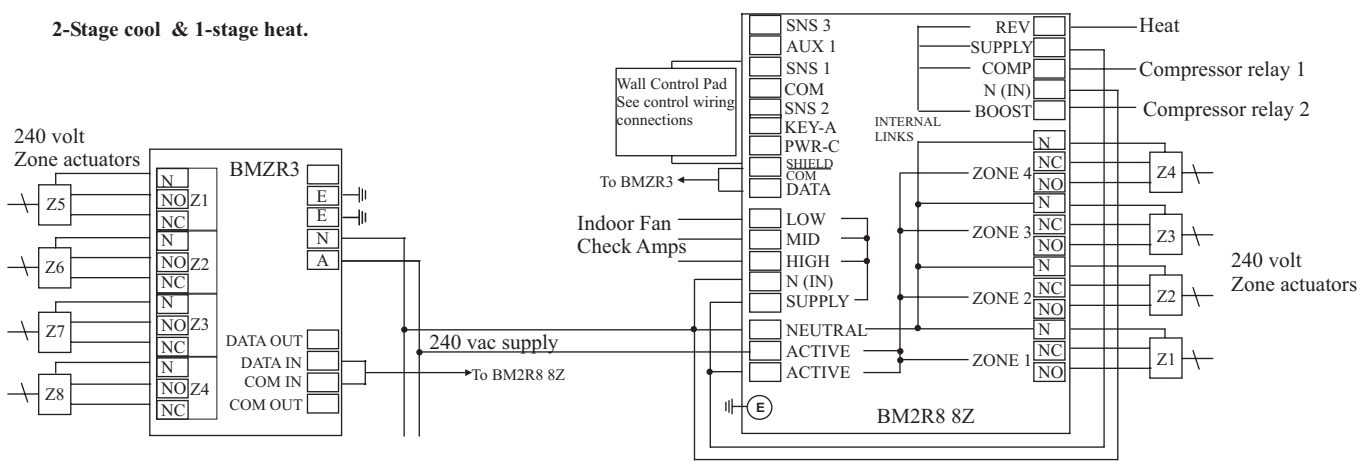
2-Stage Reverse cycle.



1-Stage cool & two stage heat.



2-Stage cool & 1-stage heat.



WALL CONTROL PAD OPERATING INSTRUCTIONS.

BM2-24H-4Z, BMR-24H-8Z, BM2-24H-GP, BM2-7D-4Z and BM2-7D-GP

ON/OFF button.
Press to start or stop system manually.

FAN CONTROL button. Set fan speed and operating mode.
Repeat pressing of button to select the required fan speed in continuous or automatic mode.

Automatic mode (CONT light off). Fan cycles with heating or cooling demand.

Continuous mode (CONT light on). Fan runs continuously with heating or cooling call cycling on demand.

Fan only mode. System has to be off.
Press FAN CONTROL button to run fan in High, Medium or Low. Heating or cooling does not operate in this mode. Press ON/OFF button to stop fan.

COOL. AUTO. HEAT buttons. Set temperature operating mode.

Press COOL button. COOL light On. System operates in cooling mode only.
Cooling call. COOL and RUN light On.

Press AUTO button. System operates in heating or cooling.
Cooling call. AUTO, COOL, RUN lights On.
Heating call. AUTO, HEAT, RUN lights On.

Press HEAT button. HEAT light On. System operates in heating mode only.
Heating call. HEAT and RUN light On.

SET TEMP Up and Down arrows. Adjust room temperature set point.
Press and hold UP or DOWN arrow to select new set point. Range 16oC to 28oC.
To change factory set temperature operating range. See Temperature Set Point Range Limit.

Temperature Set Point range limit. Turn system off before adjusting.

Upper range. Maximum 30oC
Press in quick succession the TIMER **up** arrow then SET TEMP **up** arrow. HIGH light on.
Press SET TEMP **up** or **down** arrow until required upper set point is reached.
NB. The system will automatically except new settings after 5 seconds.

Lower range. Minimum 10oC
Press in quick succession the TIMER **up** arrow then SET TEMP **down** arrow. LOW light on.
Press SET TEMP **up** or **down** arrow until required lower set point is reached.
NB. The system will automatically except new settings after 5 seconds.

Display Room Temperature.

Press and release the TIMER **up** or **down** arrow.
ROOM light flashes and temperature displayed for approximately 3 seconds.

TIMER button.

Turn Off Air Conditioning System.
Press TIMER button.
TIMER and TIME CLOCK lights flash and time in hours will be displayed (0.5 to 24Hrs).
Press TIMER **up** or **down** arrows until required time to stop air conditioning operation is reached..
Press TIMER button to except setting. TIMER light on..
To display time left before system stops press TIMER button. Time left will be displayed.
NB. To cancel or reset the off time press ON/OFF system switch. TIMER light off.

Turn On Air Conditioning System.
Press TIMER button.
TIMER and TIME CLOCK lights flash and time in hours will be displayed (0.5 to 24Hrs).
Press TIMER **up** or **down** arrows until required time to start air conditioning operation is reached..
Press TIMER button to except setting. TIMER light on..
To display time left before system starts press TIMER button. Time left will be displayed.
NB. To cancel or reset the off time press ON/OFF system switch. TIMER light off.

Zone control buttons. If applicable.

Press Zone button to open. Zone light on.
Press Zone button to close. Zone light off..

Note. One zone will always be on. This is to prevent the air conditioning system operating with all zones closed.

FILTER light.
Filter light operates every 160 running hours to remind owners to check air filter.
Reset light by pressing ON/OFF button.

BM2-7D-4Z and BM2-7D-GP only

7-Day Time Clock Menu

Switch air conditioning on or off up to twice per day. Called EVENTS 1 and EVENTS 2
Set Individual or duplicate day switching events.
The Second off event can be up set to 9am the following day.
Please note that activated 24 hour timer isolates time clock function until de-activated.
Press EXIT button at any time to exit menu and return to previous setting.
Press TIMECLOCK PROGRAM button to display time.

Turn time clock on or off and set time and day.

1) Press TIMECLOCK PROGRAM button twice to allow time clock set up.

2a) To enable time clock. OFF flashing. Press ON/OFF. Press TIMECLOCK PROGRAM to accept. Hour flashing

2b) To disable time clock. ON flashing. To disable time clock. Press ON/OFF. Press EXIT button.

3) Set Hours. Press TIMER Up or Down arrows. Press TIMECLOCK PROGRAM to accept. Minute display flashing

4) Set Minutes. Press TIMER Up or Down arrows. Press TIMECLOCK PROGRAM to accept. Day display flashing.

5) Set Day. Press TIMER Up or Down buttons. Press TIMECLOCK PROGRAM to accept. MON EVENT 1 ON displayed
See 6) below to set Monday event 1 on.

NB. To skip setting events and return to previous operation press EXIT button.

Setting the EVENT 1 and 2 on and off times.

6) Press TIMER Up or Down button to select On time. Press TIMECLOCK PROGRAM to accept.

Set Monday event 1 off time. MON EVENT 1 OFF displayed.

7) Press TIMER Up or Down arrows to select Off time. Press TIMECLOCK PROGRAM to accept.

Set Monday event 2 on time. MON EVENT 2 ON displayed

8) Press TIMER Up or Down arrows to select On time. Press TIMECLOCK PROGRAM to accept.

Set Monday event 2 off time. MON EVENT 2 OFF displayed.

9) Press TIMER Up or Down arrows to select Off time. Press TIMECLOCK PROGRAM to accept.

Set Tuesday event 1 on time. TUES EVENT 1 ON displayed. Repeat as above for following days
or to duplicate previous settings see below.

Duplicate previous days settings.

With EVENT 1 ON press REPEAT button. Press TIMECLOCK PROGRAM to accept each event for that day.

Repeat as above for the WEDS, THURS etc.

Notes
1) Different times can be programmed in for any day on any event.
2) To delete an EVENT ON time. I.e Event 2 on Weekends. Press ON/OFF button.
Three dashes (---) will be displayed.
3) To restore an EVENT ON time. Press ON/OFF button twice.

TIMER button. Used instead of or to override time clock.

Turn Off Air Conditioning System.

Press TIMER button.
TIMER and TIME CLOCK lights flash and time in hours will be displayed (0.5 to 24Hrs).
Press TIMER **up** or **down** arrows until required time to stop air conditioning operation is reached..
Press TIMER button to except setting. TIMER light on..
To display time left before system stops press TIMER button. Time left will be displayed.
NB. To cancel or reset the off time press ON/OFF system switch. TIMER light off.

Turn On Air Conditioning System.

Press TIMER button.
TIMER and TIME CLOCK lights flash and time in hours will be displayed (0.5 to 24Hrs).
Press TIMER **up** or **down** arrows until required time to start air conditioning operation is reached..
Press TIMER button to except setting. TIMER light on..
To display time left before system starts press TIMER button. Time left will be displayed.
NB. To cancel or reset the off time press ON/OFF system switch. TIMER light off.

Note. Timer will override set time clock functions.

BM2-24H-4Z, BM2-24H-GP, BM2-7D-4Z, BM2-7D-GP

Caution : Disconnect power supply and insure that all wiring complies with applicable codes.

1. The models are a two part Temperature Control system, comprising of a Wall Control and Relay Module.
An optional Control Station and/or remote sensor(s) can also be used on the this system. Refer to Sensor wiring diagram.

2. Location of Wall Control or remote sensor.
If using the integral sensor in the Control Station , fix to a internal flat wall surface at approximately 1.5 meters above the floor level to sense the air at average room temperature.
Avoid locations in direct sunlight, hot or cold drafts so as not to effect the temperature sensing element.
If using the optional remote sensor(s) or Wall Control the same location guide should be observed.

3. Mounting of Wall Control.
Insert large flat blade of a screwdriver into the slots located at base and twist to remove base.
Mount base on standard wall bracket or fix directly to wall by screws. Do not over tighten or twist base.
Connect the cables to the wall control terminals using the wiring diagram supplied and secure to the Base by pushing in at the top and snap in at bottom. See information below.

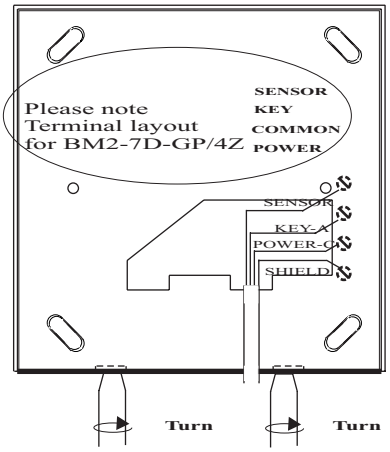
4. Zone Tracking. BM2-24H-4Z and BM2-7D-4Z models only.
When commissioning the system insure that each zone has been assigned to its appropriate sensor if using the optional remote sensor or Wall Control. Please note that Zone 1 is always Sensor 1 and cannot be changed.
Example : If Optional Sensor has been installed to track the temperature of Zone 2. Assign Zone 2 to Sensor 2.
See Menu 3,for access and information

5. To change factory operating settings.
The Leasam controls have set Factory Settings as shown on following pages.
If your requirements are different to those shown in this table, they can be readily changed by accessing one of the following Menus 1, 2 or 3. Access into the menus are by the use of the Wall Control operating buttons..
NB. Service access keys are also available from Wall Control buttons.

6. For General Operating Information. see Customer Operating Instructions.

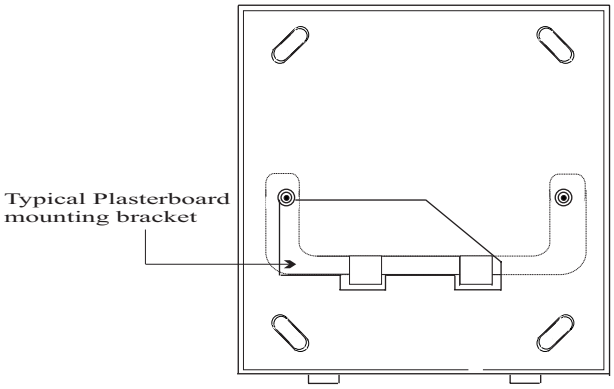
Mounting of Wall Control

1 Rear View of Wall Control.



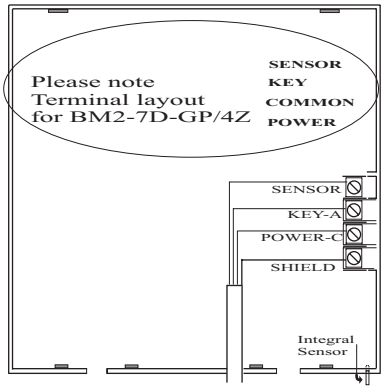
Remove mounting plate by inserting screw driver into slot at bottom and turn as shown above..

2 Front View of Mounting Plate



Fix mounting plate to Plasterboard

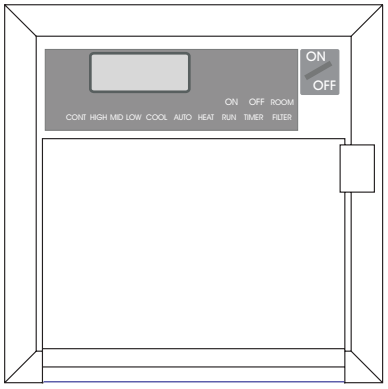
3 Rear View of Wall Control without mounting plate.



Please note
Terminal layout
for BM2-24H-GP/4Z

Typical wiring connection.

4 Install Wall Control to Mounting Plate Push in at Top



Snap in at Bottom

COMMISSIONING AND SERVICE MENUS

All Models.

Reset Control to Factory Default Settings. Turn off Wall Control to enter menu
Press and Hold **FAN CONTROL** button. Press and release **SET TEMP** Down arrow. Press **ON/OFF** button, release with **FAN CONTRO**L button
Wall Control led's will flash and system will reboot. Program non factory settings.

Display Room Temperature for 30 minutes.
Press and Hold **FAN CONTROL** button. Press **COOL** button. Release **BOTH** buttons.
ROOM will flash and room temperature will be displayed. Press any button to exit.

Display Room Temperature for 3 seconds.
Quick press on **TIMER** Up or Down arrow. ROOM will flash and room temperature will be displayed.

Cancel Operating Timers.
To cancel Compressor anti-cycle, Fan run-on and Reversing Valve Hold In time delays.
Press and hold **FAN CONTROL** button. Press **HEAT** button. Release **BOTH** buttons.

Set Upper and Lower Temperature Set Point Limits. Turn off Wall Control to enter menu.
Factory setting 16oC to 28oC..

Set upper limit. Maximum 30oC
Press in quick succession the **TIMER** Up arrow and the **SET TEMP** Up arrow. **HIGH** led On. Upper set point displayed.
Press **SET TEMP U**p or Down arrow to select new upper point.
NB. The system will automatically except new settings after 5 seconds.

Set lower limit. Minimum 10oC.
Press in quick succession the **TIMER** Up arrow and the **SET TEMP** Down arrow. **LOW** led On. Lower set point displayed.
Press **SET TEMP U**p or Down arrow to select new lower set point.
NB. The system will automatically except new settings after 5 seconds.

Control parameters. Factory settings and adjustments. Turn off Wall control to enter menus

Add Zones. BM2-24H-4Z, BM2-7D-4Z
Factory default. Two zones
Maximum Four zones.
See Menu 3 Table 1

Additional Wall Controls and Sensors.
Factory default. Integral sensor in Wall Control.
Maximum sensors allowed per system.
1. Integral Wall Control Sensor and remote Sensor.
2. Two Wall Controls with integral Sensors.
3. Two remote Sensors.
NB. Optional sensors can be programed to Zone 2, 3 or 4.
Zone 1 is always Sensor 1
See Menu 3 Table 1 and wiring diagrams.

Air Conditioning Operating Options.
Factory default. Single stage heat pump plus supplementary heating.
Options.
1. Two stage heat pump.
2. Two stage heat/ one stage cool.
3. Two stage cool/ one stage heat.
4. Three stage heat.
5. Three stage cool.
See Menu 1

Proportional and Dead Bands.
Proportional Band adjustment 0-9.9oC.
Dead Band adjustment 0-9.9oC.
See Menu 2.

Fan Speed selection from Wall Control
Factory default. Three speed.
Options.
1. Single speed.
2. Two speed.
See Menu 3 Table 2.

Fan Operating Selection from Wall Control.
Factory default. Auto or Continuous selectable from Wall Control
Option. Continuous run only.
See Menu 3 Table 2

Fan Run-On for Electric heating
Factory default. 0.5 minutes on electric heat selection.
Option. 0.5 to 5 minutes.
See Menu 3 Table 3.

Temperature Operating Modes
Factory default. Auto, Cool or Heat only selectable from Wall Control.
Option. Auto temperature changeover.
See Menu 3 Table 3

Sensor 1 and Sensor 2 Calibration.
Factory default. 0.0oC
Option.
0 to +/- 2.5oC.
See Menu 3 Table 3.

Compressor Start Delay.
Factory default. 0.0 Minutes
Option
0-5 minutes .
See Menu 3 Table 3

Reversing Valve Operation.
Factory default. Operates in heating.
Option
Operates in cooling.
See Menu 3 Table 3

Pre-Heat or Add on Cool.
Factory default. Pre-heat.
Option.
Add on cool.
See Menu 3 Table 3.

COMMISSIONING/ INSTALLATION INSTRUCTIONS

PLEASE CHECK THE FACTORY SETTINGS BEFORE CHANGING MENU SETTINGS.

Menu 1. To enter menu turn off Wall Control at ON/OFF button.

Press and hold **FAN CONTROL** button. Press **TIMER** button. Release **BOTH** buttons.
Air conditioning operating mode will be displayed in screen. I.e **HP** (single stage heat pump).
Pressing the **SET TEMP Up** or **Down** arrow to select. I.e 2**HP** (two stage heat pump). See **Air Conditioning Operating Option** Table below.
Press **FAN CONTROL** button to accept the selection and exit Menu. Alternatively press **TIMER** button to accept the selection and move to **Menu 2.**

Air Conditioning Operating Options

Screen Display	Single stage heat pump	Two stage heat pump	Single stage Compressor.	Two stage Compressor.	Three stage Compressor.	Single stage Heat	Auxillary Heat	Two stage Heat	Three stage Heat
HP	√						√		
2HP		√							
CE			√					√	
2CE				√		√			
3H									√
3C					√				

Menu 2. To enter menu turn off Wall Control at ON/OFF button.

Press and hold **FAN CONTROL** button. Press **TIMER Up** arrow. Release **BOTH** buttons.
Stage 1 cool off displayed on screen. **COOL** and **OFF** LED's flashing.
To change setting press the **SET TEMP** Up or Down arrow to new set point. Press **TIMER** button to accept change and move to next stage.
Stage 1cool on displayed on screen. COOL and ON LED's flashing. Repeat for other settings. **See Table below.**
Alternatively press **FAN CONTROL** button to accept a change and exit Menu 2.

Please note that some stages **will not** be applicable due to Air Conditioning Operation Option selected.

All settings are the temperature offset from the Controller set point.

Heating and Cooling	Factory Settings	Temperature Adjustment	LED's Displayed on Wall Controller					
			COOL	HEAT	ZONE 1	ZONE 2	OFF	ON
Stage1 Cool Off	**0.5oC**	0 to 9.0oC	On		On		Flashing	
Stage1 Cool On	**1.0oC**	0.5 to 9.9oC	On		On			Flashing
Stage2 Cool Off	**1.0oC**	0 to 9.0oC	On			On	Flashing	
Stage2 Cool On	**1.5oC**	0.5 to 9.9oC	On			On		Flashing
Stage3 Cool Off	**1.5oC**	0 to 9.0oC	On		On	On	Flashing	
Stage3 Cool On	**2.0oC**	0.5 to 9.9oC	On		On	On		Flashing
Stage1 Heat Off	**-0.5oC**	-0 to 9.0oC		On	On		Flashing	
Stage1 Heat On	**-1.0oC**	-0.5 to 9.9oC		On	On			Flashing
Stage2 Heat Off	**-1.0oC**	-0 to 9.0oC		On		On	Flashing	
Stage2 Heat On	**-1.5oC**	-0.5 to 9.9oC		On		On		Flashing
Stage3 Heat Off	**-1.5oC**	-0 to 9.0oC		On	On	On	Flashing	
Stage3 Heat On	**-2.0oC**	-0.5 to 9.9oC		On	On	On		Flashing

COMMISSIONING/ INSTALLATION INSTRUCTIONS

PLEASE CHECK THE FACTORY SETTINGS BEFORE CHANGING MENU SETTINGS.

Menu 3. Tables 1, 2 and 3. To enter menu turn off Wall Control at ON/OFF button.

Press and hold **FAN CONTROL** button. Press **TIMER Down** arrow. Release **BOTH** buttons.
You will enter **Table 1** if using **LEASAM** models **BM2-24H-4Z** or **BM2-7D-4Z.**
You will enter **Table 2** if using **LEASAM** models **BM2-24H-GP** or **BM2-7D-GP.**

NOTE. To move from **Table 1** to **Table 2** to **Table 3**. Press and release **TIMER** button.
To exit from menus at any time, press **FAN CONTROL** button.

Table 1.
Add or remove zones.
Assign (program) zone 2, 3, or 4 to control from optional Sensor or Wall Control. See wiring diagrams.
Table 2.
Program the fan speeds controlled from wall control.
Program fan operating modes. I.e Continuous mode or Auto/Cont selectable from Wall Control Pad.
Table 3. Change functions or parameters for the following.
F1.Fan Run-On time.
F2.Temperature operating mode.
F3. Sensor 1 Calibration.
F4. Sensor 2 Calibration.
F5. Dirty Filter warning light.
F6. Reversing valve operating mode.
F7. Operating set up for optional Sensor 3.

Table 1. 2-1 is displayed on screen.BM2-24H-4Z or BM2-7D-4Z only.

To add zones.
To **a**dd zone 3. Press ZONE 3 button. **3-1** displayed on screen. Press **FAN CONTROL** button to accept and exit menu.
To add zone 3 and zone 4. Press ZONE 4 button. **4-1** displayed on screen. Press **FAN CONTROL** button to accept and exit menu.
Alternatively to accept change and move to Table 2, press **TIMER** button instead of **FAN CONTROL** button.

NB. **3-1** means ZONE 3 temperature is controlled from SENSOR 1. **4-1** means ZONE 4 temperature is controlled by SENSOR 1.
Remove Zones.
Reverse procedure.

To Assign Zones. Enter menu 3 as above. 2-1 is displayed.
Two zone system**.** To assign Zone 2 to control from optional Wall Control or Sensor 2.
Press **SET TEMP** Up arrow. 2-2 will be displayed on screen. Press **FAN CONTROL** button to accept and exit menu.
Zone 2 temperature is now sensed from SENSOR 2
Three zone system. To assign Zone 3 to control from optional Wall Control or Sensor 2.
Press ZONE 3 button. 3-1 is displayed. Press **SET TEMP** Up arrow. 3-2 will be displayed. Press **FAN CONTROL** button.
Zone 3 temperature is now sensed from SENSOR 2.
Four Zone system. Press **ZONE 4** button and repeat as above.
NB. ZONE 1 is factory set to control from Sensor 1.

Table 2. Fan speeds and operating modes.

FAn displayed
Press **SET TEMP** Up or Down arrow so that led's displayed on Wall Control match required Fan speeds and operating mode.
See Table below
Press **TIMER** button to accept changes and move to Table 3. **Alternatively** press **FAN CONTROL** button to accept and exit Menu 3.

Fan Operating Mode	LED,s Displayed on Wall Controller				Fan Speeds selectable from wall control station
	CONT	HIGH	MID	LOW	
* Auto Continuous	Off	On	On	On	3
**Continuous	On	On	Off	Off	1
**Continuous	On	On	Off	On	2
**Continuous	On	On	On	On	3
* Auto Continuous	Off	On	Off	Off	1
* Auto Continuous	Off	On	Off	On	2

Notes
*** Auto/Continuous**.
Auto: The Supply fan will cycle with the temperature demand.
Continuous. The Supply fan will continue to run while the temperature demand cycles On and Off.
These two different modes are selected from the Wall Control Pad.

****Continuous.** The Supply fan cannot be selected to run in Auto mode

Table 3. See Table below for functions and parameters.

Press **SET TEMP Up** or **Down** arrow to select function or to adjust parameter.
Press **TIMER** button to accept change and move to next function or parameter in table.
Alternatively press **FAN CONTROL** button at any time to accept that change and exit Menu.

				LED,s Displayed on Wall Control										
Functions	Factory Settings	Range	Adjustments	HIGH	LOW	MID	COOL	HEAT	AUTO	ROOM	ZONE 1	ZONE 2	ON	RUN
F1. Fan Run-On	0.5Mins	0-5Mins	0.5Mins	On	On	On							Flashing	Flashing
F2. Temperature operating mode	Cool/Auto/Heat		Auto				On	On	On On				On	On
F3. Sensor 1	0.0	-2.5 to 2.5	0.1oC							On	On			
F4. Sensor 2	0.0	-2.5 to 2.5	0.1oC							On		On		
F5. Comp Delay	0.0	0-5Mins	0.5Mins				On	On	On					
F6. Dirty Filter	160 Hours	100 to 600	10 Hours											
F7. 4 Way valve	rH		rC											
F8. Pre-heat	PH		AC											

NOTES

F1. **Fan Run-on.** Time indoor fan will run for if system is switched off while in heating cycle and using electric or gas as the heating medium.

F2. **Temperature Operating Mode**. Temperature control mode selected from Wall Control or non selectable automatic Temperature change over.

F3. **Sensor 1 calibration.** To offset the sensor temperature.

F4. **Sensor 2 calibration**. To offset the sensor temperature.

F5. **Compressor Delay.** Compressor minimum off time period.

F6. **Filter Light.** Reminds customer to check filter.

F7. **Reversing Valve**. Change reversing valve to operate in cooling or heating mode.

F8. **Sensor 3 options**
Preheat. Delays indoor fan start after de-ice until coil temperature reaches 30oC.
Add-On-Cool. Replaces heat pump with auxiliary heating when ambient temperature below 4oC.
See table below for Sensor 3 options.

Sensor 3 Operating set up.

Preheat or Add On Cool optional Sensor 3 is plugged directly into the Relay Module.
Preheat. Fix Sensor securely to coil of indoor Fan.
Add on cool. Sensor to sense Ambient temperature.
See below for system operation in “Preheat” or “Add on Cool”mode.

FAN and COMPRESSOR Temperature Control Table in Preheat option

	Heat LED	Evaporator Coil Temp.	Fan Speed	Compressor	Description of operation
Heat pump	Blinking	< **15.0 degC**	Off	On	Indoor fan off
	On	> **30.0 degC**	Low	On	Indoor fan on low speed
	On	> **32.0 degC**	Selected	On	System in Normal Operation
	On	> **68.0 degC**	Selected	Off	Compressor off to prevent high pressure trip.
		< **50.0 degC**	Selected	On	Normal Operation
Heat pump with Auxiliary Heat		**FAN and COMPRESSOR Temperature Control Table in Add On Cool option**			
	On	< **4.0 degC**	Selected	Off	*Auxiliary heat replaces Heat Pump Operation
	On	> **5.0 degC**	Selected	On	Normal Operation

*Auxiliary heat will operates at the same Heat Pump settings.

Applications.

3 Stage Heat Pump.(B512GZ)

3 Stage Heat and Cool.(B512GZ)

Water pump interlock.

O/A economy cycle (B512GE model)

Features and Benefits.

System switch.

7 Day 4 event time clock.

Time clock Battery backup.

24 Hour countdown timer.

After hours run timer.

Three temperature control modes.

Temperature setback operating mode.

Two operating fan modes.

Single or 3 speed fan control.

Ventilation control.

Zone control.

Display. Time, room or set point.

Dirty filter warning.

Optional remote sensor control.

Temperature set point range limits.

Sensor calibration

Remote stop/start interface.

Adjustable temperature operating parameters.

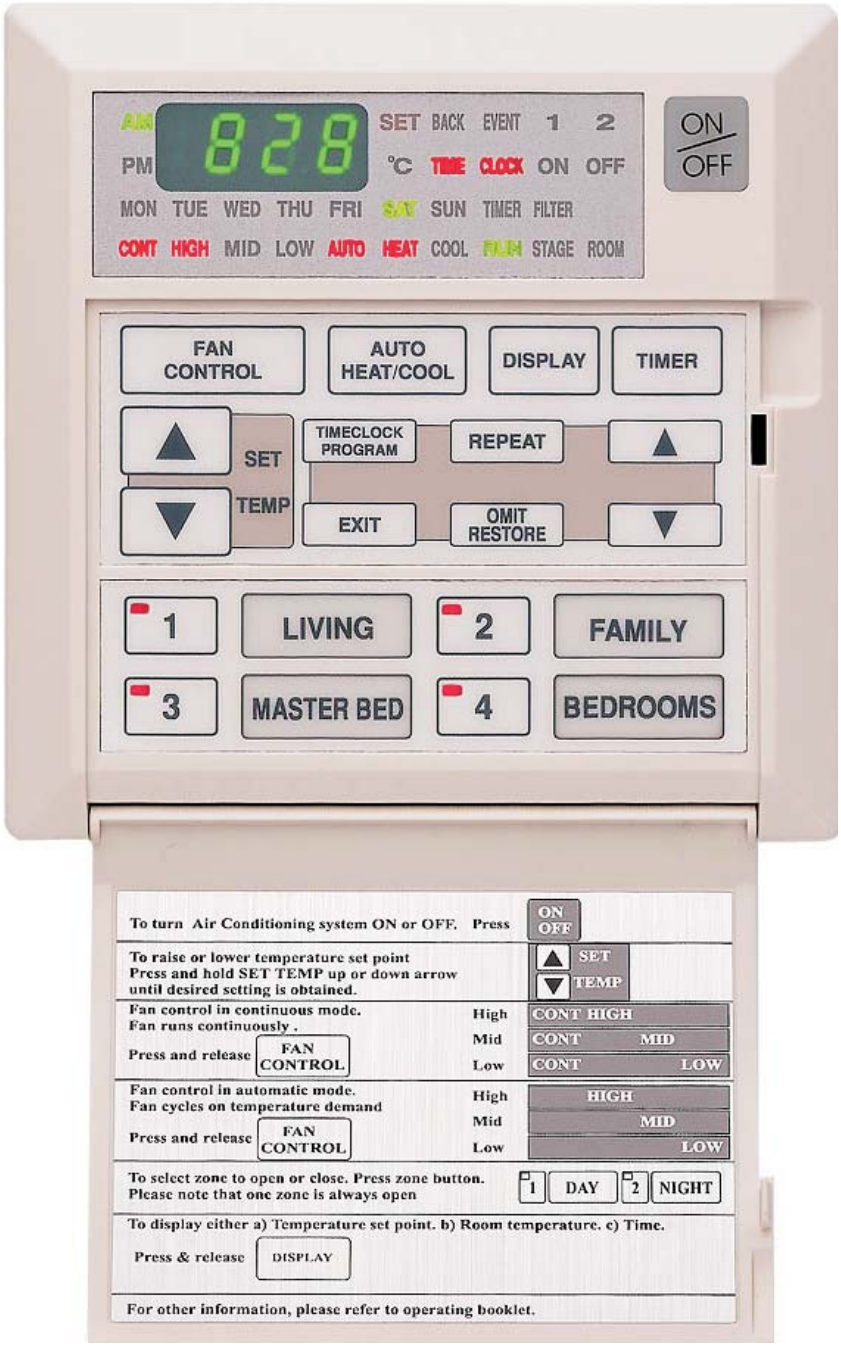
Adjustable Compressor start delay.

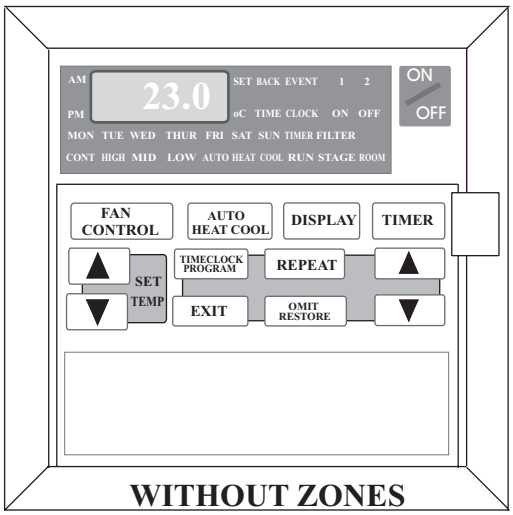
Adjustable Fan run-on for electric heating.

Pump interlock with fault display.

240 or 24vac control systems.

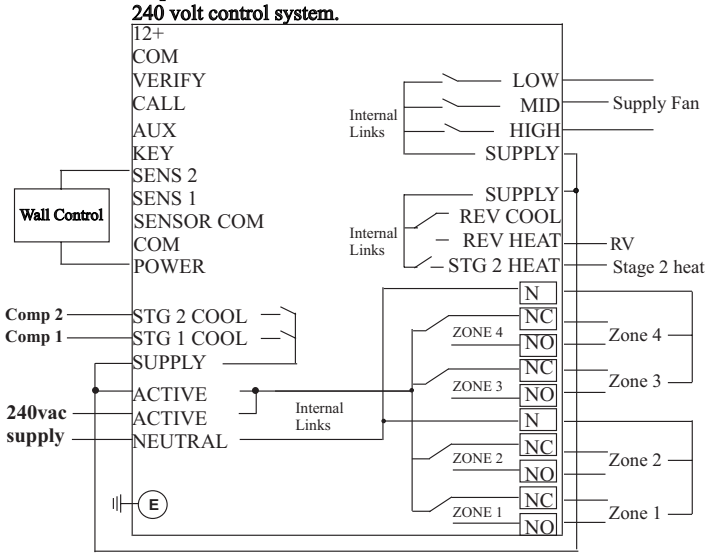
Australian designed and manufactured.



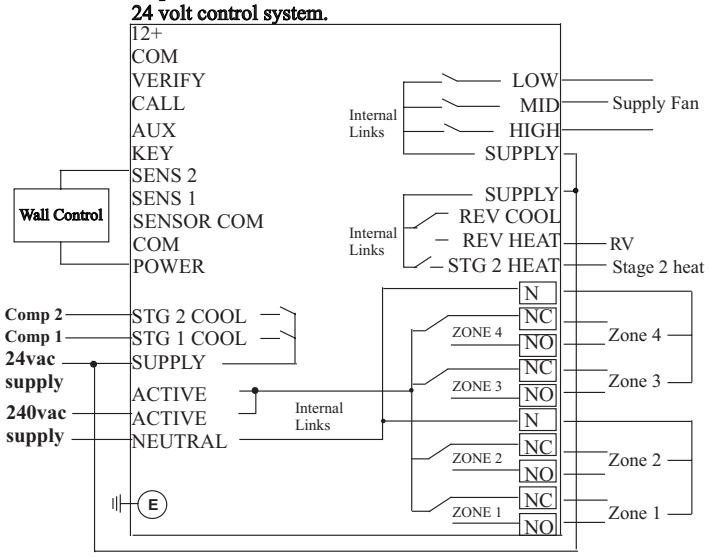


WITHOUT ZONES

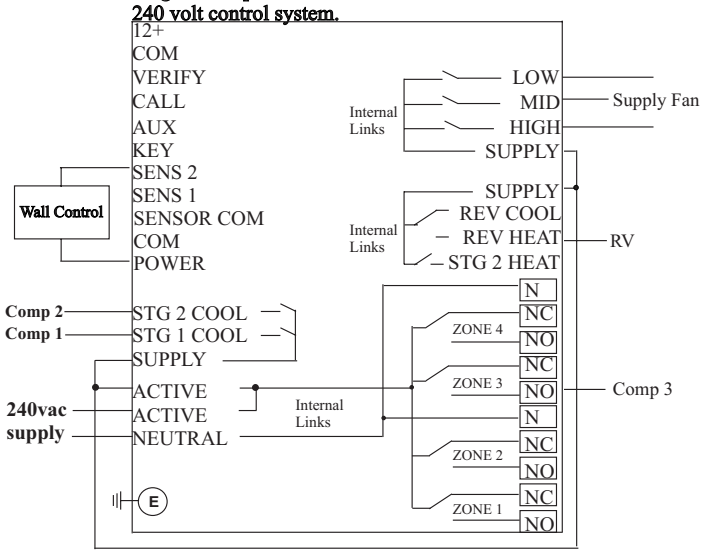
2 Stage Heat pump.
4 Zone control.
3 Speed fan control.
240 volt control system.



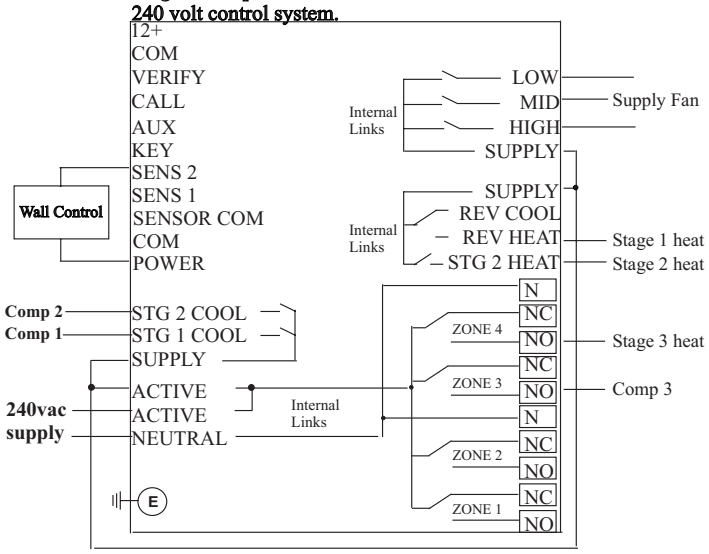
2 Stage Heat pump.
4 Zone control.
3 Speed fan control.
24 volt control system.



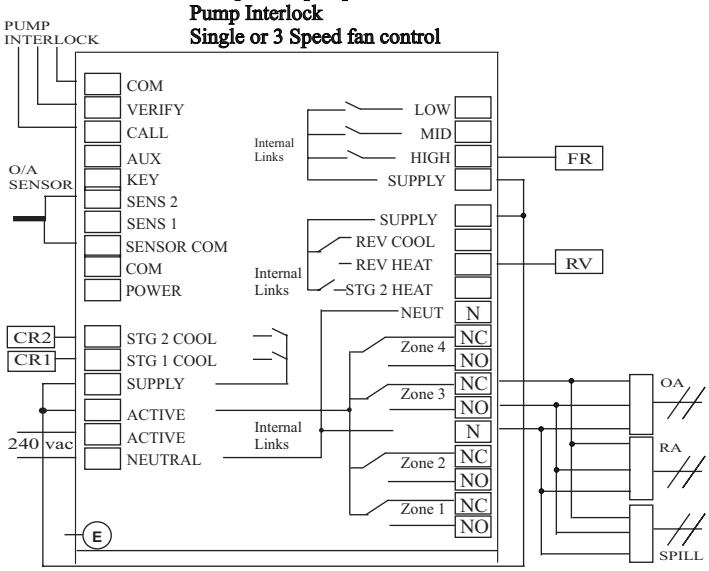
3 Stage Heat pump.
Single or 3 Speed fan control
240 volt control system.



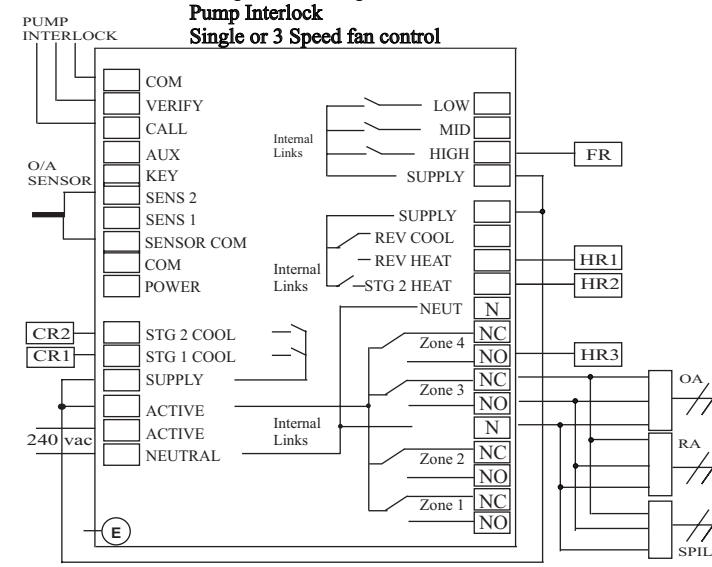
3 Stage Heat and 3 Stage Cool.
Single or 3 Speed fan control
240 volt control system.



B512GE O/A Economy control
2 Stage Heat pump.
Pump Interlock
Single or 3 Speed fan control

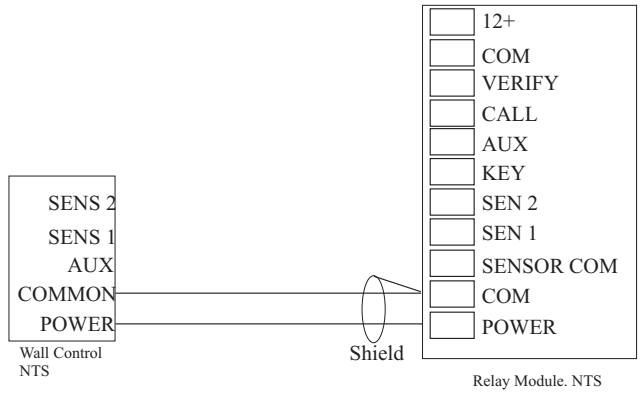


B512GE O/A Economy control
2 Stage Cool/ 3 Stage Heat.
Pump Interlock
Single or 3 Speed fan control

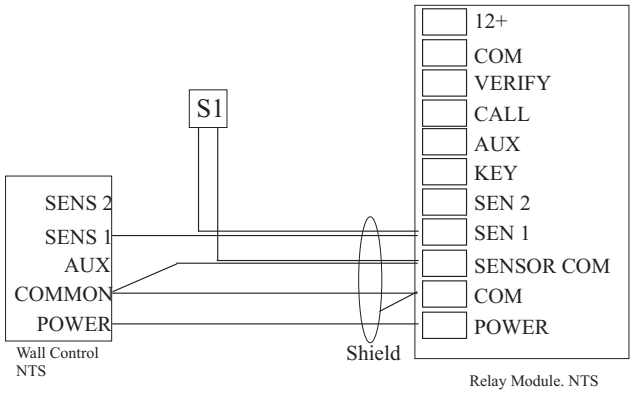


Wall Control and Relay module control wiring connections.

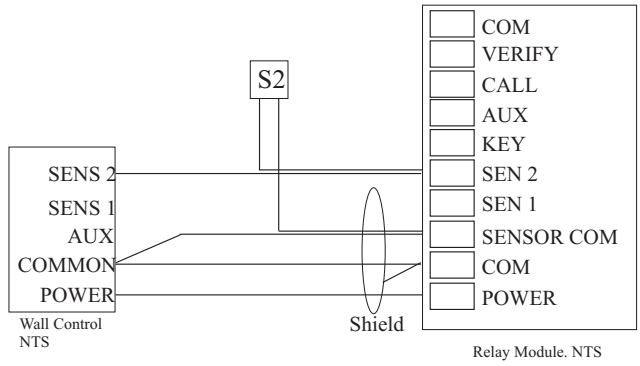
Standard wiring connection.



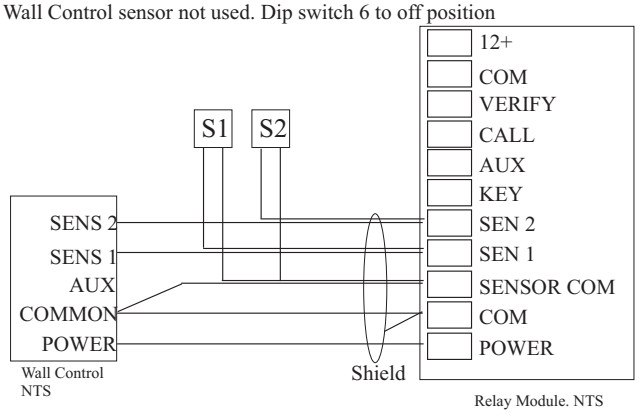
Remote sensor S1.
Wall Control sensor not used. Dip switch 6 to off position.



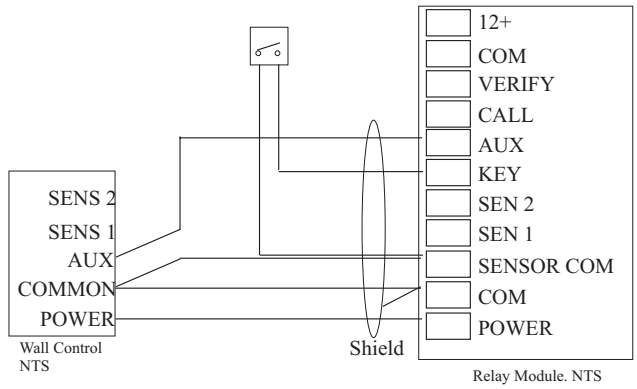
Dual Sensor control. Remote sensor S2 and Wall Control sensor.



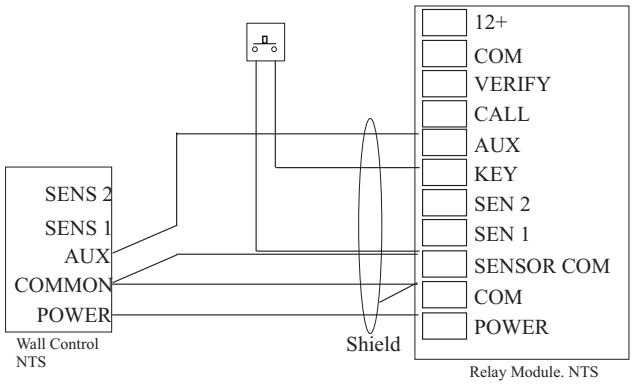
Dual sensor control. Remote sensors S1 and S2.
Wall Control sensor not used. Dip switch 6 to off position



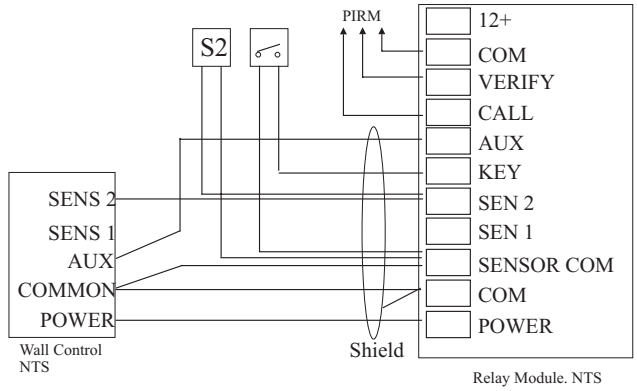
External interface. I.e (Home Automation)



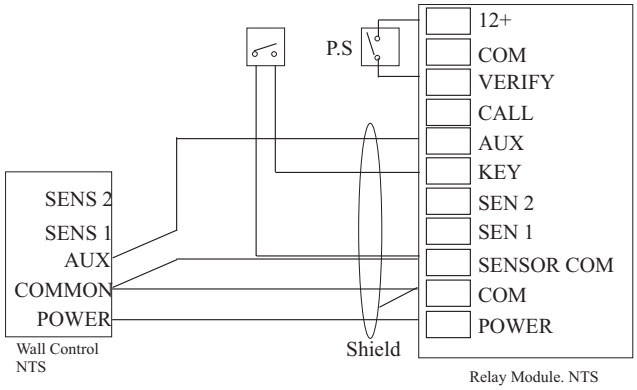
Remote after hours run timer



Dual sensor control, external interface and LEASAM condenser pump interlock.



External interface and pump flow verification via Pressure Switch

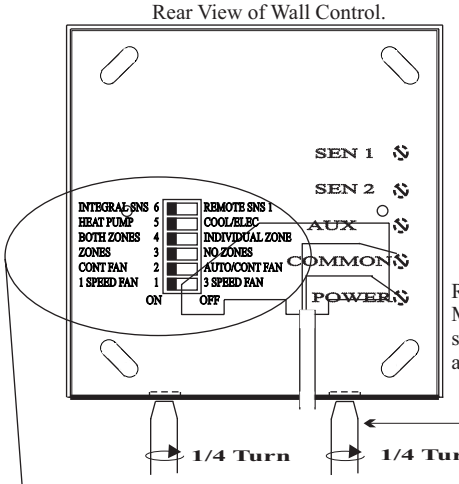


The **B512GZ** is a two part Temperature Control system, comprising of a Wall Control Pad with Integral sensor and Relay Module.

Location of Wall Control Pad.

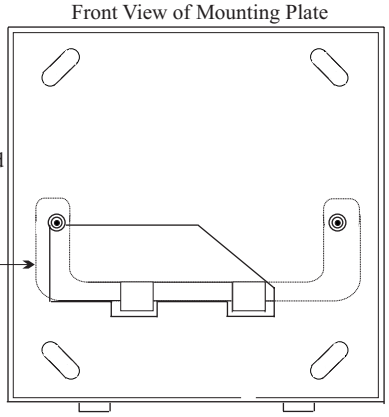
Fix to an internal flat wall surface approximately 1500mm above floor level and a location to sense average room temperature.
Avoid locating in direct sunlight or sources of hot or cold drafts directly on or near the Wall Control sensing element.
The same location guide should be observed for additional sensors.

Rear View of Wall Control.



Remove Wall Control from Mounting Plate by inserting screw driver into slot at bottom and turn as shown.

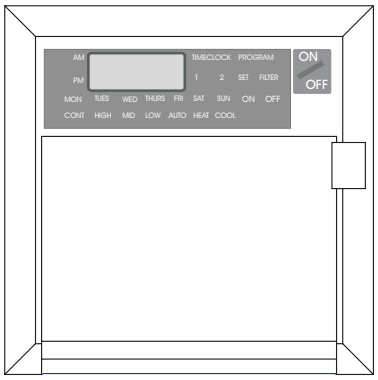
Front View of Mounting Plate



Typical Plasterboard Mounting Bracket

Fix mounting plate to plasterboard

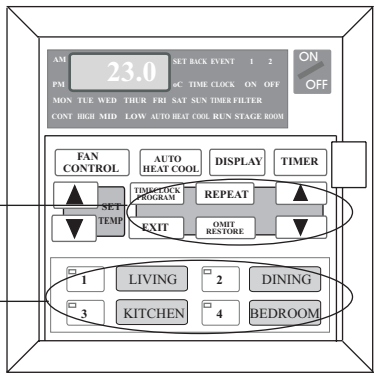
Clip in at Top



Press and snap in at Bottom

Install Wall Control to Mounting Plate

Control button layout



Time clock and program Menu buttons

Zones shown.
Blank label also supplied for Non Zone systems

Air conditioning operating selection. Select DIP switch settings on Wall Control. See below

	DIP Switch Settings			
Wall Control onboard sensor used	**Integral sensor**	**DS.6**	**Remote sensor 1**	**Wall Control onboard sensor not used**
Heat Pump or reverse cycle A/C system	**Heat Pump**	**DS.5**	**Cool/Electric**	**Comp/Cooling valve - Electric Heat/ Heating valve**
Normal setting for domestic A/C systems	**Both Zones**	**DS.4**	**Individual Zones**	**One zone only at a time I.e Day or Night.**
Normal setting for domestic A/C systems	**Zones**	**DS.3**	**No Zones**	**Normal setting for commercial A/C systems.**
Fan operates in continuous mode only	**Continuous Fan**	**DS.2**	**Auto/Cont Fan**	**Normal settings for domestic A/C systems.**
Single speed fan operation only	**1 Speed Fan**	**DS.1**	**3 Speed Fan**	**Normal settings for domestic A/C systems.**
	ON		**OFF**	

INDEX

Wall Control Pad operating buttons.

ON/OFF button.
Press to start or stop system manually or activate After Hours Run Time.

FAN CONTROL button. Select fan speed and operating mode. See Function Menu and Wall Control DIP switch for other options
Repeat pressing of button to select the required fan speed in continuous or automatic operating mode.
Automatic mode (CONT light off). Fan cycles with heating or cooling demand.
Continuous mode (CONT light on). Fan runs continuously with heating or cooling call cycling on demand.
Air circulation mode. Turn system off. Press FAN CONTROL button. To stop fan Press ON/OFF.

AUTO/HEAT/COOL button. Select temperature operating mode.
Repeat pressing of button to select operating mode.

AUTO MODE. AUTO light On. Heat or Cool automatically selected..
HEAT MODE. HEAT light On. System operates in heating cycle only.
COOL MODE. COOL light On. System operates in cooling cycle only.

DISPLAY button. Select screen display.
Repeat pressing of button to display. following.
TEMPERATURE SET POINT. SET light On.
TIME. Time and day displayed.
ROOM TEMPERATURE. ROOM light On.

SET TEMP Up and Down arrow. Adjust room temperature set point.
Press **UP** or **DOWN** arrow to select temperature set point. To change factory adjustment range. See Temperature Set Point Range Limit.

Zone buttons. If applicable
Press Zone button to open. Zone light on. Press Zone button to close. Zone light off.
Note: One zone is always activated to prevent air conditioning system operating with all zones closed.

Time Clock program buttons. Turn off system to set up time clock

Turn time clock On. Press TIMECLOCK PROGRAM button twice.
TIME CLOCK light on. OFF light flashing. Press ON/OFF button. ON light flashing. Press TIMECLOCK PROGRAM to accept.

Time displayed and Hours flashing. Press Up or Down arrows to set hours. Press TIMECLOCK PROGRAM to accept.
Minutes flashing. Press Up or Down arrow to set minutes. Press TIMECLOCK PROGRAM to accept.
Day flashing. Press Up or Down arrow to set day Press TIMECLOCK PROGRAM to accept.

Monday EVENT 1 ON displayed. Press Up or Down arrow to set the On time. Press TIMECLOCK PROGRAM to accept.
Monday EVENT 1 OFF displayed. Press Up or Down arrow to set the Off time. Press TIMECLOCK PROGRAM to accept.
Monday EVENT 2 ON displayed. Press Up or Down arrow to set the On time. Press TIMECLOCK PROGRAM to accept
Monday EVENT 2 OFF displayed. Press Up or Down arrow to set the Off time. Press TIMECLOCK PROGRAM to accept.
Tuesday EVENT 1 ON displayed. Repeat as above.
Alternatively to repeat previous day program from Tuesday onwards.
Press REPEAT button then TIMECLOCK PROGRAM for each On/Off event for that day. Repeat for the following days.
Individual On/Off event times can be programmed for each day. E.g different Off time on Thursday.
To omit an On Event. E.g Event 2 on Saturday and Sunday press OMIT RESTORE. Three dashes ▬▬▬ will be displayed.

Notes.
1. To restore an On Event press OMIT RESTORE . The On Time will be displayed.
2. To exit menu at anytime press EXIT button.
3. To turn time clock operation off. Repeat as **Turn time clock On**. ON flashing. Press ON/OFF button. OFF flashing. Press EXIT button.

TIMER Button. Set timer as a) Countdown timer (factory setting) or b) After Hour Run Timer.

a) Countdown timer. Setting timer to override time clock function.

Set timer to start air conditioning system.
Press TIMER button. Time and day shown with TIMER and ON light flashing.
Press TIMECLOCK PROGRAM **Up** or **Down** arrow to select On time. Press TIMECLOCK PROGRAM button to accept. TIMER light on.

Set timer to stop air conditioning system.
Press TIMER button. Time and day shown with TIMER and OFF light flashing.
Press TIMECLOCK PROGRAM **Up** or **Down** arrow to select off time. Press TIMECLOCK PROGRAM button to accept.TIMER light on.

Notes.
1. To cancel the timer set up. Press the ON/OFF button. TIMER light off.
2. To see the set time to start or stop the system, press TIMER button. Time is shown in display.

b) After Hour Run Timer. To run A/C system for preset time(adjustable) out of normal operating time.
Notes:
1. Time clock function has to be enabled for **AH** run on timer function to operate..
2. Set **AH run timer function** and **run time** from **Function Menu F9 and F10.** Note **F8** must also be in **A1** setting.
3. Press Wall Control **ON** button or optional remote **ON** button(see wiring diagrams) to enable **AH** Timer. **TIMER** light On
4. To turn off system before completion tome, Press **OFF** button.
5. If **AH** run time setting overlaps time clock start time the system starts but TIMER light will be Off.

Wall Control Pad operating buttons. Continued

Temperature setback. (Economy temperature setting). Turn off system to set up.
Generally used in unoccupied times or during the night to maintain a maximum or minimum room temperature.

Press **DISPLAY** button until room temperature is displayed. **ROOM** light On. Press TIMECLOCK PROGRAM button.
SET BACK light On. **OFF** or **ON** light flashing.
Press time clock program **Up** or **Down** arrow to select setback operating mode.
Cool mode only. **COOL, ON** or **OFF** lights flashing.
Heat mode only. **HEAT**, **ON** or **OFF** lights flashing.
Cool and heat mode. **COOL**, **HEAT**, **ON** or **OFF** lights flashing. Press TIMECLOCK PROGRAM to accept selection.

Current cooling setback temperature displayed. **COOL** and **ON** lights flashing.
Press **SET TEMP Up** or **Down** arrow to select cooling setback temperature. Press TIMECLOCK PROGRAM to accept.
Current heating setback temperature displayed. **HEAT** and **ON** lights flashing.
Press **SET TEMP Up** or **Down** arrow to select heating setback temperature. Press TIMECLOCK PROGRAM to accept.
Press **EXIT** to exit menu.

Note.
COOL mode. Operates in cooling only. Cooling setback range 24oC to 36oC.
HEAT mode. Operates in heating only. Heating setback range 8oC to 20oC.
COOL and HEAT mode. Operates in cooling and heating.

Temperature Set Point Range Limit. Turn off system to change settings.

To change upper limit.
Press **DISPLAY** button to read time.
Press TIMECLOCK PROGRAM button then time clock program Up arrow. Current setting will be displayed. E.g U28 (28oC).
Press the **SET TEMP** Up or Down arrow within 0.5 seconds to adjust set point.
The system will automatically except the new settings.
Note . Maximum set point 36oC.
To change lower limit.
Press **DISPLAY** button to read time.
Press TIMECLOCK PROGRAM button then time clock program Down arrow. Current setting will be displayed. E.g L16 (16oC).
Press and **SET TEMP** Up or Down arrow within 0.5 seconds to adjust set point.
The system will except automatically except the new settings.
Note. Minimum set point 10oC.

Filter light.
Filter light operates every 160 running hours to remind owners to check air filter.
Reset filter light by pressing ON/OFF button.
Note.
Filter light is a reminder only and is not indicating a fault.

To read Set point when screen is displaying time or room temperature.
Quick press of SET TEMP Up or Down arrow to display set point. To change set point, press and hold Up or Down arrow.

Commissioning and Service keys

Reset controller to factory default settings. Turn of system to reset.

Press and hold **EXIT** button, press and release TIMECLOCK PROGRAM **Down** arrow. Press **ON/OFF** button and release with **EXIT** button.
All LED's will display if successful.

High resolution temperature reading. Displays sensor temperature to 1/10 degree.
Press and hold **EXIT**, press **REPEAT**, release both. Press **DISPLAY** to exit menu.

Room temperature and set point temperature differential.
Press and hold **EXIT**, press OMIT RESTORE release both. Press **DISPLAY** to exit menu.

Cancel timers.
Press and hold **EXIT**, press **ON/OFF**, release both.

LED check. Turn of system to check.
Press and hold **EXIT**, press **DISPLAY**, release both.

E-P (Error Pump) display on Wall Control Pad
Water cooled system using a pump interlock system. A minimum of 12v dc has to be present at the VERIFY terminal for compressor to operate. If voltage is not present E-P is displayed.

TEMPERATURE SWITCHING DIFFERENTIAL MENU. Turn of system to change settings.

Press and hold **EXIT** button. Press TIMECLOCK PROGRAM **UP** arrow. Release both buttons. **STAGE 1**, **COOL** and **OFF** lights On.
Press TIMECLOCK PROGRAM **UP** or **DOWN** arrow to change setting.
Press TIMECLOCK PROGRAM button to accept change and move to next stage. **STAGE 1**, **COOL** and **ON** lights On.
Repeat for other settings. See Table Below.
To exit from menu at any time press **EXIT** button.

All settings are the temperature offset from the Controller set point.

Heating and Cooling	Factory Settings	Temperature Adjustment	Lights (LED'S) Displayed on Wall Controller							
			COOL	HEAT	1	2	OFF	ON	SET	STAGE
Stage1 Cool Off	**0.5oC**	0.0 to 9.0oC	On		On		On		On	On
Stage1 Cool On	**1.0oC**	0.1 to 9.9oC	On		On			On	On	On
Stage2 Cool Off	**1.0oC**	0.0 to 9.0oC	On			On	On		On	On
Stage2 Cool On	**1.5oC**	0.1 to 9.9oC	On			On		On	On	On
Stage3 Cool Off	**1.5oC**	0.0 to 9.0oC	On		On	On	On		On	On
Stage3 Cool On	**2.0oC**	0.1 to 9.9oC	On		On	On		On	On	On
Stage1 Heat Off	**-0.5oC**	-0.0 to 9.0oC		On		On	On		On	On
Stage1 Heat On	**-1.0oC**	-0.1 to 9.9oC		On		On		On	On	On
Stage2 Heat Off	**-1.0oC**	-0.0 to 9.0oC		On			On		On	On
Stage2 Heat On	**-1.5oC**	-0.1 to 9.9oC		On				On	On	On
Stage3 Heat Off	**-1.5oC**	-0.0 to 9.0oC		On	On	On	On		On	On
Stage3 Heat On	**-2.0oC**	-0.1 to 9.9oC		On	On	On		On	On	On

NB. 3-stages of heating and cooling only available without zones control. DIP switch 3 Off. See settings page 5

FUNCTION MENU. Turn of system to change settings.

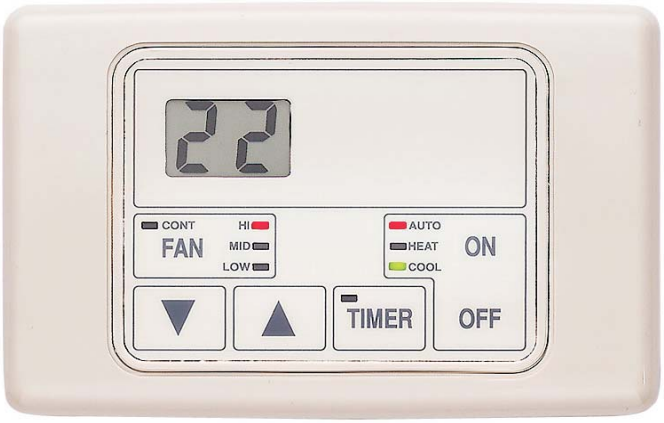
Press and hold **EXIT** button press TIMECLOCK PROGRAM button. Release both buttons. Enters F1 (Function 1).
Press the **Up** or **Down** arrow to change setting.
Press TIMECLOCK PROGRAM button to except your choice and move to F2 (Function 2). Repeat for all functions.
Note. To exit menu at any time press **EXIT** button.

FUNCTION MENU INFORMATION.

F1. Automatic temperature change over or customer selects temperature operation from Wall Control.
F2. Fan run on. Recommended when using electric heating.
F3. Compressor start delay. Anti-cycle protection
F4. Condenser Pump interlock. Enter menu to enable function.
F5. Add Zones and assign zones to optional sensors. Sensor 1 has been factory assigned to Zone 1. Optional Sensor 2 has been factory assigned to Zone 2. Zone 3 or Zone 4 can be assigned(set to sense temperature)to either Sensor 1 or optional Sensor 2.
F6. Sensor 1 calibration offset.
F7. Sensor 2 calibration offset.
F8. Auxiliary input functions. Four available external input functions. See notes in Function Table.
F9. Turn On After Hours run timer function. Note: Time clock program has to be enabled for After Hours to operate.
F10 Set After Hours run time period.
F11 Filter. Time remaining before indication.

	Factory Default	Adjustment Range	Options or Increments	Lights (LED's) Displayed on Wall Control																
				1	2	FILTER	ROOM	HIGH	LOW	MID	COOL	HEAT	AUTO	°C	SET	TIME	TIMER	ON	OFF	RUN
F1	Cool/ Auto/Heat		Auto								Blinks	Blinks	Blinks Blinks		On On					
F2	0.5Mins	0-10Mins	0.5Mins					On	On	On					On	Blinks		On		On
F3	0.5Mins	0-10Mins	0.5Mins								On	On	On		On	Blinks				
F4	P1		ON. Blinks												On				Blinks	
F5	**2-1**	**Press Zone button 3 or 4 to add to system. Press Up or Down arrow to assign Zone 3 or 4 to Sensor 1 or optional sensor 2.**																		
F6	0.0	-2.5 to 2.5	0.1oC	On			On							On	Blinks					
F7	0.0	-2.5 to 2.5	0.1oC		On		On							On	Blinks					
F8	A1		A2,A3,A4												On					
		A1. Time switch. Open contact stops A/C. Closed contact starts A/C. Wall Control can override time switch function. A2. Standby. Open contact stops A/C. Closed contact starts A/C at last setting. Wall Control can override function. A3. Start. Contact momentary closed starts A/C. Wall Control can override this function. A4. Key card. Open contact stops A/C. Closed contact, A/C restarted from Wall Control. Wall Control cannot override function.																	
F9			On												On		On		Blinks	On
F10	180 Mins	30-600Mins	15 Mins												On	Blinks		On		On
F11	160 Hours	No adjustment. Indicates time remaining				Blinks											On			

MODEL LE75



MODEL LE75V

Applications

Single Stage heat pump.

Single Stage cool/ heat.

2 Stages of cooling.

2 stages of heating.

Features and Benefits.

System switch.

24 Hour countdown timer.

Two fan operating modes.

Two fan speed selections.

Fan speed control.

Ventilation mode.

Three temperature operating modes.

Optional Remote sensor control.

Remote interface.

Fan run-on for electric heating.

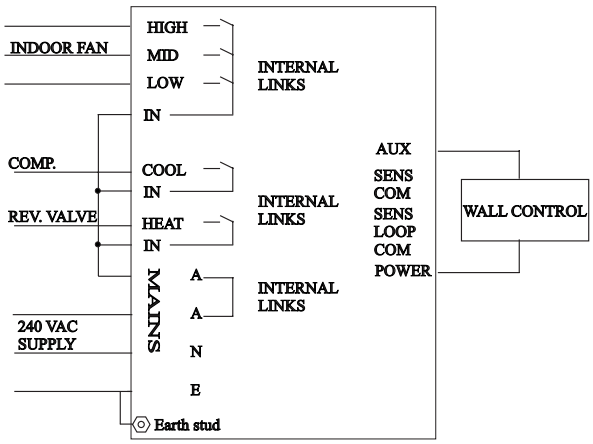
Rev valve operation in heat or cool.

240 or 24vac control systems.

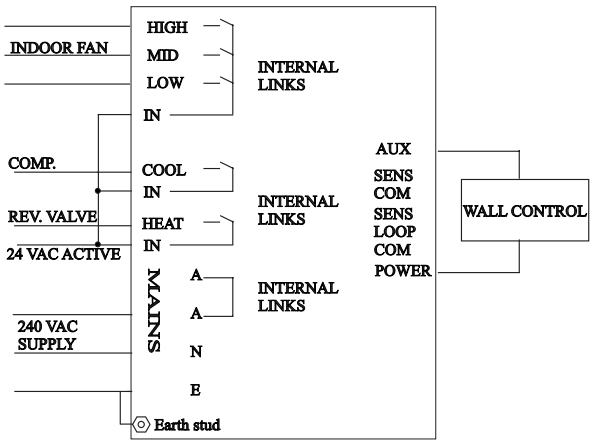
Australian designed

Australian manufactured.

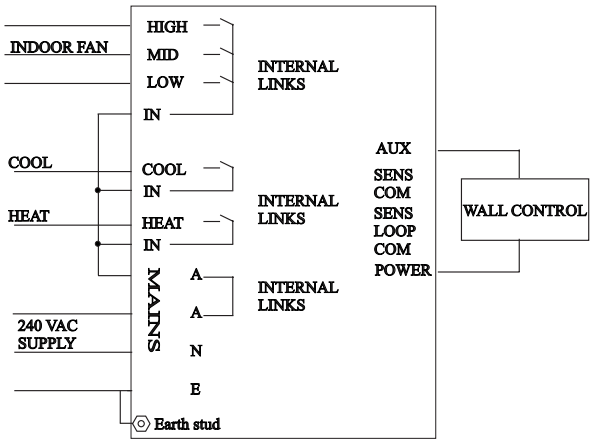
Single stage reverse cycle. 240vac control



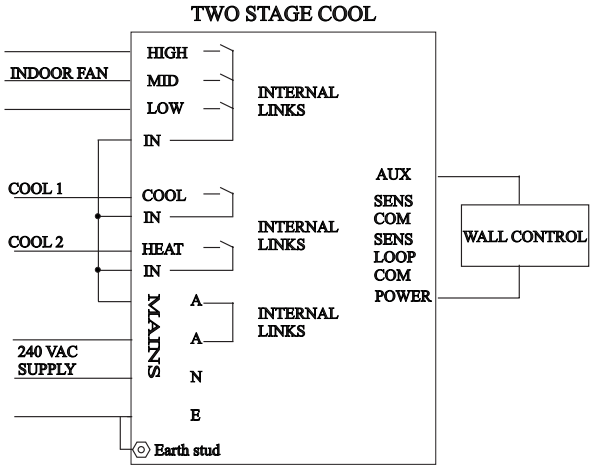
Single stage reverse cycle. 24vac control



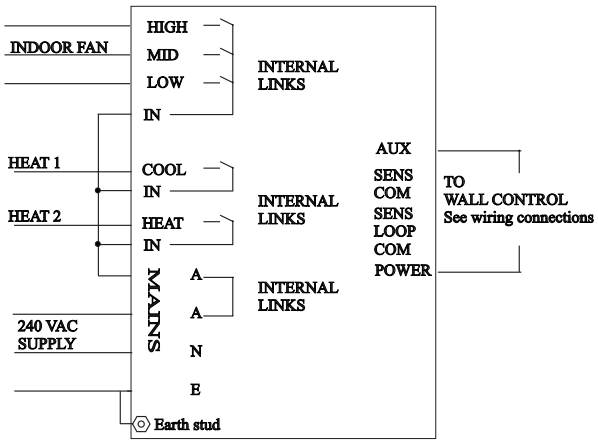
Single stage cool and heat.



Two stage cool.

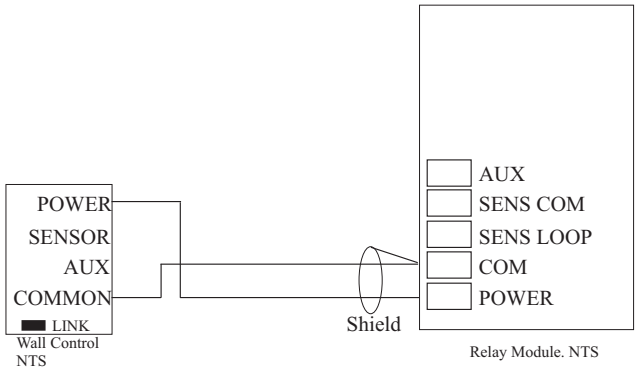


Two stage heat.

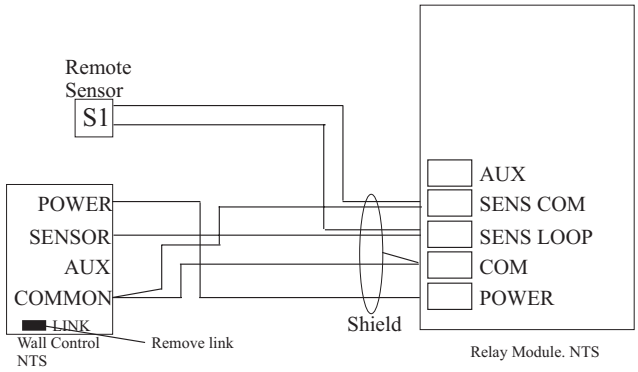


Wall Control and Relay module control wiring connections

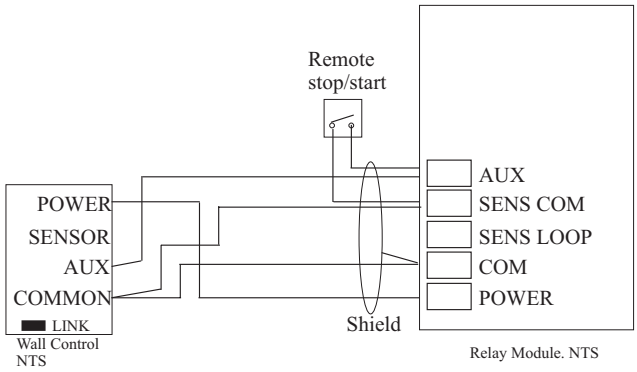
Standard wiring connection.



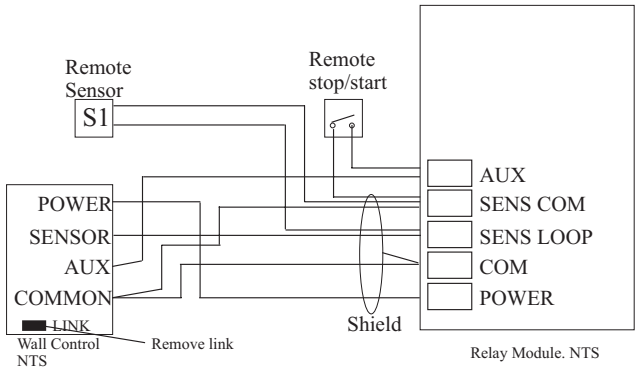
Remote sensor. Wall Control sensor not used.
Remove link on rear of Wall Control

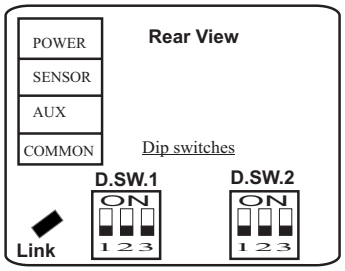


External stop/start. NB. System can still be operated from Wall Control Pad.



External stop/start and remote sensor. Remove link on Wall Control Pad.
NB. System can still be operated from Wall Control Pad.





Rear of Wall Control

DIP SWITCH 1 SETTINGS

1	Cool/Electric(other)Heat	Off	Heat Pump(Rev Cycle)	On
2	Fan/Auto Select	Off	Fan Continuous	On
3	Three Speed Fan	Off	Single Speed Fan (H.S Relay)	On

DIP SWITCH 2 SETTINGS

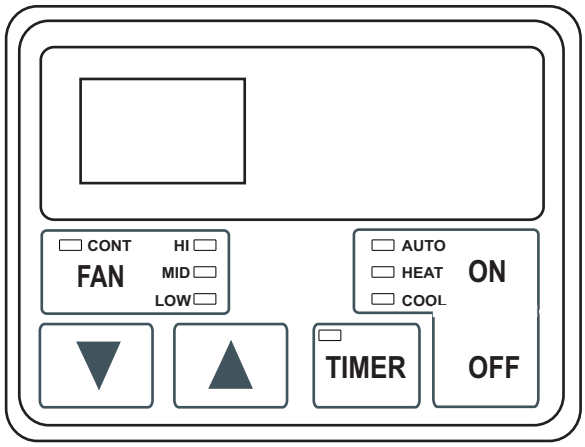
1	Reversing valve on in Heat	Off	Reversing valve on in Cool	On
2	One stage Heat and Cool	Off	Two stages of Heat or Cool	On
3	Two stages of Heating	Off	Two stages of Cooling	On

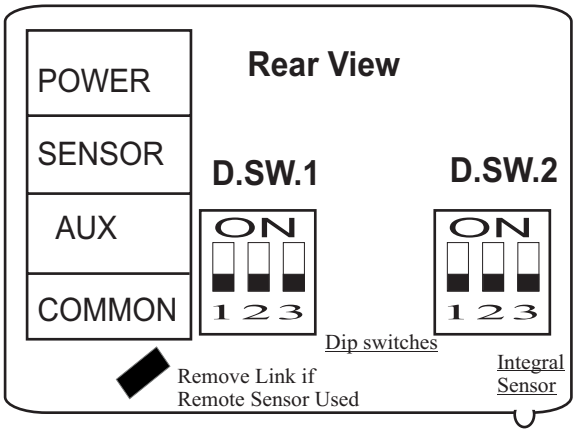
COMMISSIONING and SERVICE KEYS
To display actual temperature for 5 Seconds. Touch ▲ button on Wall Control
To display high resolution temperature. Press and Hold FAN button press ON button and release both. Temperature reads in increments of 0.1oC. E.g 2.5=22.5 Press any button to return controller to normal operation.
To reset Controller to Factory Default settings. Turn off power, hold ON button, turn on power.

SPECIFICATIONS	
Power supply	240 Volts 50Hz
Relays. Five SPST volt free contacts	12 amps Res @ 250vac
Set point operating range	12oC to 32oC
Dead band. From Heating off to Cooling on	1.5K
Switching differential	0.5oC
Fan run on - Electric heating only	30 secs
One volt free auxiliary input supplied by others for remote start and stop.	
Sensor.	10K @ 25oC

LE75 TEMPERATURE CONTROLLER

Description and location.
A two piece control, comprising a Wall Control, Relay Module. On the rear of the Wall Control Pad there are 6 dip switches for different air conditioning systems. See wiring diagrams and DIP Switch settings on rear of Wall Control Pad.
Locate Wall Control Pad to an internal flat wall surface at approximately 1.5 meters above floor level to sense the air at average room temperature. Avoid location in direct sunlight, hot or cold drafts so as not to effect the sensing element on Wal Control Pad.
If using remote sensor use similar location guide.





COMMISSIONING and SERVICE KEYS

To display actual temperature for 5 Seconds. Touch ▲ button on Wall Control
To display high resolution temperature. Press and Hold FAN button press ON button and release both. Please note that the temperature reads in increments of 0.1oC. E.g 2.5=22.5 Press any button to return controller to normal operation.
To reset Controller to Factory Default settings. Turn off power, hold ON button, turn on power. Release ON button.

OPERATING BUTTONS

ON/OFF BUTTONS.
Press to start of stop air conditioning system.

TEMPERATURE OPERATING MODE.
Press and release the ON button to select the following.
AUTO. System will automatically select heat or cool to maintain set point.
HEAT . System will only operate in heating mode.
COOL. System will only operate in cooling mode.

FAN BUTTON.
Press and release button to select fan speed and operating mode.
CONT light on. Continuous mode. Fan operates all the time.
CONT light off. Automatic mode. Fan cycles on temperature call.

VENTILATION mode. Air conditioning system off.
Press fan button to operate fan only.
To stop press OFF button.

TEMPERATURE SET POINT ADJUSTMENT.
Press and hold Up or Down arrow to select new set point.
Quick press of Up arrow will display room temperature for 5 seconds.

SLEEP TIMER. See following information.

DISPLAY.
Display selected temperature set point.

DIP SWITCH 1 SETTINGS

1	Cool/Electric(other)Heat	Off	Heat Pump(Rev Cycle)	On
2	Fan/Auto Select	Off	Fan Continuous	On
3	Three Speed Fan	Off	Single Speed Fan (H.S Relay)	On

DIP SWITCH 2 SETTINGS

1	Reversing valve on in Heat	Off	Reversing valve on in Cool	On
2	One stage Heat and Cool	Off	Two stages of Heat or Cool	On
3	Two stages of Heating	Off	Two stages of Cooling	On

SPECIFICATIONS

Power supply	250 Volts 50Hz
Relays. Five SPST volt free contacts	16 amps Res @ 250vac
Operating set point range	12oC to 32oC
Dead band. From Heating off to Cooling on	1.5K
Switching differential	0.5oC
Fan run on - Electric heating only	30 seconds
Integral Sensor	10K @ 25oC
Optional remote Sensor. See wiring diagrams	
Options. One auxiliary input for remote start and stop	Volt free contact

SLEEP TIMER OPERATION

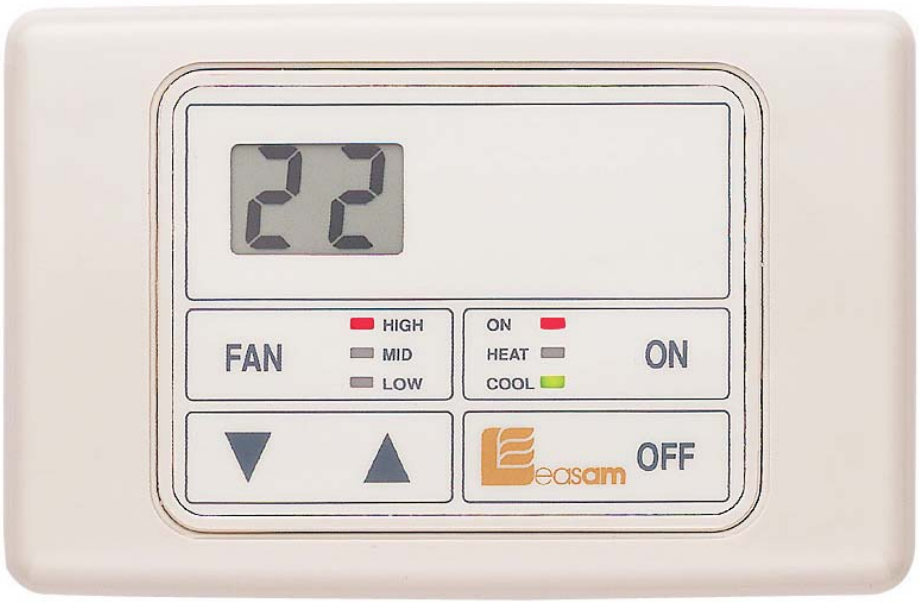
PROGRAM TIMER TO START AIR CONDITIONING SYSTEM.
Setting times. 0.5 to 24 Hours.

1. Press TIMER — Timer LED flashes. Time to start displayed. I.e 8
2. Press and hold ▼ ▲ — Until desired time is shown in display. I.e 10
3. Press TIMER — Timer LED On and temperature set point displayed. I.e 23
4. Press TIMER — to show time remaining before system starts. I.e 6
5. To cancel or reset timer program press OFF button. Timer LED Off.

PROGRAM TIMER TO STOP AIR CONDITIONING SYSTEM.
Setting times. 0.5 to 24 Hours.

1. Press TIMER — Timer LED flashes. Time to start displayed. I.e 3
2. Press and hold ▼ ▲ — Until desired time is shown in display. I.e 1.5
3. Press TIMER — Timer LED On and temperature set point displayed. I.e 23
4. Press TIMER — to show time remaining before system stops. I.e 1.0
5. To cancel or reset timer program press OFF button. Timer LED Off.

MODEL LE75RT



Applications

Meeting, Lecture Rooms etc.

Single Stage Cool/ Heat.

Features and Benefits.

System switch.

Select 2 or 4 hour system run time.

Select manual system run time.

Auto temperature changeover.

Fan speed control.

Optional Remote sensor control.

Remote interface.

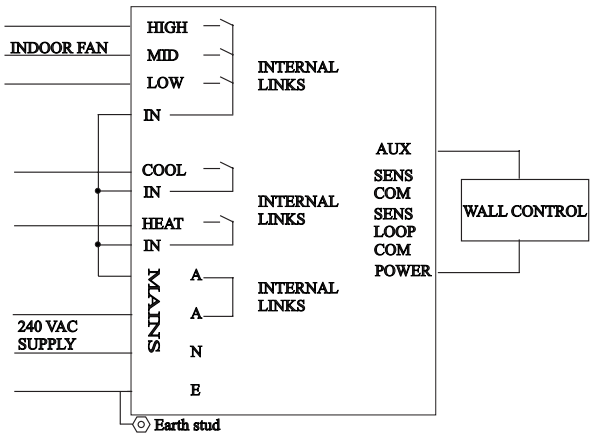
Fan run-on for electric heating.

240 or 24vac control systems.

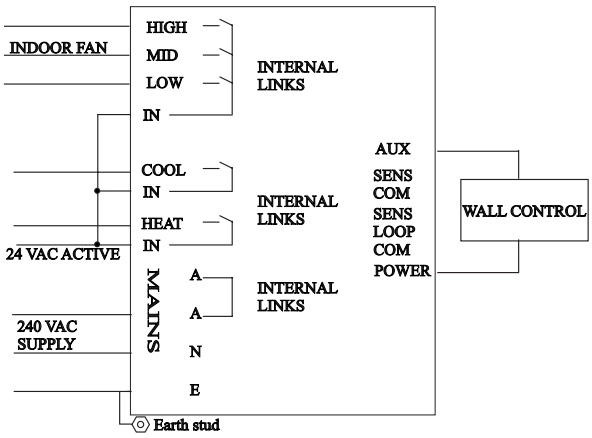
Australian designed

Australian manufactured.

Single stage Heat/Cool. 240vac control system

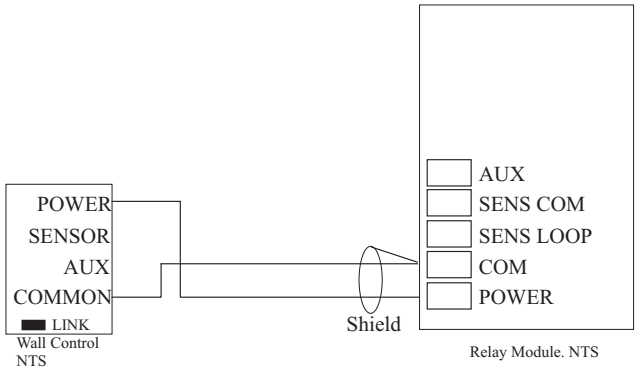


Single stage Heat/Cool. 24vac control system

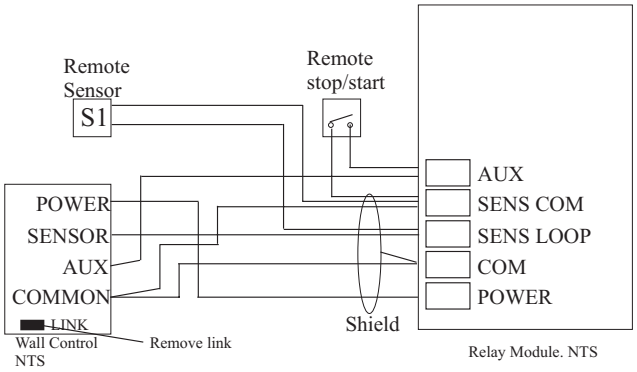


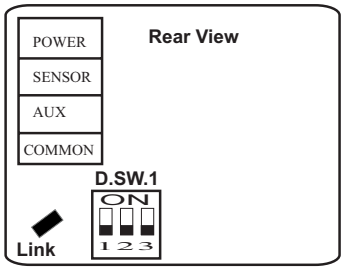
Wall Control and Relay module control wiring connections

Standard wiring connection.



External stop/start and remote sensor. Remove link on Wall Control Pad.
NB. System can still be operated from Wall Control Pad.





Rear of Wall Control

DIP SWITCH 1 SETTINGS

1	No delay	Off		On
2	No delay	Off	2 hour run timer	On
3	No delay	Off	4 hour run timer	On

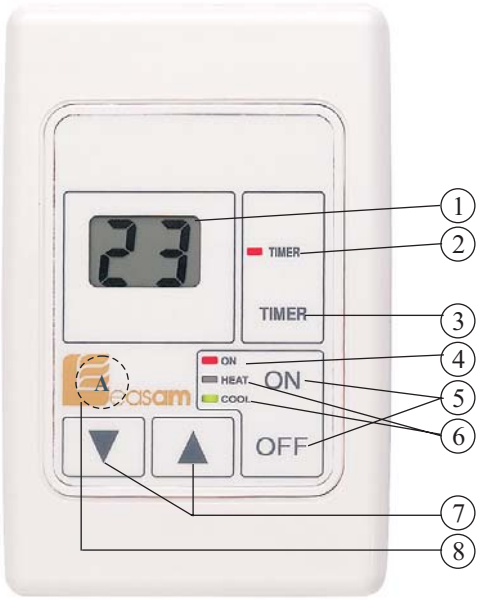
COMMISSIONING and SERVICE KEYS
To display actual temperature for 5 Seconds. Touch ▲ button on Wall Control
To display high resolution temperature. Press and Hold FAN button press ON button and release both. Temperature reads in increments of 0.1oC. E.g 2.5=22.5 Press any button to return controller to normal operation.
To reset Controller to Factory Default settings. Turn off power, hold ON button, turn on power.

SPECIFICATIONS	
Power supply	240 Volts 50Hz
Relays. Five SPST volt free contacts	12 amps Res @ 250vac
Set point operating range	12oC to 32oC
Dead band. From Heating off to Cooling on	1.5K
Switching differential	0.5oC
Fan run on - Electric heating only	30 secs
One volt free auxiliary input supplied by others for remote start and stop.	
Sensor.	10K @ 25oC

LE75AV TEMPERATURE CONTROLLER

Description and method of control.
A three piece control, comprising a Wall Control, Relay Module and Duct Sensor to automatically maintain zone temperature.
On a call for heating the damper can open if the supply air is warmer than the room temperature. .
On a call for cooling the damper can open if the supply air is cooler than the room temperature.

LE75AV Wall Control

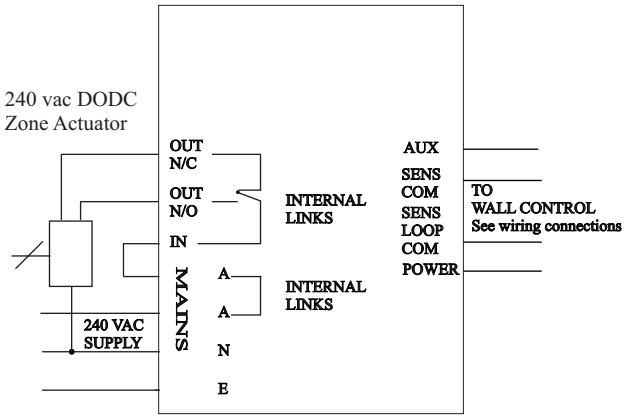


Features and options
Features

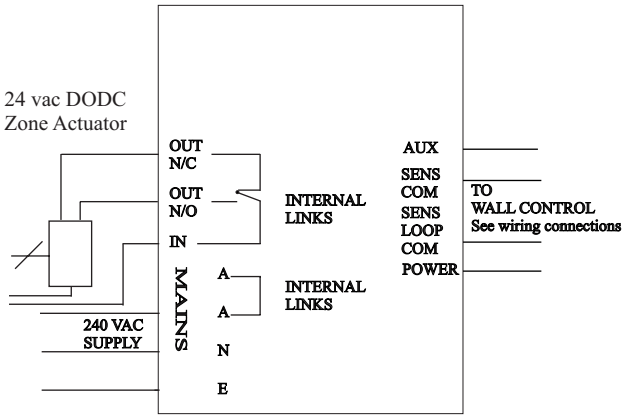
1. Temperature set point display.
2.& 3. Timer set indication and Timer set button. See below for set up.
4. Indicates Zone system On.
5. To switch zone system on and off.
6. Heat or cool operating indication.
7. Temperature set point adjustment.
Press and hold Up or Down arrow to select new set point.
Quick press of Up arrow will display room temperature for 3 seconds
8. **For technician**
Concealed button for high resolution temperature display in two digit form for 30 minutes. Example 3.1 - 23.1oC.
To access. Press and Hold button 'A' press button ON. Release both.
To exit display. Press any button.

Options.
Remote sensor.
Heat only control
Cool only control.

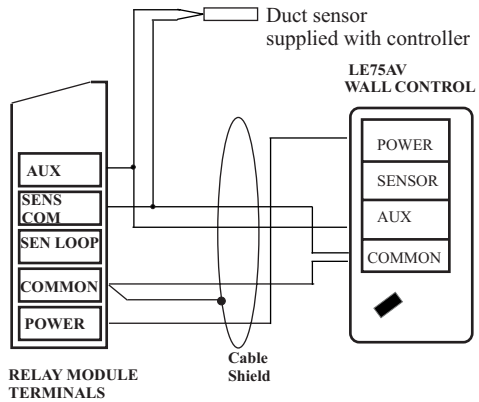
1a
Standard connection between 240vac actuator and Relay Module



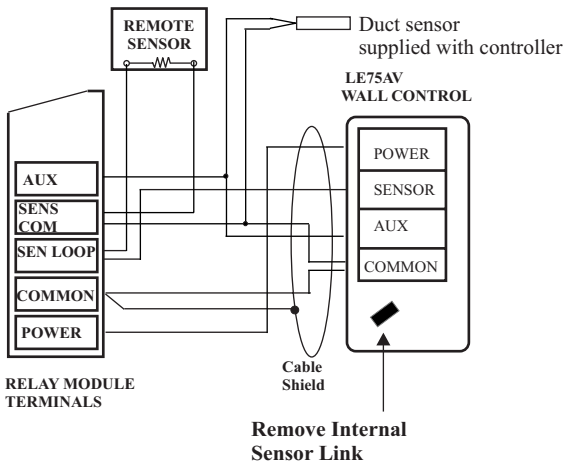
1b
Standard connection between 24vac actuator and Relay Module



Standard connection between Relay Module and Control Station



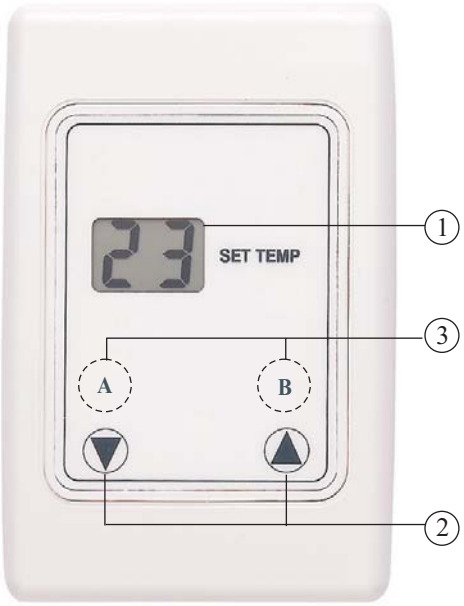
Remote sensor connection



LE75AVA TEMPERATURE CONTROLLER

Description and method of control.
A three piece control, comprising a Wall Control, Relay Module and Duct Sensor to automatically maintain zone temperature.
On a call for heating the damper can open if the supply air is warmer than the room temperature. .
On a call for cooling the damper can open if the supply air is cooler than the room temperature.

LE75AVA Wall Control



Features and options.

Features

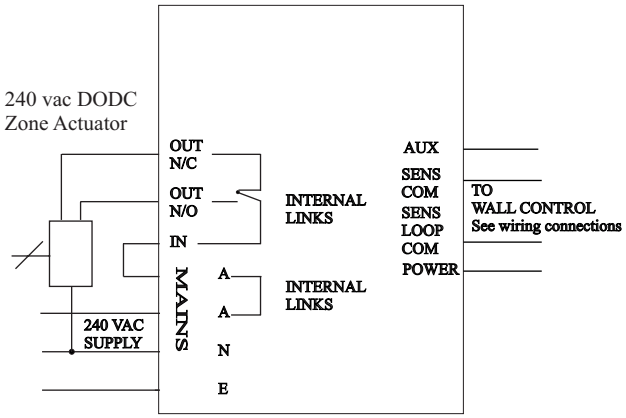
1. Temperature set point display.
2. Temperature set point adjustment.
Press and hold Up or Down arrow to select new set point.
Quick press of Up arrow to display room temperature for 3 seconds.
3. **For technician.**
Concealed buttons for high resolution temperature display in two digit form for 30 minutes. Example 3.1 - 23.1oC.
To access. Press and Hold button 'A' press button 'B' release both.
To exit display. Press Up or Down button.

Options

Remote sensor.
Heat only control.
Cool only control.

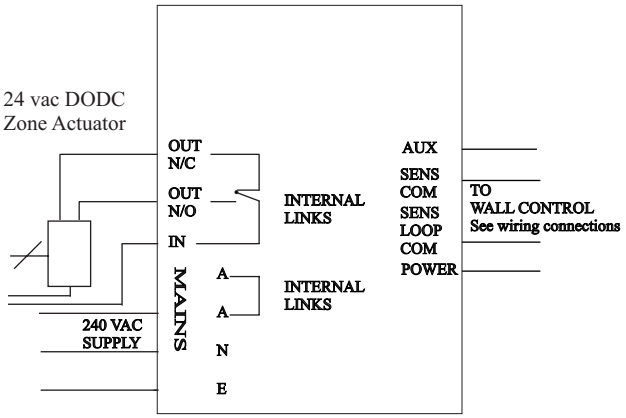
1a

Standard connection between 240vac actuator and Relay Module

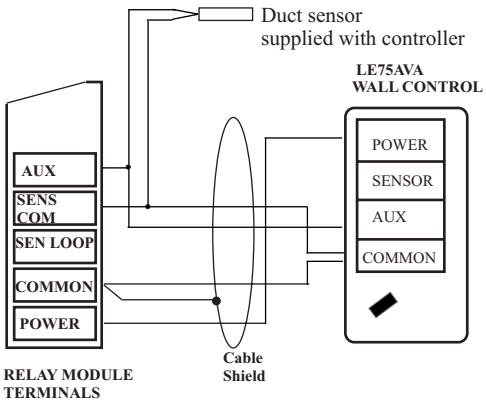


1b

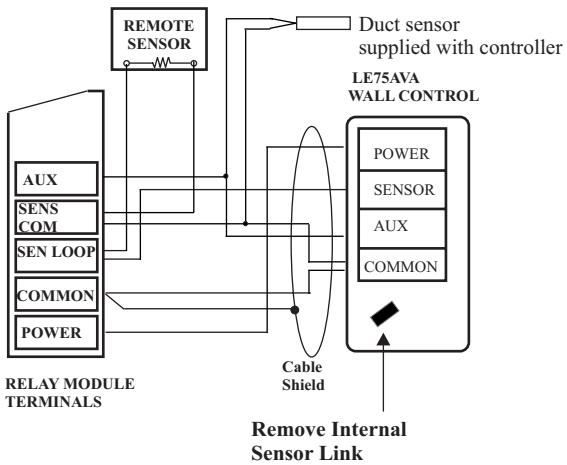
Standard connection between 24vac actuator and Relay Module



Standard connection between Relay Module and Control Station

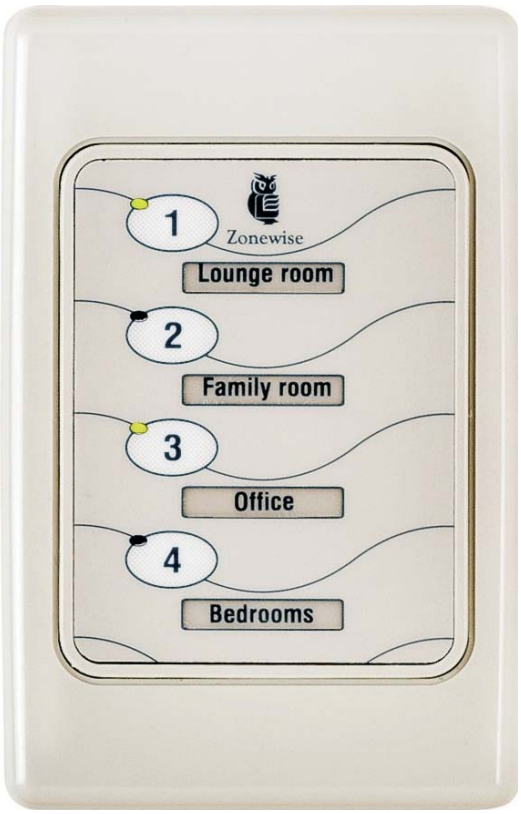


Remote sensor connection



LEASAM
ZONEWISE SYSTEM

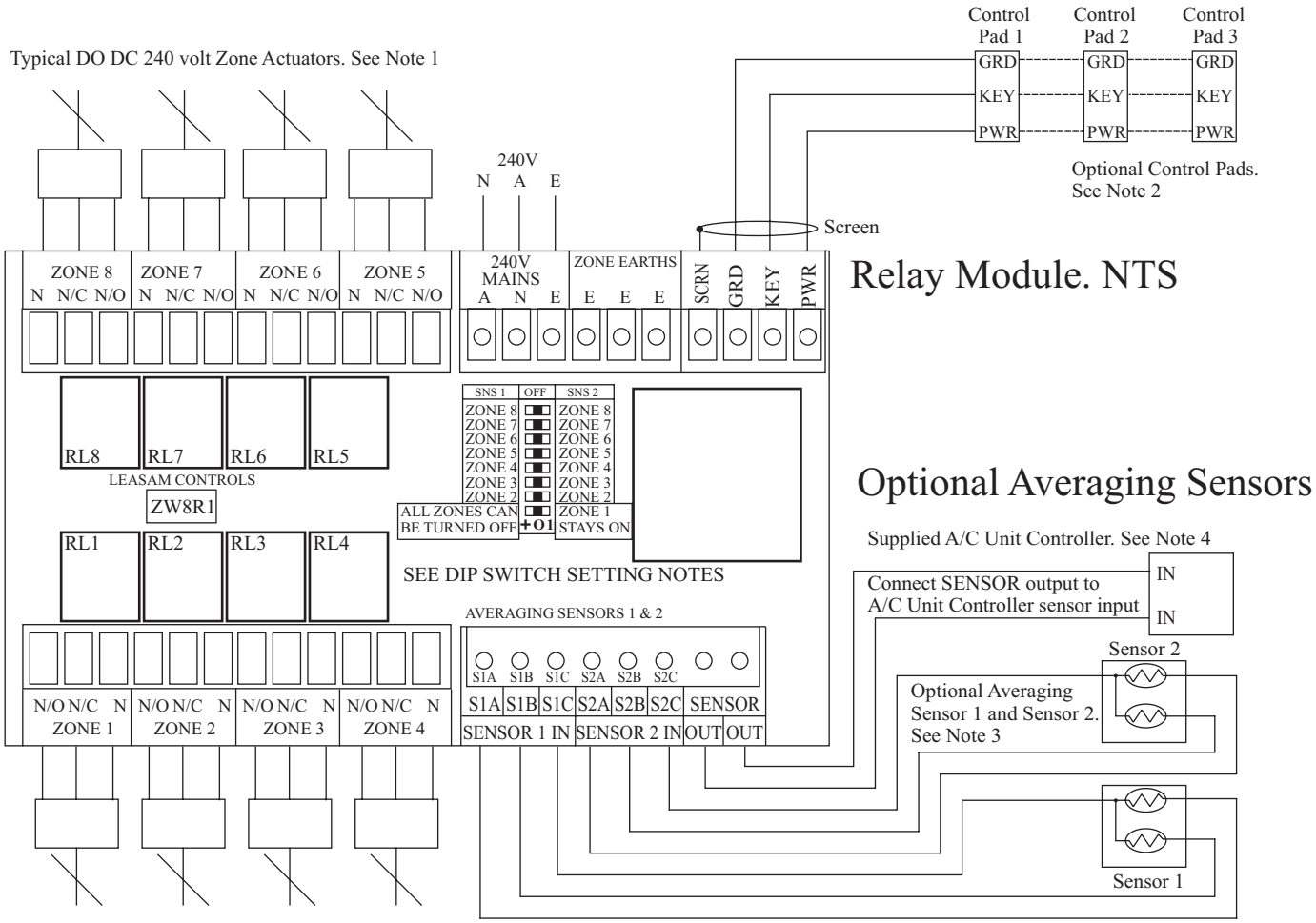
ZONEWISE 4



ZONEWISE 8

- Attractive and easy to use 4 or 8 zone control pad.
- Optional second or third control pad can be added for multi control points.
- Easily installed customized labeling inserts.
- ZONEWISE 4 or 8 can be easily set so that a minimum of one zone is always ON.
- Operates with most makes of zone actuators.
- Interface air conditioning manufactures sensor(s) for “zone tracking” features.
- Zones can be assigned to sensor(s) when using “zone tracking” features.

Typical wiring connections



NOTES.

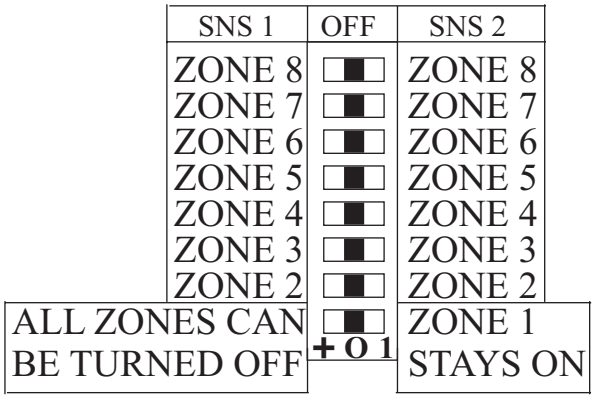
1. **Zone Actuators.**
Zone Actuator terminals are internally wired for 240 volt only.
Zone Actuators can be two or three wire type.

2. **ZONEWISE Wall Control Pads.**
Three Wall Control Pads can be used in each system.

3. **Optional averaging sensors.**
Resistive/Temperature range must match Air Conditioning Manufacturers Unit Controller.

4. **Output from SENSOR terminals on relay module.**
Connect into remote sensor input on Air Conditioning Manufactures Unit Controller

3 POSITION DIP SWITCH SETTINGS.



1. **Disable Zones**.
Set Dip Switch to mid (OFF) position.
Note: If all Dip Switches are accidently set to off; ZONE 1 will still operate.

2. **Zone 1**.
Setting Dip Switch to “ZONE 1 STAYS ON”.
One zone will always be enabled so that System cannot run with all zones closed.
Setting Dip Switch to “ALL ZONES CAN BE TURNED OFF”.
All zones can be disabled. I.e. Constant zone system.

3. **Zones 2 to 8**.
If optional sensor tracking not used set zone Dip Switches to SNS 1(Sensor 1).
If optional sensor tracking is used set zone Dip Switch to either SNS 1 or SNS2.
Note: Zone 1 is factory set to track Sensor 1.

4. **IMPORTANT**.
You must turn power Off and On for system to accept new Dip Switches settings.

OPTIONAL SENSOR OPERATING LOGIC

Zone enabled.
The temperature of the assigned sensor will be sent to the supplied Air Conditioning Unit Temperature Controller.
When other zone(s) are enabled that are assigned to a different sensor the averaged temperature readings will be sent to the Temperature Controller.

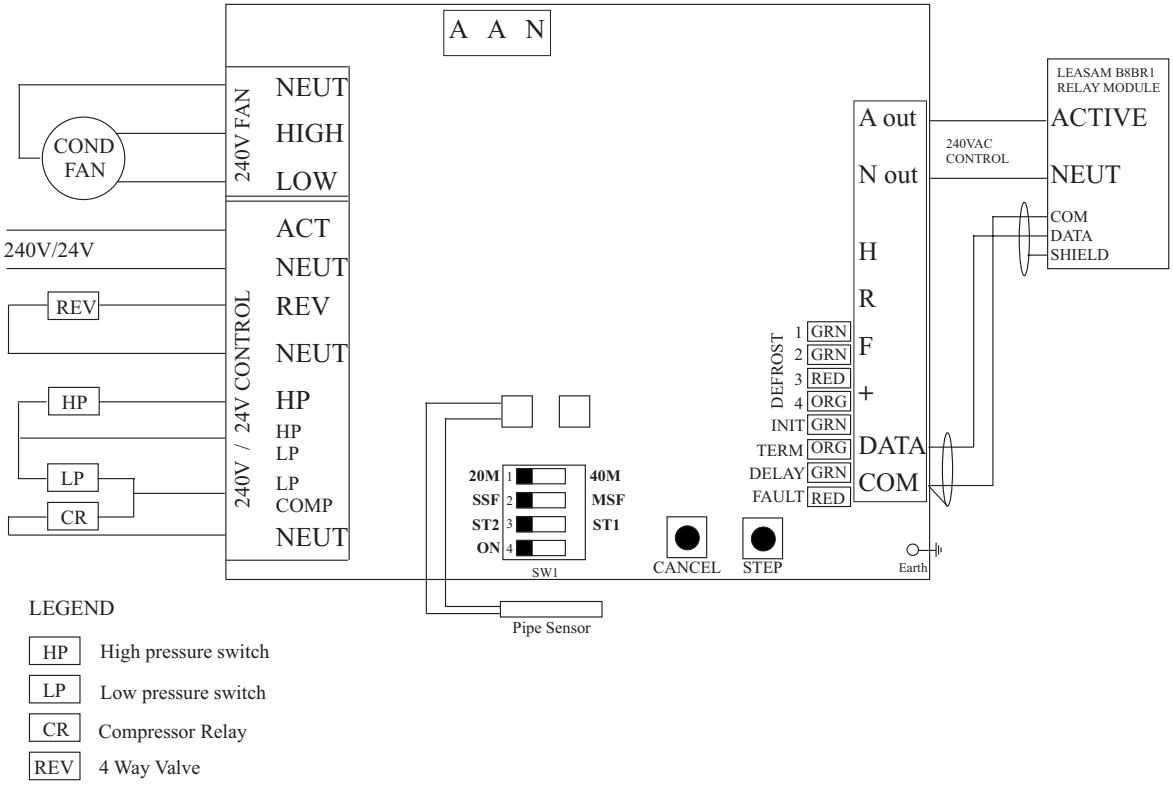
D8CPU Condenser Management System

Overview.
The D8CPU Board is a complete solution for condenser management requirements and is designed to be installed at factory level. The D8 is interfaced directly at Data level to the nominated Leasam Control. An optional Manual Input Card is available to interface with other thermostats or other types of control systems.
The D8CPU Board is designed to minimize wiring by providing all the connections to the HP/LP safeties, Compressor Contactor, 4 Way Valve, Condenser fan and control fuse.

Operating Features.
1 Defrost Control features.
2 Defrost hold off time.
3. Defrost confirmation time.
4. Defrosts on time and/or temperature.
5 Residual water removal from condenser coil.
6 Indoor coil preheat cycle.
7. Two speed Condenser fan control option.
8. Compressor Anti Cycle Timer.
9. High/Low Pressure safety trip protection.
10 Low Pressure bypass on start up.
11.Random start time on mains power up.

Service Features.
1. Eight Enunciation LED's to indicate system status.
2. Two push buttons for technician. a) Cancel timers. b) Check defrost operation.

Typical wiring connections



D7CPU Condenser Management System

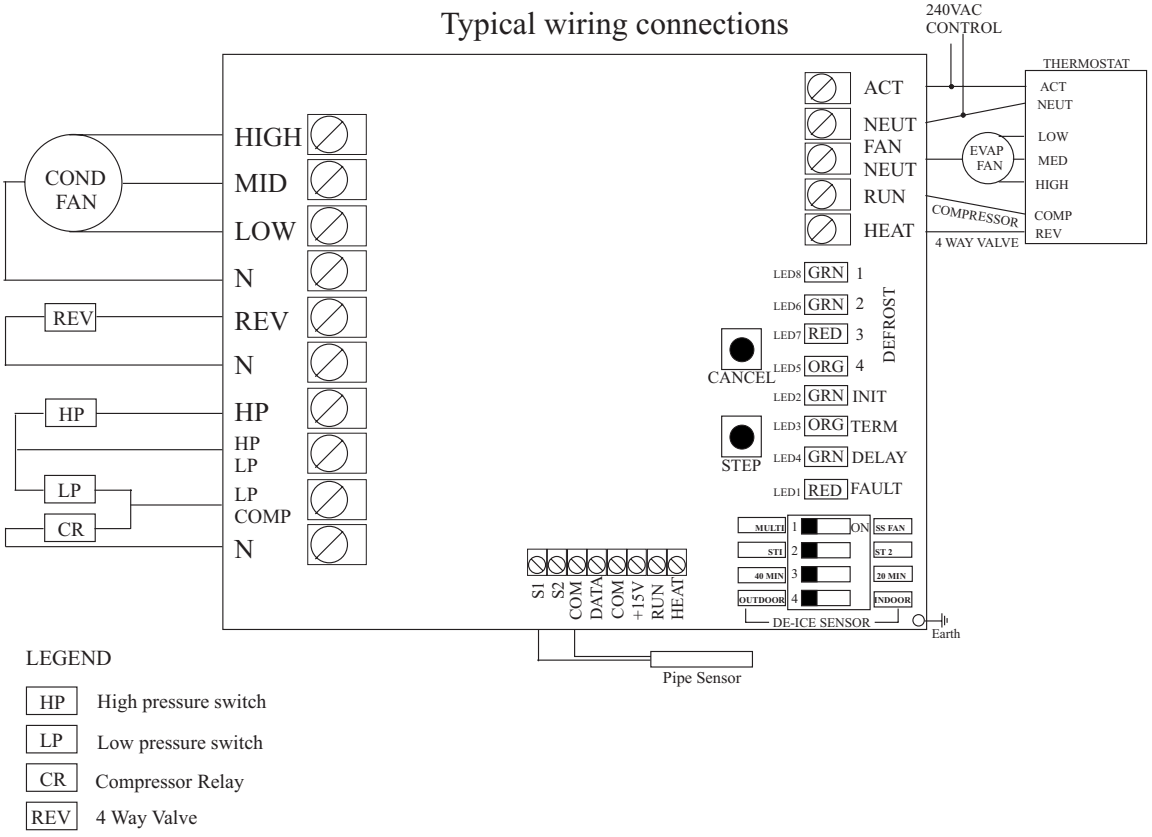
Overview.
The D7CPU Board is a complete solution for condenser management requirements and is designed to interface with most brands of thermostats and controls.

The D7CPU Board is designed to minimize wiring by providing all the connections to the HP/LP safeties, Compressor Contactor, 4 Way Valve, Condenser fan and control fuse.

Operating Features.
1 Defrost Control features.
2 Defrost hold off time.
3. Defrost confirmation time.
4. Defrosts on time and/or temperature.
5 Residual water removal from condenser coil.
6 Indoor coil preheat cycle.
7. Three speed Condenser fan control option.
8. Compressor Anti Cycle Timer.
9. High/Low Pressure safety trip protection.
10 Low Pressure bypass on start up.
11.Random start time on mains power up.

Service Features.
1. Eight Enunciation LED's to indicate system status.
2. Two push buttons for technician.
   Cancel timers.
   Check defrost operation.

Typical wiring connections



LEGEND

HP	High pressure switch
LP	Low pressure switch
CR	Compressor Relay
REV	4 Way Valve

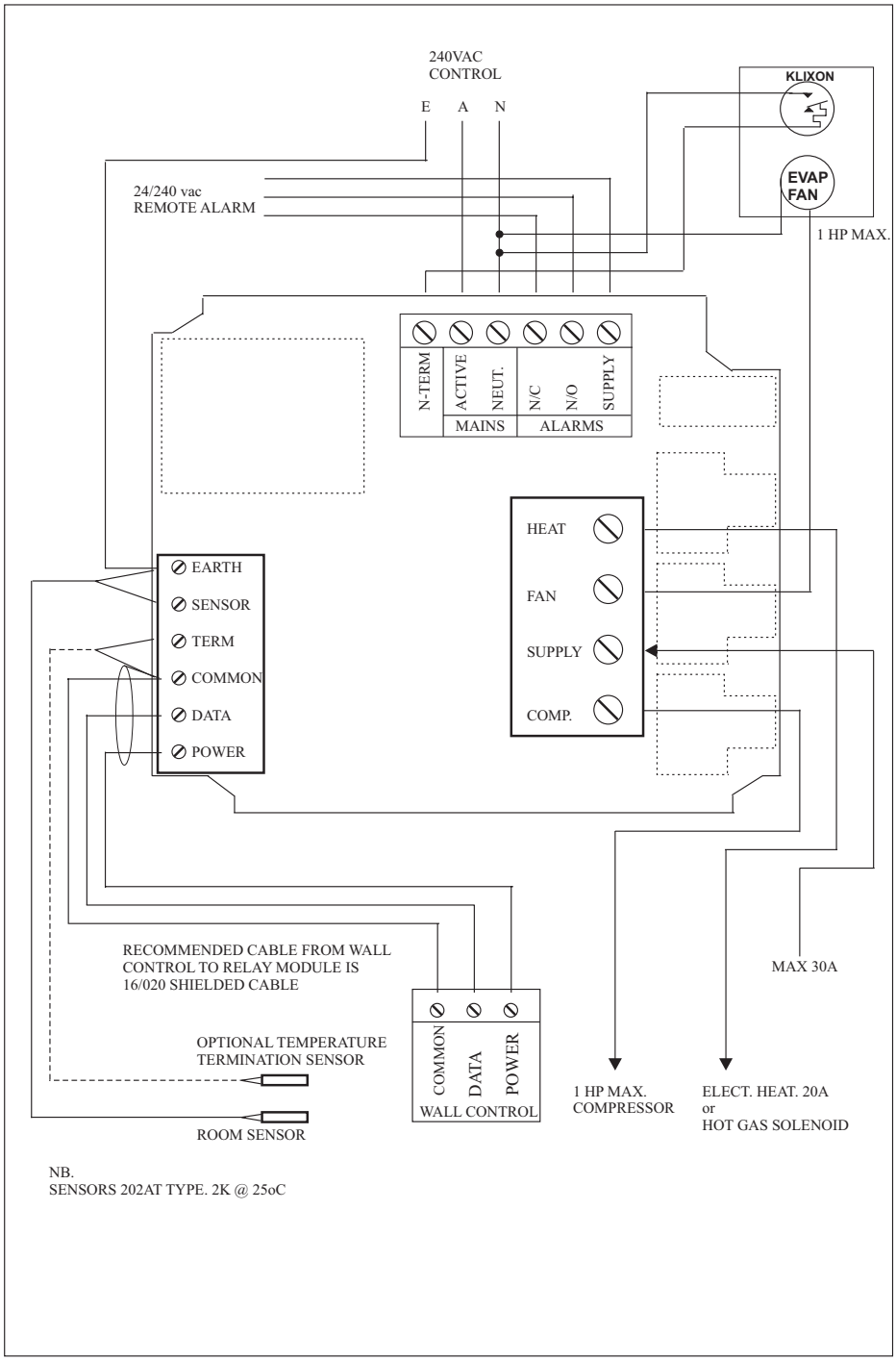
B-201

REFRIGERATION CONTROLLER

FEATURES

EXTRA LARGE DISPLAY SCREEN
REAL-TIME CLOCK WITH BATTERY BACKUP
HOT GAS OR ELECTRIC DEFROST SELECTABLE
EIGHT SELECTABLE DEFROST CYCLES
ADJUSTABLE DEFROST TERMINATION TIME AND OR TEMPERATURE
FAN DELAY AFTER DEFROST
COMPRESSOR ANTI CYCLING ON TIME
COMPRESSOR ANTI CYCLING OFF TIME
ADJUSTABLE TEMPERATURE SET POINT AND SWITCHING DIFFERENTIALS
SENSOR CALIBRATION
HIGH/LOW TEMPERATURE ALARM WITH DELAY
ALL PARAMETERS MENU ADJUSTABLE

Proudly Australian Made


240VAC
CONTROL
E A N
KLIXON
EVAP
FAN
1 HP MAX.
24/240 vac
REMOTE ALARM
N-TERM
ACTIVE
NEUT.
N/C
N/O
SUPPLY
MAINS
ALARMS
HEAT
FAN
SUPPLY
COMP.
EARTH
SENSOR
TERM
COMMON
DATA
POWER
RECOMMENDED CABLE FROM WALL
CONTROL TO RELAY MODULE IS
16/020 SHIELDED CABLE
MAX 30A
OPTIONAL TEMPERATURE
TERMINATION SENSOR
COMMON
DATA
POWER
WALL CONTROL
1 HP MAX.
COMPRESSOR
ELECT. HEAT. 20A
or
HOT GAS SOLENOID
ROOM SENSOR
NB.
SENSORS 202AT TYPE. 2K @ 25oC

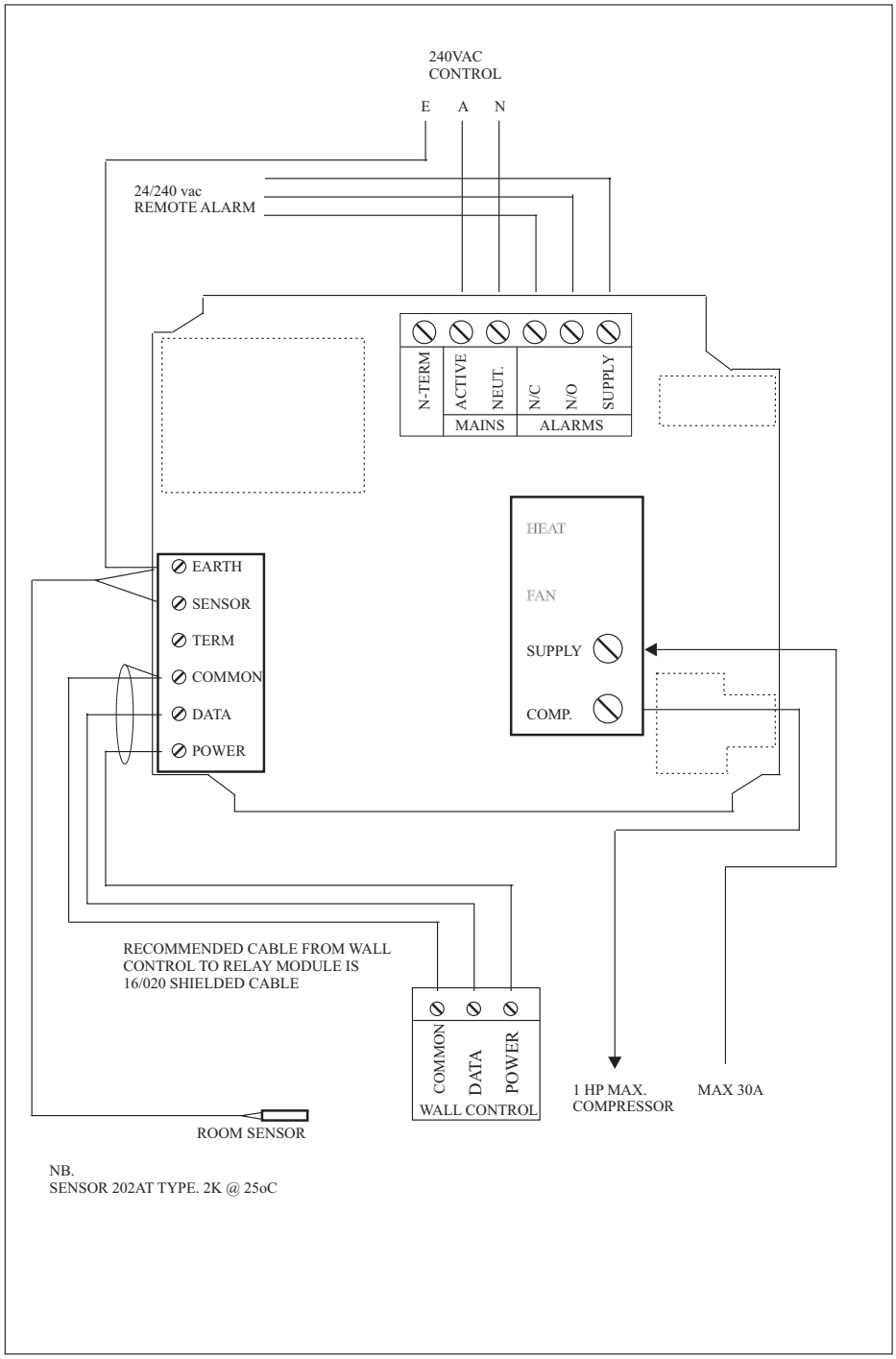
B-101

Temperature Controller

FEATURES

EXTRA LARGE DISPLAY SCREEN
TEMPERATURE LOGGING
DEFROST CYCLES
DEFROST TERMINATION TIME
COMPRESSOR ANTI CYCLING ON TIME
COMPRESSOR ANTI CYCLING OFF TIME
ADJUSTABLE TEMPERATURE SET POINT AND SWITCHING DIFFERENTIALS
SENSOR CALIBRATION
HIGH/LOW TEMPERATURE ALARM WITH DELAY
ALL PARAMETERS MENU ADJUSTABLE

Proudly Australian Made


240VAC
CONTROL
E A N
24/240 vac
REMOTE ALARM
N-TERM
ACTIVE
NEUT.
N/C
N/O
SUPPLY
MAINS
ALARMS
HEAT
FAN
SUPPLY
COMP.
EARTH
SENSOR
TERM
COMMON
DATA
POWER
RECOMMENDED CABLE FROM WALL
CONTROL TO RELAY MODULE IS
16/020 SHIELDED CABLE
COMMON
DATA
POWER
WALL CONTROL
1 HP MAX.
COMPRESSOR
MAX 30A
ROOM SENSOR
NB.
SENSOR 202AT TYPE. 2K @ 25oC

SECTION TWO

DELUXE AIR CONDITIONING CONTROLLERS FOR APARTMENTS, HOTELS AND COMMERCIAL PREMISES

Leasam Deluxe controllers are a two part system featuring an attractive Slim-line **Wall Control Pad** interfaced by a simple extra low voltage cable to a **Relay Module**. There are a series of Models to suit different applications. They vary from the versatile **LE75CA** to the sophisticated **B512CW** with numerous features including **Multistage control**, **Zone Control, Zone Tracking, 7-Day Time Switch, Home Automation interface** and **Pump interlock.**

Wall Control Pads. Can be customized and colours coordinated to suit interior design. B512CW Wall Control Pad colours available in White or Beige.

Standard Relay Modules. Some of the following flexible features**:**
1. Volt Free Contacts
2. Fan relays.
3. Cooling and Heating relays.
4. Zone control relays.
5. Home automation and other external interface.
6. Water pump interlock and flow verification signal.

Single stage LE85 and two stage LE85R3 relay modules.
Specifically designed for the manufacturer of the smaller capacity water cooled Air Conditioning Units which are the choice for many High Rise Apartments and commercial buildings. The space saving design of the module comes complete with Compressor, Heater, Fan, Zone and Pump Interlock Relays.
The LE85 module is quick to install with all the required terminals for the connections of the safeties and other interlock devices.
There are also a selection of **Three Attractive Slim Line Wall Control Pads** for a simple on site connection to the LE85 module to complete the installation to satisfy the most fastidious of clients.

Some of the following features include.
1. 3HP Compressor Relay. The LE85R3 features 2 x 3HP Compressor relays.
2. 25 Amp Heater Relay.
3. Pump Interlock.
4. Zone Control.
5. Safety Interlocks
6. Home automation and other external interface.
7. Selection of three different Wall Control Pads for simple interface.

LE75CA TEMPERATURE CONTROLLER
THREE FAN SPEED

STANDARD FEATURES

1. System switch
2. 3 speed fan control.
3. Continuous fan.
4. Auto temperature change over.
5. Temperature adjustment.
6. Temperature set point display.

Customized parameters and settings.

1. Heat pump or cool electric system.
2. Single or three speed fan control.
3. Set dead bands and switching differentials.
4. Fan run-on when using electric heating.
5. Compressor anti-cycle off time (if required).
6. Temperature set point adjustment range.

Options

1. Water pump start interlock.
2. Customer Selected Options.
3. Non Standard colours to suit interior designs.

OPERATING INSTRUCTIONS

ON an OFF buttons.
Press to start or stop system manually.
ON light on.

FAN button.
Repeat pressing of button to select the required fan speed.

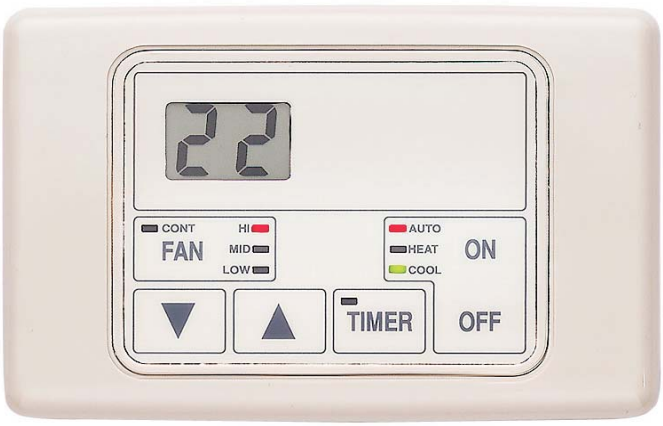
Temperature Control.
Heat or cool is automatically selected.
HEAT light On. System calling for heating.
COOL light On. System calling for cooling.

Temperature Set Point adjustment.
Press and hold **Up** or **Down** arrow.

Room Temperature Display. (A) If applicable
Momentary press **Up** arrow. Room temperature is displayed for 3 seconds.

Room Temperature Display. (B) If applicable
Press and hold FAN button.
Press ON button.
Release both. Room Temp displayed in two digits
I.e 2.5 = 12.5 if LOW Fan light On.
22.5 if MID Fan light On.
32.5 if HIGH Fan light On.
Temperature displayed for 30 minutes.
Press any button to exit menu

LE75CW TEMPERATURE CONTROLLER



OPERATING INSTRUCTIONS

ON an OFF buttons.
Press to start or stop system manually.

FAN button. **Set fan speed and operating mode.**
Repeat pressing of button to select the required fan speed in continuous or automatic mode.
Automatic mode (CONT light off). Fan cycles with heating or cooling demand.
Continuous mode (CONT light on). Fan runs continuously with heating or cooling call cycling on demand.
Fan only mode. System has to be off.
Press FAN CONTROL button to run fan in High, Medium or Low. Heating or cooling does not operate in this mode. Press OFF button to stop fan.

Auto, Heat or Cool operating modes.
Press ON button to select AUTO, HEAT or COOL.
AUTO light On. System operates in heating or cooling mode.
Cooling call. AUTO and COOL light On.
Heating call. AUTO and HEAT light On.

HEAT light On. System can only operate in heating mode.

COOL light On. System can only operate in cooling mode.

Temperature Set Point adjustment.
Press and hold **Up** or **Down** arrow. Range 16oC to 28oC**.**

Room Temperature Display. If applicable
Momentary press **Up** arrow. AUTO light flashes and room temperature is displayed for 3 seconds.

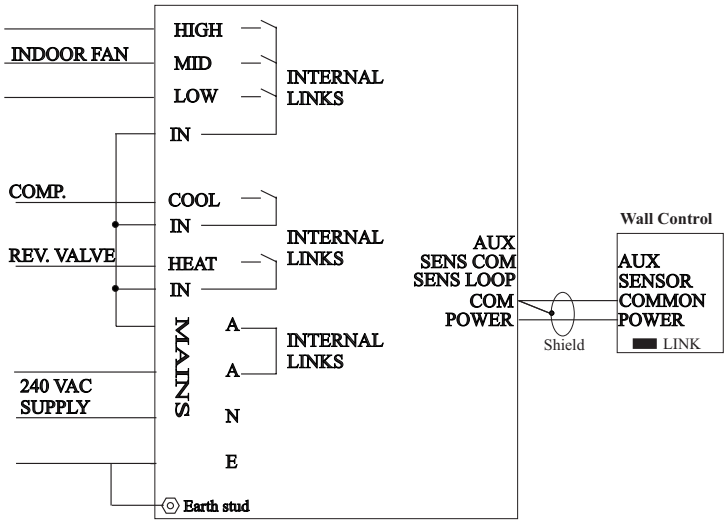
TIMER button.

Turn Off Air Conditioning System.
Press TIMER button.
TIMER light flashes and time in hours will be displayed (0.5 to 24Hrs).
Press TIMER **Up** or **Down** arrows until required time to stop air conditioning operation is reached..
Control will except Time automatically. TIMER light on..
To display time left before system stops press TIMER button. Time left will be displayed.
NB. To cancel or reset the off time press OFF button. TIMER light off.

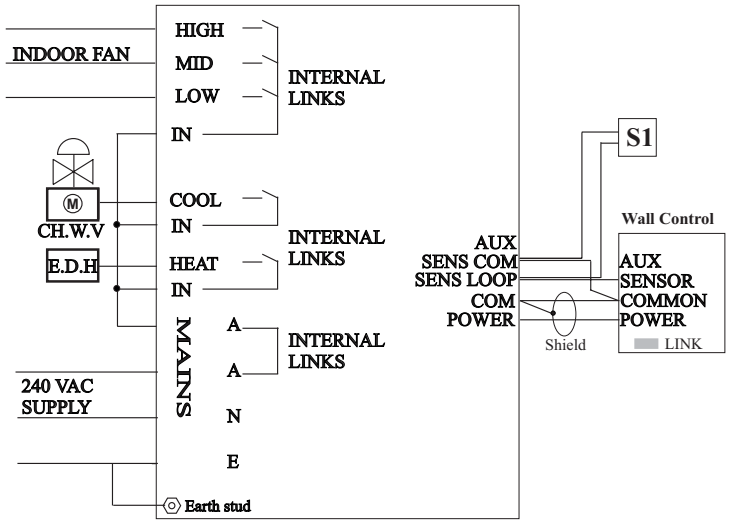
Turn On Air Conditioning System.
Press TIMER button.
TIMER light flashes and time in hours will be displayed (0.5 to 24Hrs).
Press TIMER **Up** or **Down** arrows until required time to start air conditioning operation is reached..
Control will except Time automatically. TIMER light on..
To display time left before system starts press TIMER button. Time left will be displayed.
NB. To cancel or reset the on time press OFF button. TIMER light off.

Typical wiring connections for models LE75CA, LE75CW, LE75VCW. Inquire for alternative connections.

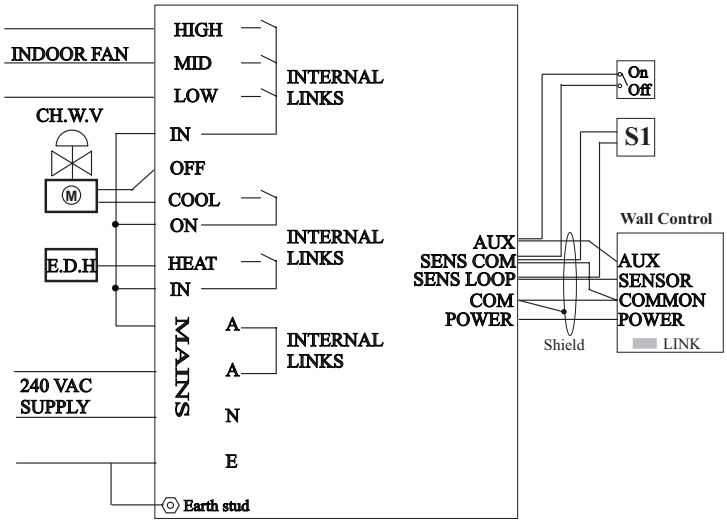
Reverse cycle air conditioning system.



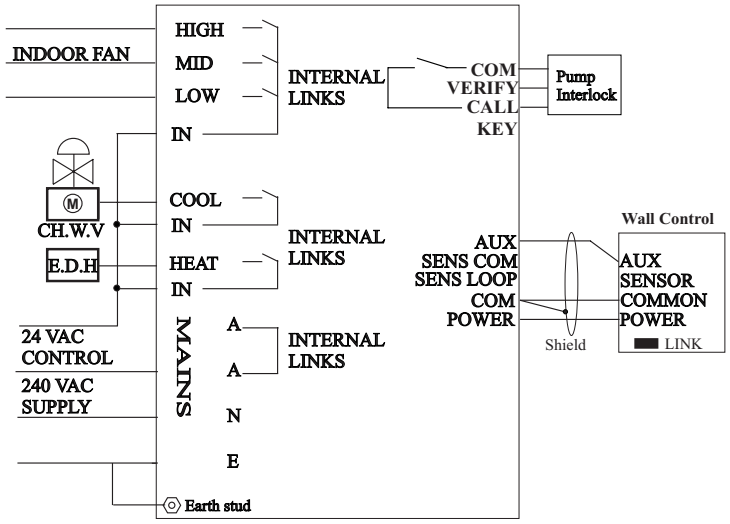
Chilled water valve and electric duct heater and remote sensor.
Remove link on rear of Wall Control Pad.



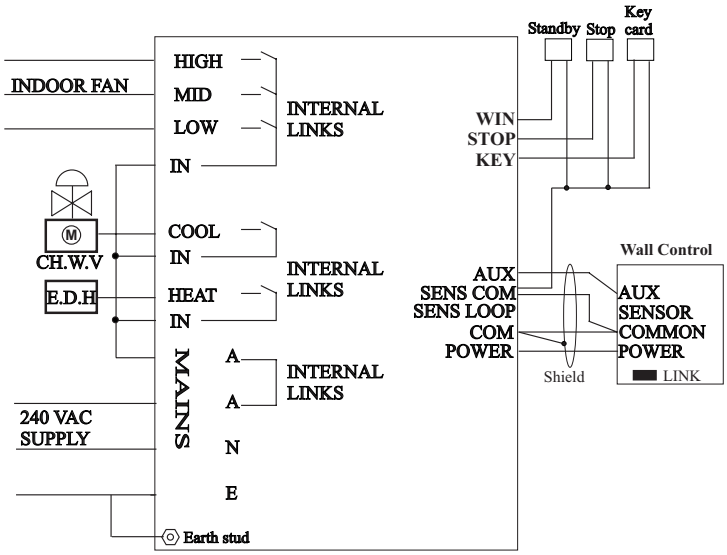
DODC Chilled water valve and electric duct heater.
Remote stop/start and sensor.
Remove link from rear of Wall Control Pad.



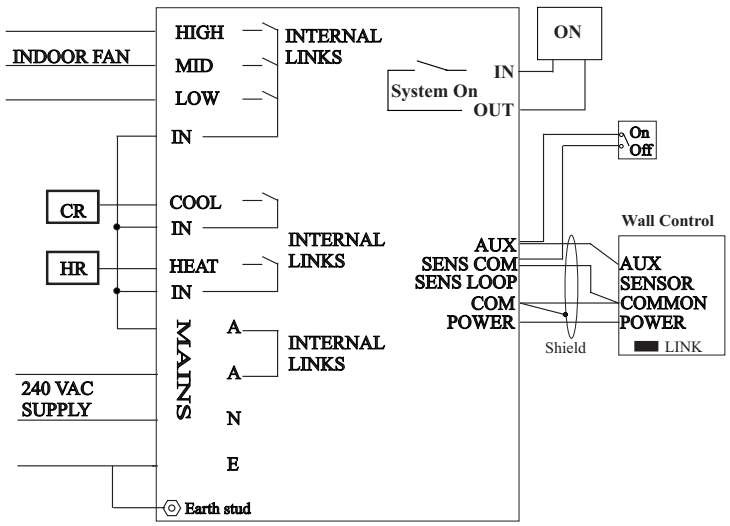
Chilled water valve and electric duct heater and pump interlock.
24vac control sytsem



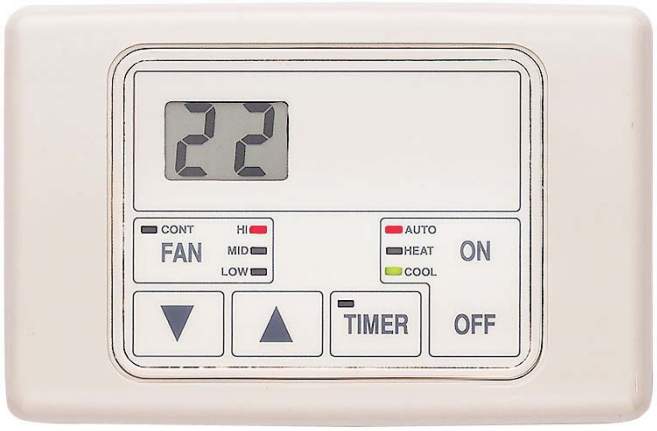
Chilled water valve and electric duct heater and three inputs



Cooling and heating system with remote stop/start and and run indication



LE612CW TEMPERATURE CONTROLLER WITH ZONE CONTROL



Standard features

1. System switch
2. 3 speed fan control.
3. Select fan to cycle on Temp or to run continuously.
4. Auto temperature change over or manually select heat or cool.
5. Two zone switching, select individual zone or both.
6. Temperature adjustment.
7. Temperature set point display..
8. Actual Temperature display
9. 0.5 to 24 Hour ON/OFF Timer.

Field Adjustable Parameters.

1. Compressor anti-cycle off time (if required).
2. Set Maximum and Minimum Temperature set points.
3. Set dead bands and switching differentials.
4. Fan run-on when using electric heating.

Selections by dip switches on Wall Controller.

1. Heat pump (reverse cycle) or cool electric.
2. Single or three speed fan.
3. Select Zone control mode.
4. Fan operating modes.

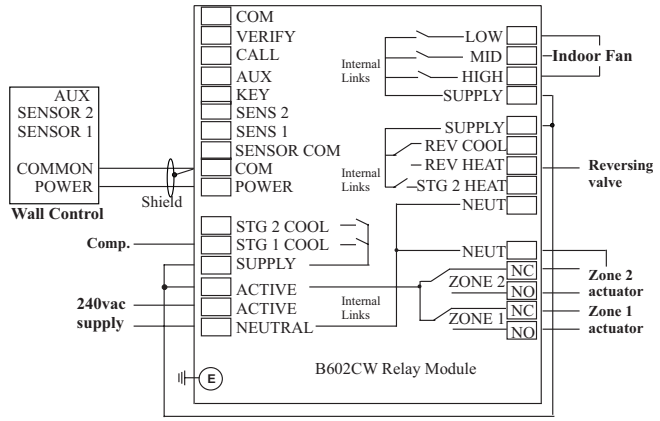
5&6 Selection of 4 types of inputs.

Options

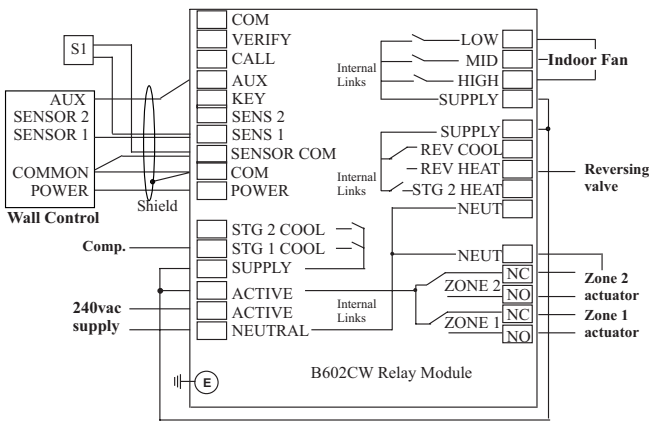
1. 2 Stage heating and cooling if used with B602CW Relay Module
2. Water pump start interlock.
3. Two Sensor control and Zone Tracking.
4. Customer Selected Options.
5. Non Standard colours to suit interior designs.

Typical wiring connection. LE612CW and B602CW Relay Module.

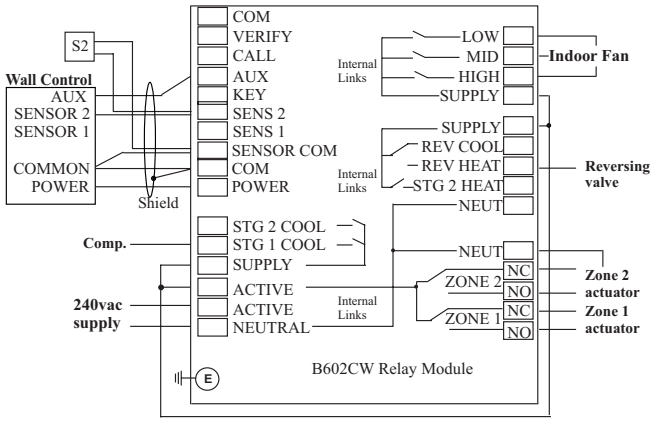
Reverse cycle system with 2 zones.



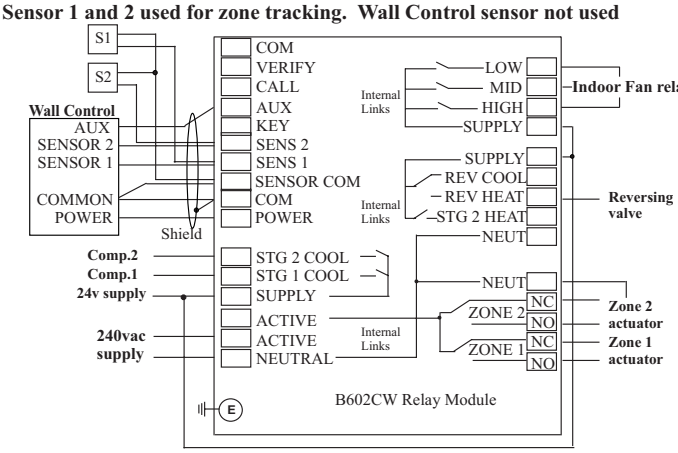
Reverse cycle system with 2 zones and remote Sensor .
Wall Control sensor not used.



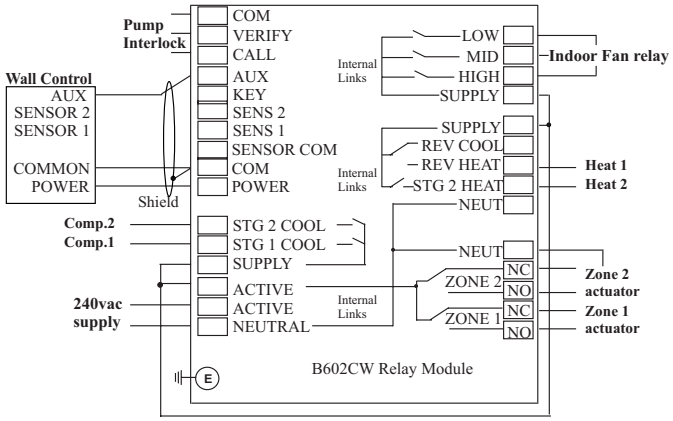
Reverse cycle system with 2 zones and remote Sensor 2.
Wall control sensor and Sensor 2 used for zone tracking



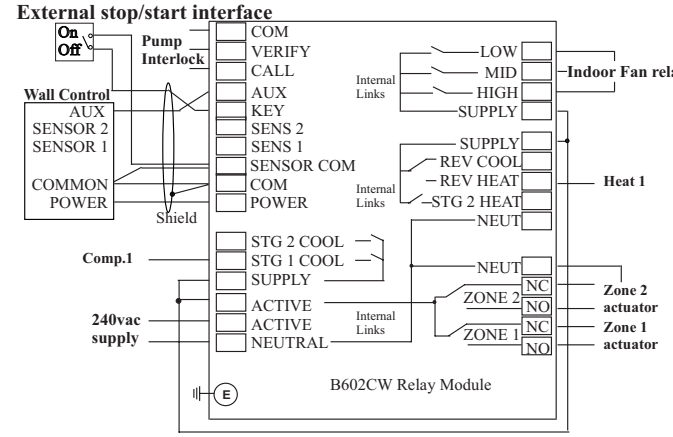
Two stage reverse cycle system with 2 zones and two remote sensors.
Sensor 1 and 2 used for zone tracking. Wall Control sensor not used



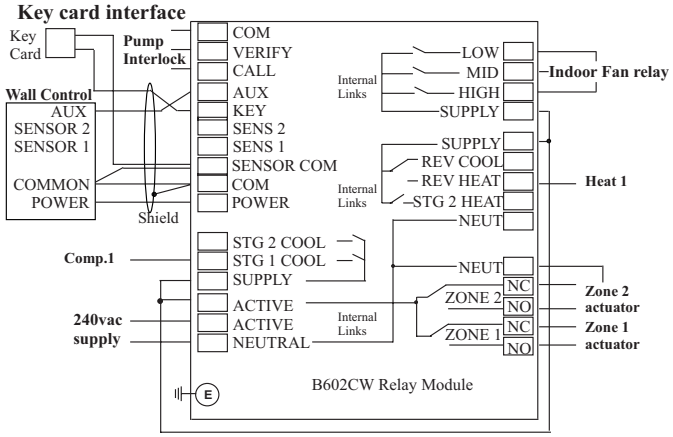
Two stage cool and electric heat. Two zones and pump interlock

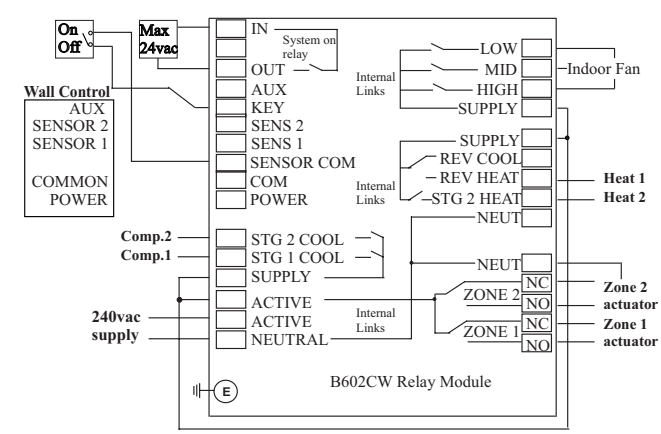


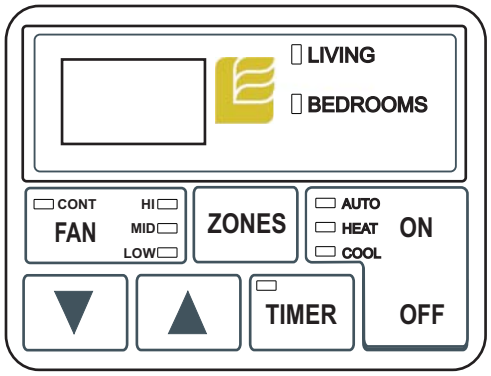
One stage cool and electric heat. Two zones and pump interlock.
External stop/start interface

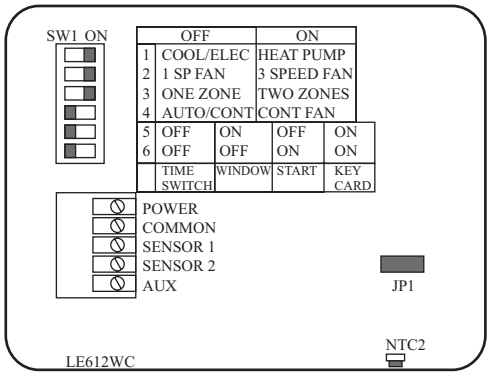


One stage cool and electric heat. Two zones and pump interlock.
Key card interface









Air conditioning operating selection. Select dip switch settings on Wall Control. See below

		Dip Switch Settings		
Comp/Cooling valve - Electric Heat/ Heating valve	**Cool/Electric**	**DS.1**	**Heat Pump**	**Heat Pump or reverse cycle A/C system.**
Single speed fan operation only.	**1 Speed Fan**	**DS.2**	**3 Speed Fan**	**Normal settings for domestic A/C systems.**
Zone 1 or Zone 2. Not both.	**One Zone**	**DS.3**	**Two Zones**	**Zone 1 or Zone 2 or both. Normal setting.**
Select Auto or continuous mode from W.C Pad	**Auto/Cont**	**DS.4**	**Continuous Fan**	**Fan operates in continuous mode only.**

OFF	**ON**	**OFF**	**ON**	**Aux Options**	**DS.5**	**DIP switch 5 and 6 allows selection of auxiliary inputs. See control wiring diagram for examples.**
OFF	**OFF**	**ON**	**ON**	**Aux Options**	**DS.6**	
Timeswitch	**Standby**	**Start**	**Key Card**		**OFF**	**ON**

Commissioning and Service Menus

Return Controller to factory default settings.

Press and hold **ZONES** button. Press **OFF** button and release. Press **Down** arrow and release with **ZONES** button.

Cancel Timers. 1. Fan Run-On. 2. Anti-cycle. 3. Reversing Valve.

Press and hold **ZONES** button. Press **OFF** button and release. Press **ON** button and release with **ZONES** button.

Display room temperature for 30 minutes.

Press and hold **ZONES** button. Press **FAN**. Release both buttons. Temperature displayed in two digit format. I.e 2.5 = 12.5, 22.5 or 32.5.
Press any button to exit menu.

Set Lower and Upper temperature range.

Lower. Minimum 12oC

Press and release **ZONES** button then **Down** arrow quickly..
Set point displayed. **HEAT** and **COOL** LED's flashing. **LOW** LED On
Press **Up** or **Down** arrow to adjust. Control automatically excepts new setting.

Upper. Maximum 32oC

Press and release **ZONES** button then **Up** arrow quickly.
Set point displayed. **HEAT** and **COOL** LED's flashing. **HIGH** LED On
Press **Up** or **Down** arrow to adjust. Control automatically excepts new setting.

	Factory Settings	**Adjust Max/Min**				
			COOL	**HEAT**	**HIGH**	**LOW**
Lower	**16oC**	**12oC**	Flashing	Flashing		**On**
Upper	**28oC**	**32oC**	Flashing	Flashing	**On**	

Anti-cycle and Fan run-on time.

Press and hold **ZONES** button. Press **Up** arrow. Release **BOTH** buttons.
Anti-cycle time displayed. **AUTO, HEAT and COOL** LED's flashing.
Press **Up** or **Down** arrow to change setting. Press **ON** to accept. Repeat for Fan Run-on.. **See Table below.**

	Factory Settings	**Adjustment**	**LED's on Wall Controller**				
			COOL	**HEAT**	**AUTO**	**LOW**	
Anti-cycle	**0.0**	0.0 to 6.0 Mins	Flashing	Flashing	Flashing		
Fan Run-On	**0.5**	0.0 to 9.9 Mins				Flashing	

Adjust cooling or heating switching differentials and Sensor calibration.

Press and hold **ZONES** button. Press **Down** arrow. Release **BOTH** buttons.
Stage 1 cool off displayed. **COOL, LOW** and **LIVING** LED's flashing.
Press **Up** or **Down** arrow to change setting. Press **ON** to accept. Repeat for other settings. **See Table below.**
Alternatively press **FAN** button to accept a change and exit Menu

Note. Second stage heat or cool **will not** be applicable if **LE80** or **LE85** relay module are being used.

All settings are the temperature offset from the Controller set point.

Heating and Cooling	Factory Settings	Temperature Adjustment	LED's Displayed on Wall Controller					
			COOL	HEAT	ZONE 1	ZONE 2	LOW	HIGH
Stage1 Cool Off	**0.5oC**	0.5 to 9.9oC	Flashing		On		Flashing	
Stage1 Cool On	**1.0oC**	1.5 to 9.9oC	Flashing		On			Flashing
Stage2 Cool Off	**1.0oC**	0.5 to 9.9oC	Flashing			On	Flashing	
Stage2 Cool On	**1.5oC**	1.5 to 9.9oC	Flashing			On		Flashing
Stage1 Heat Off	**-0.5oC**	-0.5 to 9.9oC		Flashing	On		Flashing	
Stage1 Heat On	**-1.0oC**	-1.0 to 9.9oC		Flashing	On			Flashing
Stage2 Heat Off	**-1.0oC**	-0.5 to 9.9oC		Flashing		On	Flashing	
Stage2 Heat On	**-1.5oC**	-1.0 to 9.9oC		Flashing		On		Flashing
Sensor calibration	**5**	2 to 8	Flashing	Flashing	2: Minus 3 degrees. 8: plus 3 degrees			

LE 612CW OPERATING INSTRUCTIONS

ON an OFF buttons.
Press to start or stop system manually.

FAN button. Set fan speed and operating mode.
Repeat pressing of button to select the required fan speed in continuous or automatic mode.
Automatic mode (CONT light off). Fan cycles with heating or cooling demand.
Continuous mode (CONT light on). Fan runs continuously with heating or cooling call cycling on demand.
Fan only mode. System has to be off.
Press FAN CONTROL button to run fan in High, Medium or Low. Heating or cooling does not operate in this mode. Press OFF button to stop fan.

Auto, Heat or Cool operating modes.
Press ON button to select AUTO, HEAT or COOL.
AUTO light On. System operates in heating or cooling mode.
Cooling call. AUTO and COOL light On.
Heating call. AUTO and HEAT light On.

HEAT light On. System can only operate in heating mode.

COOL light On. System can only operate in cooling mode.

ZONE button.
Repeat pressing of ZONE button to select LIVING zone only, BEDROOM zone only or both.
NB. Two zones cannot be turned off. I.e one zone is always open.

Temperature Set Point adjustment.
Press and hold **Up** or **Down** arrow. Range 16oC to 28oC.

Room Temperature Display. If applicable
Momentary press **Up** arrow. AUTO light flashes and room temperature is displayed for 3 seconds.

TIMER button.

Turn Off Air Conditioning System.
Press TIMER button.
TIMER light flashes and time in hours will be displayed (0.5 to 24Hrs).
Press TIMER **Up** or **Down** arrows until required time to stop air conditioning operation is reached..
Control will except Time automatically. TIMER light on..
To display time left before system stops press TIMER button. Time left will be displayed.
NB. To cancel or reset the off time press OFF button. TIMER light off.

Turn On Air Conditioning System.
Press TIMER button.
TIMER light flashes and time in hours will be displayed (0.5 to 24Hrs).
Press TIMER **Up** or **Down** arrows until required time to start air conditioning operation is reached..
Control will except Time automatically. TIMER light on..
To display time left before system starts press TIMER button. Time left will be displayed.
NB. To cancel or reset the on time press OFF button. TIMER light off.

MODEL B512CW

Air Conditioning Systems

2 Stage heat pump.

2 Stage cool and heat.

Features and Benefits.

System switch.

7 Day 4 event time clock.

24 Hour countdown timer.

3 speed fan control.

Two operating fan modes.

Three operating temperature modes.

Temperature setback mode.

Ventilation control.

Zone control.

Select display. Time, room or set point Temp.

Dirty filter reminder.

Battery backup.

Optional remote sensor control.

Temperature set point range limits.

Sensor calibration

Remote interface.

Adjustable parameters.

Compressor start delay.

Fan run-on for electric heating.

Pump interlock with fault display.

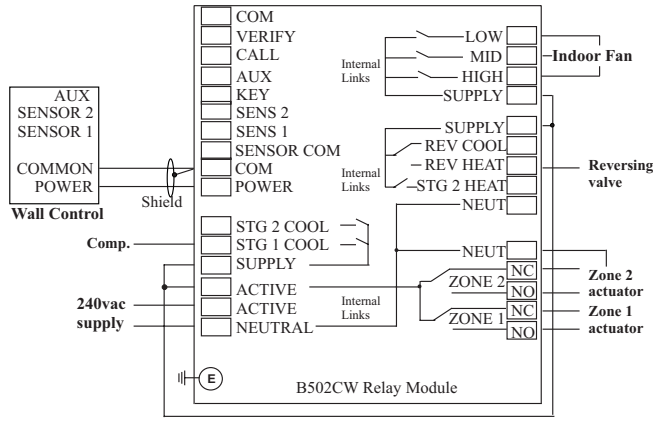
240 or 24vac control systems.

Australian designed

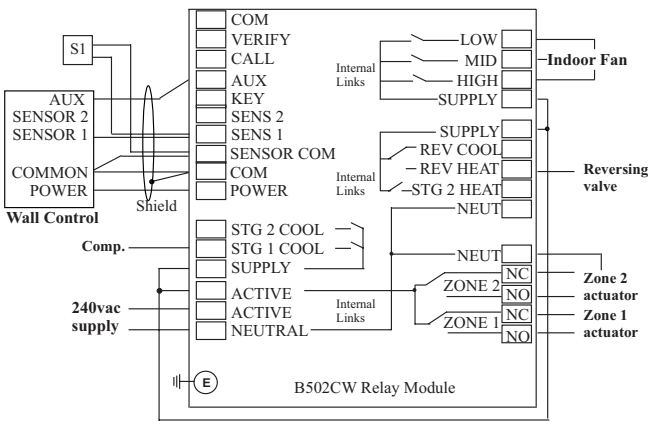
Australian manufactured.

Typical wiring connection. B512CW and B502CW Relay Module.

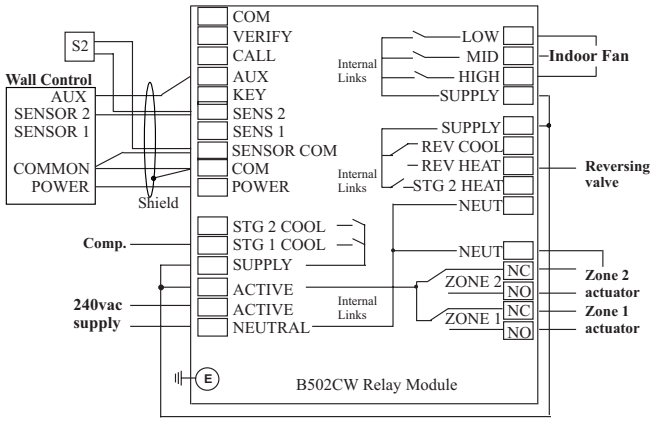
Reverse cycle system with 2 zones.



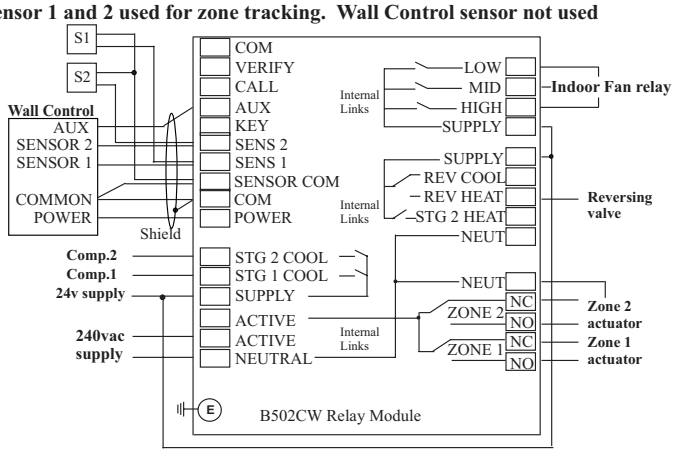
Reverse cycle system with 2 zones and remote Sensor .
Wall Control sensor not used.



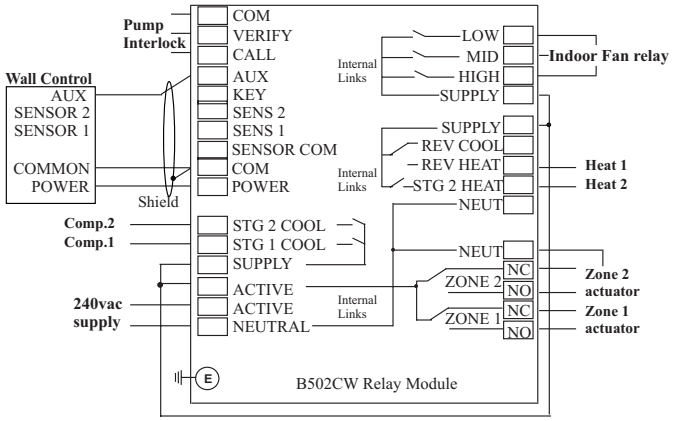
Reverse cycle system with 2 zones and remote Sensor 2.
Wall control sensor and Sensor 2 used for zone tracking



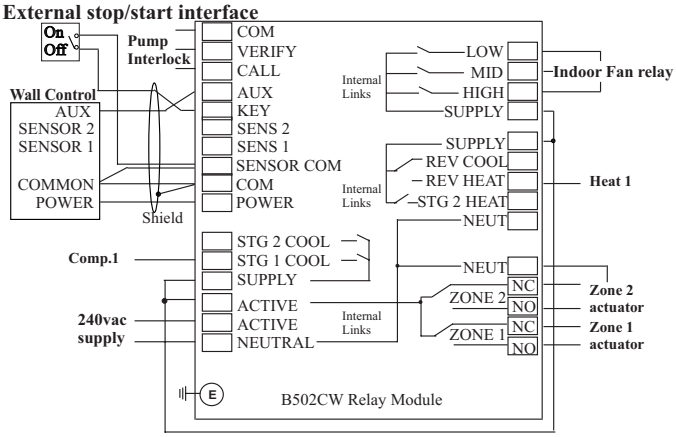
Two stage reverse cycle system with 2 zones and two remote sensors.
Sensor 1 and 2 used for zone tracking. Wall Control sensor not used



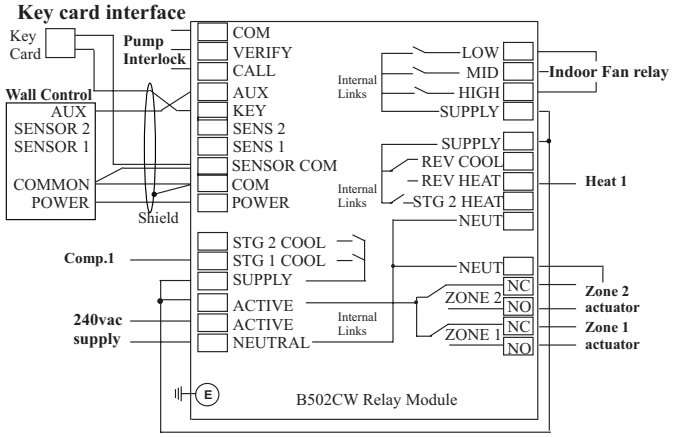
Two stage cool and electric heat. Two zones and pump interlock

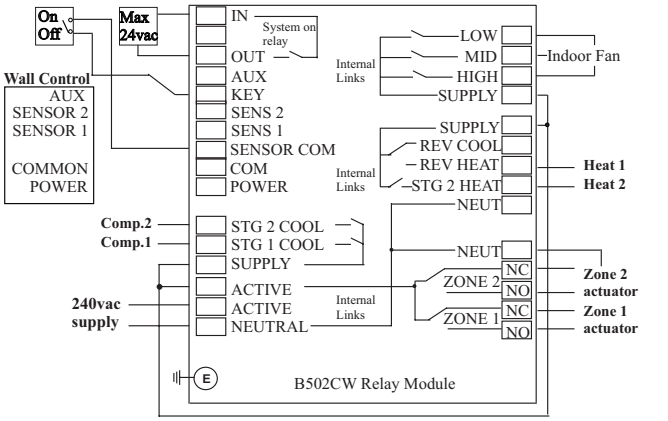


One stage cool and electric heat. Two zones and pump interlock.
External stop/start interface



One stage cool and electric heat. Two zones and pump interlock.
Key card interface





Reset controller to factory default settings.
Press ON/OFF button to turn off system.
Press and hold EXIT button, press and release TIMECLOCK PROGRAM DOWN arrow. Press ON/OFF and release with EXIT button.

System Operating Modes.
Select operating mode by dip switches on rear of Wall Control.
Explanation for Dip Switch Nos 4 and 6.
DS4. Both Zones. Allows customer to select Day or Night or both. Individual Zone. Allows customer to select Day or Night, not both.
DS6. If remote Sensor 1 is used in lieu of Wall Control Sensor, Dip Switch 6 to be in off position.

Menu. Change parameters for operating functions.
Press ON/OFF button to turn off system.
Press and hold EXIT button press TIMECLOCK PROGRAM button. Release both.
Lights displayed on Wall Control indicate function number of the menu you are in. See Function Table below
Press the Up or Down arrows to select your choice.
Press TIMECLOCK PROGRAM button to except your choice and move to next function or press EXIT button to exit menu.

Operating Functions Menu.
1. Automatic temperature change over or customer selects temperature operation from Wall Control.
2. Fan run on. Recommended when using electric heating.
3. Compressor start delay.
4. Pump interlock. Factory set for pump interlock operation.
5. Sensor 1 calibration offset.
6. Sensor 2 calibration offset.
7. Auxiliary input functions. See available external input functions from notes under Function Table.
8. Filter time remaining. Press ON/OFF to reset time.

Note. Press EXIT at anytime to exit menu.

Function Table

				Lights (LED's) Displayed on Wall Control															
	Default	Range	Adjust.	1	2	FILTER	ROOM	HIGH	LOW	MID	COOL	HEAT	AUTO	°C	SET	TIME	ON	OFF	RUN
1.	Cool/ Auto/Heat		Auto								Flashing	Flashing	Flashing Flashing		On On				
2.	0.5Mins	0-10Mins	0.5Mins					On	On	On					On	Flashing	On		On
3.	0.0Mins	0-10Mins	0.5Mins								On	On	On		On	Flashing			
4.	PI and ON displayed. Press Up or Down arrow to turn off																On		
5.	0.0	-2.5 to 2.5	0.1oC	On			On							On	Flashing				
6.	0.0	-2.5 to 2.5	0.1oC		On		On							On	Flashing				
7.	A1	A1. Time switch. See below A2. Window switch. See below A3. Start. See below A4. Key card. See below													On				
8.	160 Hours	Displays time remaining				Flashing										On			

Auxiliary Input Functions.

RELAY MODULES
LE85 Module. Connect volt free contact between AUX terminal "A" and SEN COM terminal.
B502CW Module. Connect volt free contact between terminal "KEY" and SEN COM terminal.

A1. Time Switch function. Contact opened will stop A/C system. Contact closed will start A/C system.
Wall Control can override time switch functions.

A2. Window Switch function. Contact opened will put A/C system in standby mode.
Contact closed will start A/C system at the last setting.
Wall Control cannot override this function.

A3. Start function. Contact momentary closed will start A/C system. Wall Control can override this function.

A4. Key card function. Contact opened will stop A/C system. Contact closed will allow A/C system to be restarted from Wall Control. Wall Control cannot override this function.

Temperature set point operating range menu.
Press and hold EXIT button. Press TIMECLOCK PROGRAM UP arrow. Release both.
Press TIMECLOCK PROGRAM button to accept change and move to next stage.
To exit from menu at any time press EXIT button.

All settings are the temperature offset from the Controller set point.

Heating and Cooling	Factory Settings	Temperature Adjustment	Lights (LED'S) Displayed on Wall Controller							
			COOL	HEAT	1	2	OFF	ON	SET	STAGE
Stage1 Cool Off	**0.5oC**	0.5 to 9.0oC	On		On		On		On	On
Stage1 Cool On	**1.0oC**	1.0 to 9.9oC	On		On			On	On	On
Stage2 Cool Off	**1.0oC**	0.5 to 9.0oC	On			On	On		On	On
Stage2 Cool On	**1.5oC**	1.0 to 9.9oC	On			On		On	On	On
Stage1 Heat Off	**-0.5oC**	-0.5 to 9.0oC		On	On		On		On	On
Stage1 Heat On	**-1.0oC**	-1.0 to 9.9oC		On	On			On	On	On
Stage2 Heat Off	**-1.0oC**	-0.5 to 9.0oC		On		On	On		On	On
Stage2 Heat On	**-1.5oC**	-1.0 to 9.9oC		On		On		On	On	On

LE85 Relay Module Max. 1 Stage Heat/Cool. B502CW Relay Module Max. 2 Stage Heat/Cool.

Cancel timers.
Press and hold EXIT, press ON/OFF, release both.

High resolution temperature reading.
Press and hold EXIT, press REPEAT, release both. Press DISPLAY to exit menu.

Difference between room temperature and room set point.
Press and hold EXIT, press OMIT RESTORE release both. Press DISPLAY to exit menu.

LED check.
Press and hold EXIT, press DISPLAY, release both.

Temperature Set Point Range Limit. Range 10oC to 36oC

To display the current upper and lower set point range. Press and release TIMECLOCK PROGRAM button and then the Up or Down arrow to display upper (e.g U28) or lower (e.g L16) set point range limits.

To change upper limit. Press and release TIMECLOCK PROGRAM button. Press Up arrow to display upper limit. Press SET TEMP Up or Down arrows within 0.5 seconds to adjust setting.

To change lower limit. Press and release TIMECLOCK PROGRAM button. Press Down arrow to display lower limit. Press SET TEMP Up or Down arrow within 0.5 seconds to adjust setting.

Select Screen Display.
Press and release DISPLAY button to select Time, Room Temperature or Set Point..

Room Temperature Set point with Screen displaying time or room temperature.
Quick press of Up or Down arrow to display set point. To change set point, press and hold Up or Down arrow.

Fan Speed adjustment and Operating Mode with System Switch on.
Press and release FAN CONTROL button to select fan to run in High, Medium or Low, in either automatic or continuous mode.
Continuous mode. CONT light On. Fan always on.
Automatic mode. CONT light Off. Fan temperature controlled.

Fan Speed adjustment with System Switch off. I.e ventilation mode
Press and release FAN CONTROL button to select fan speed**.** NB. CONT light is Off.
Press ON/OFF button to stop fan.

Temperature operating mode.
Press and release the AUTO/HEAT/COOL button to select temperature operating mode.
AUTO. Heating or cooling will be automatically selected to maintain set point.
HEAT. System will only operate in heating mode.
COOL. System will only operate in cooling mode.
NB. System can be programmed to run in Auto mode only. See Operating Function Menu.

Wall Control Fault Indication

DISPLAY	
RUN flashing. COOL On	Call for cooling. 6 minute compressor start delay imposed.
RUN flashing. HEAT On	Call for reverse cycle heating. 6 minute compressor start delay imposed.
EP displayed and RUN flashing	Compressor will not start due to Condenser Pump run verify signal not being received at relay module.
	Possible causes. 1) Pump not running. 2) If pump on, check flow/pressure switch contacts are closed..
	3) Check voltage at Condenser Pump Interlock Module. 240VAC supply. 24VDC control voltage.
	4) Check voltage across terminals VERIFY and COM at the problem A/C unit relay module. Minimum 15VDC
No 1 flashing.	Displays a) 0oC in Auto mode b) 51oC in Cool mode c) 1oC in Heat mode.
Sensor 1. Open circuit.	Possible causes. 1) No remote Sensor 1 and Dip Switch 6 on rear of Wall Control in Off position.
	2) Check resistance of remote Sensor1and sensor wiring. Sensor reading 10k @ 25oC.
No 1 flashing	Displays a) 52oC in Auto mode b) 51oC in Cool mode c) 1oC in Heat mode.
Sensor 1. Short circuit.	Possible causes. 1) Check resistance of remote Sensor 1and sensor wiring. Sensor reading 10k @ 25oC..

Additional fault displays when B512CW is connected to LE85 Relay Module.	
EC displayed and RUN flashing	HP or LP pressure switch tripped for more than 10 minutes or has tripped within 10 minutes of reset.
To reset. Press ON/OFF	Possible causes. 1) Low water flow. 2) Low refrigerant charge. 2) Faulty safety switches.
EH displayed and RUN flashing	Electric heating safety switch tripped for more than 10 minutes or has tripped within 10 minutes of reset.
To reset. Press ON/OFF	Possible causes. 1) Low air flow. Fan not operating or dirty filters. 2) Faulty safety switches.

General operating information.

Pump Interlock.

1. On a request for compressor to operate a signal is sent from relay module CALL terminal to Pump Interlock Relay Module
2. Pump ON confirmation signal is received via the relay module VERIFY terminal. Compressor start enabled.

NB. To override pump interlock when using LE85 relay module. Link terminals AUX “B” and SEN COM on relay module or disable via Operating Function Table.

LE85 Relay Module Safety trips

Compressor High and Low pressure safety switches .

High or Low pressure trip.
If E-C displayed, system locked out.
To reset. Press ON/OFF button.

Electric Heater high temperature safety trip.

Heater safety trip.
If E-H displayed, system locked out.
To reset. Press ON/OFF button.

Sensors

Sensor 1 senses Zone 1 temperature.
Sensor 2 senses Zone 2 temperature.
ZONE 1and ZONE 2 ON. Sensor 1 and 2 readings averaged.
Sensor 2 failure. Default to Sensor 1.
Sensor 1 failure. Default to Sensor 2. No Sensor 2. Number 1 will flash on Wall Control.

LE85 Relay Module. Single or Two Stage systems

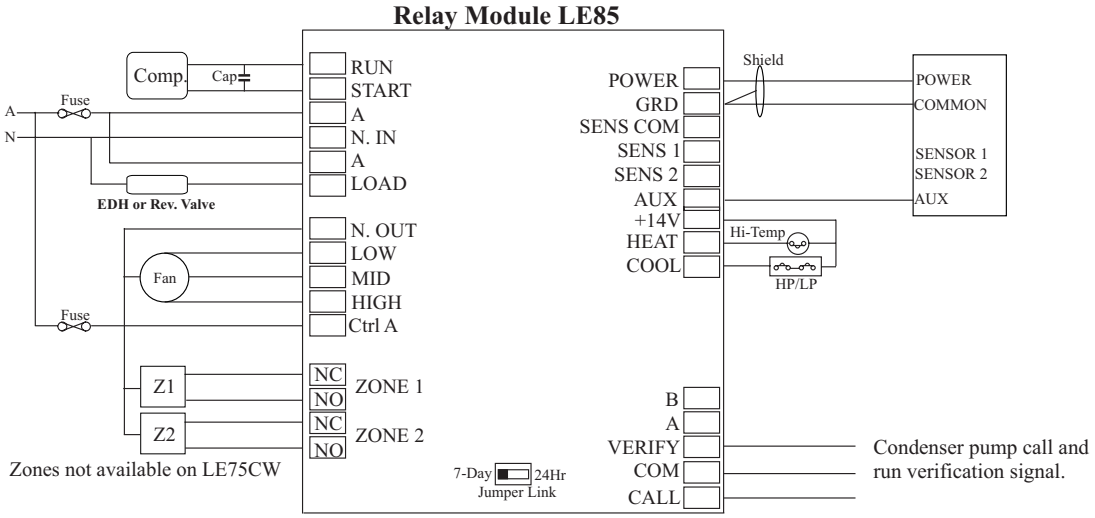
LE85 Relay Module. Single stage cool/electric or reverse cycle.
LE85R3 Relay Module. Two stage reverse cycle.

The LE85 is the original microprocessor controller specifically developed by OEM Electronics for water cooled air conditioning systems. The LE85 comes with many outstanding features for a simple cost effective installation.

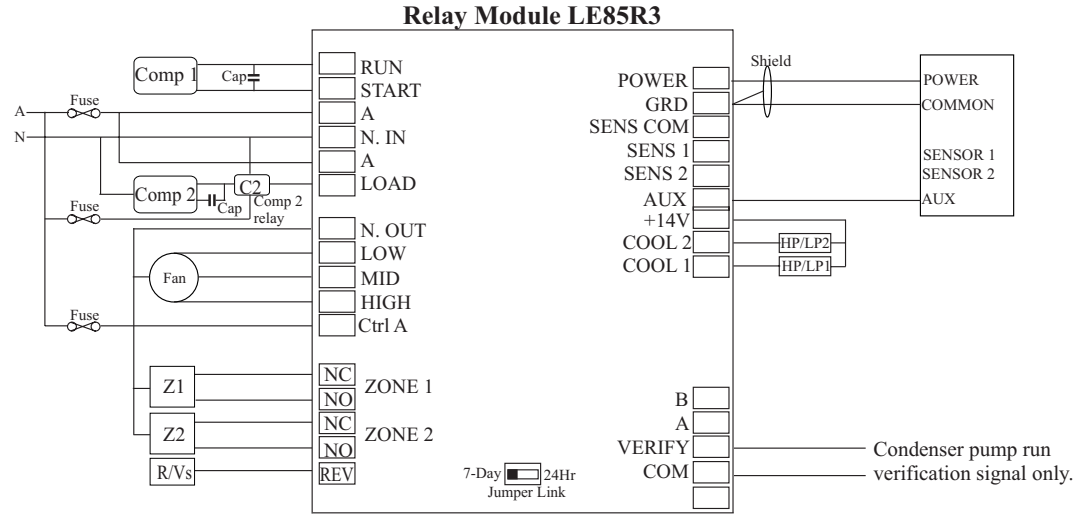
Features

1. 3HP Compressor relay. Additional relay for LE85R3 model.
2. 16 Amp resistive Fan relays.
3. 25 Amp resistive Heater relay.
4. Two Zone control relays.
5. Condenser pump start call and verification of flow interlock. Verification only for LE852 model.
6. High and Low pressure safety cut out interface.
7. Electric heating high temperature safety cut out interface.
8. Safety lock out of air conditioning system.
9. Fault indication on Wall Control Pad.
10. Home automation or similar interface.
11. Two temperature Sensor inputs.
12. Australian designed and manufactured.
13. Selection of three modern slim line Wall Controls to interface with relay module.

Standard single stage reverse cycle (or heat/cool) wiring connections. B512CW Wall Control Pad shown. Check A/C Unit wiring diagrams



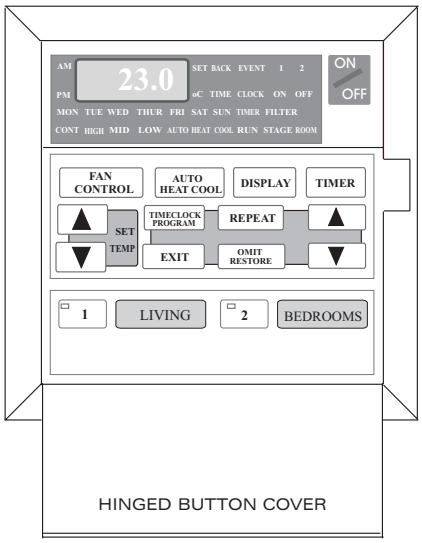
Standard two stage reverse cycle wiring connections. B512CW Wall Control Pad shown. Check A/C Unit wiring diagrams



LE85 Relay Module Compatible Wall Control Pads.

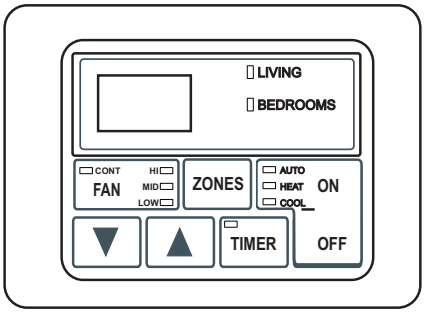
B512CW.

1. System switch.
2. Three fan speed control.
3. Two fan operating modes.
4. Three temperature operating modes.
5. Temperature setback.
6. 7-day time switch with battery backup.
7. 24 hour timer.
8. Zone control.
9. Pump interlock.
10. Heat/Cool Fault indication.
11. Dirty filter warning .
12. Home automation interface.



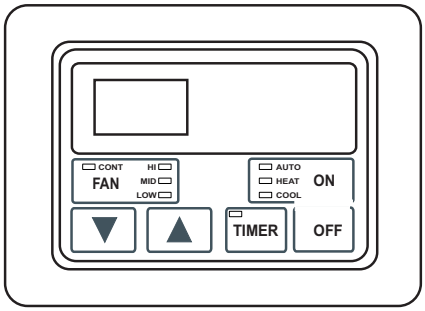
LE612CW.

1. System switch.
2. Three fan speed control.
3. Two fan operating modes.
4. Three temperature operating modes.
5. 24 hour timer.
6. Zone control.
7. Pump interlock.
8. Heat/Cool Fault indication.
9. Home automation interface.



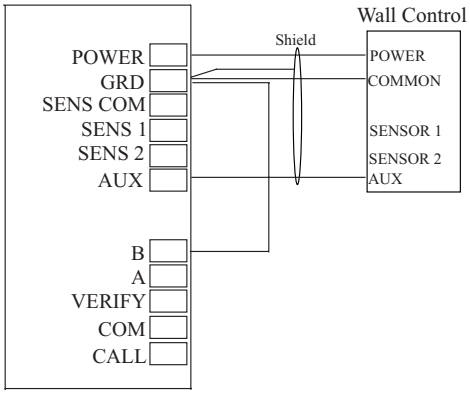
LE75CW.

1. System switch.
2. Three fan speed control.
3. Two fan operating modes.
4. Three temperature operating modes.
5. 24 hour timer.
6. Pump interlock.
7. Heat/Cool Fault indication.
8. Home automation interface.

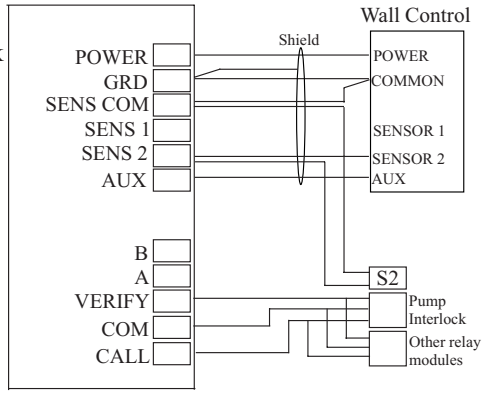


Control wiring connections between B512CW or LE612CW Wall Control Pad to LE85 Relay module.

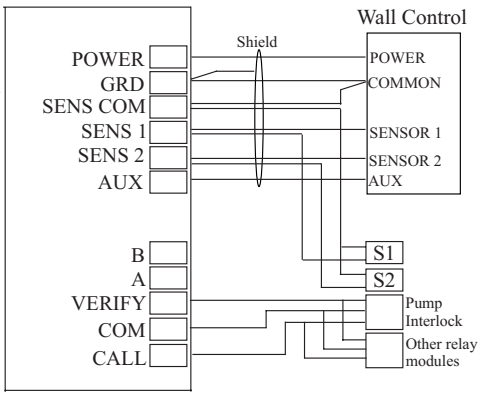
Standard Connections



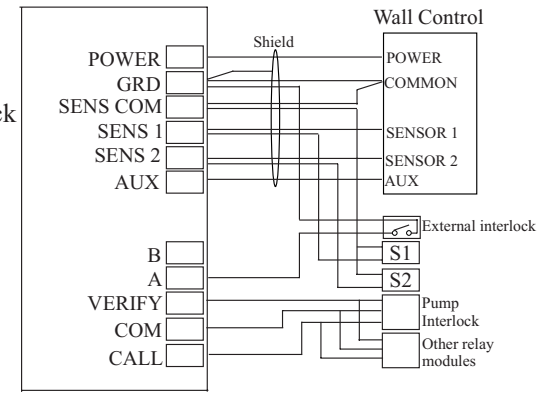
Zone 2 sensor.
Pump Interlock



Zone 1 and 2
remote sensors.
Pump Interlock

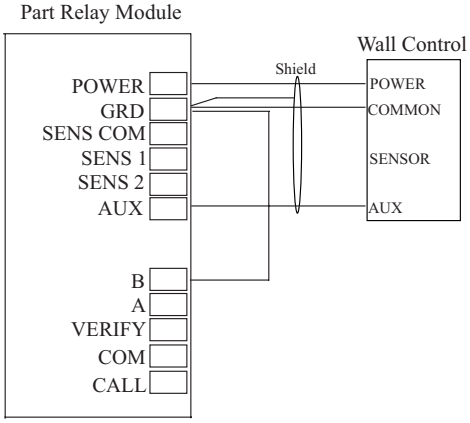


Zone 1 and 2
remote sensors.
Pump Interlock.
External interlock

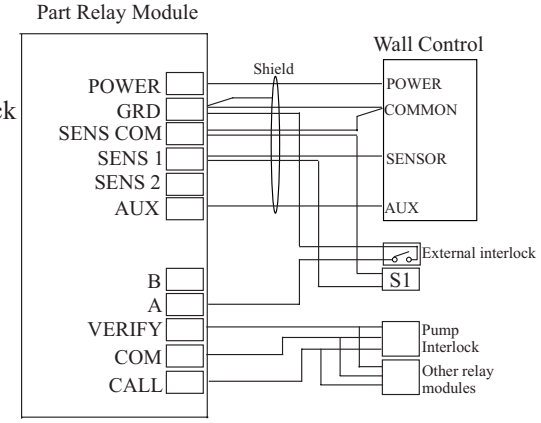


Control wiring connections between LE75CW Wall Control Pad to LE85 Relay module.

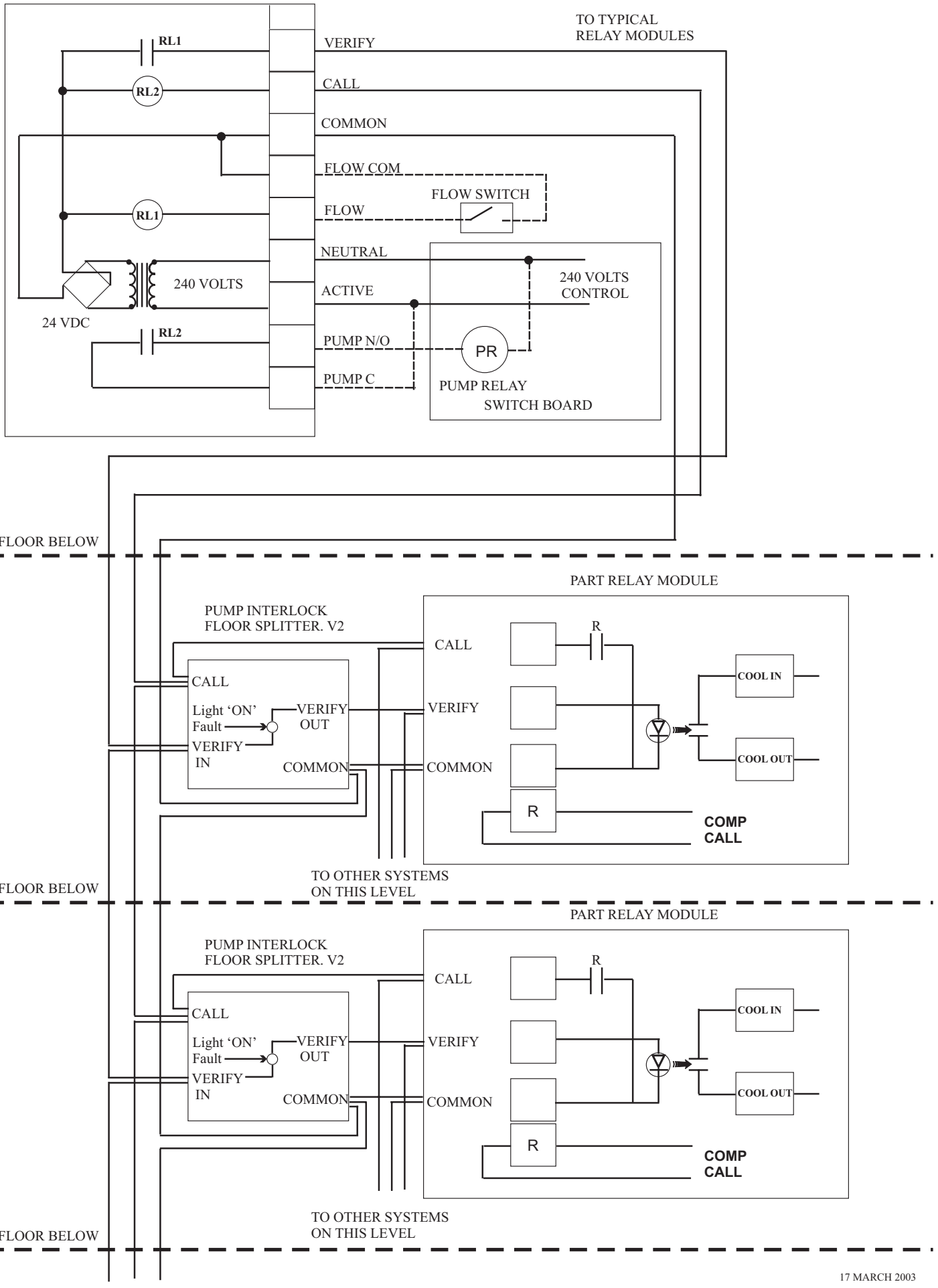
Standard Connections



Remote Sensor.
Pump Interlock.
External interlock



PUMP INTERLOCK RELAY MODULE



17 MARCH 2003