

INSTALLATION INSTRUCTIONS

FOR MODEL HAN-L62 / PCB-132 WITH EARTH SHIELD CABLE MICROPROCESSOR AIR CONDITIONING SYSTEM CONTROLLER

APPLICATION

The HAN-L62 microprocessor air conditioning controller is suitable for installation with all split or one piece packaged air conditioning units. The HAN-L62 can be supplied to operate with reverse cycle, cool/electric element heat or add on cooling systems used with warm air furnaces and chilled water/hot water fan coil units.

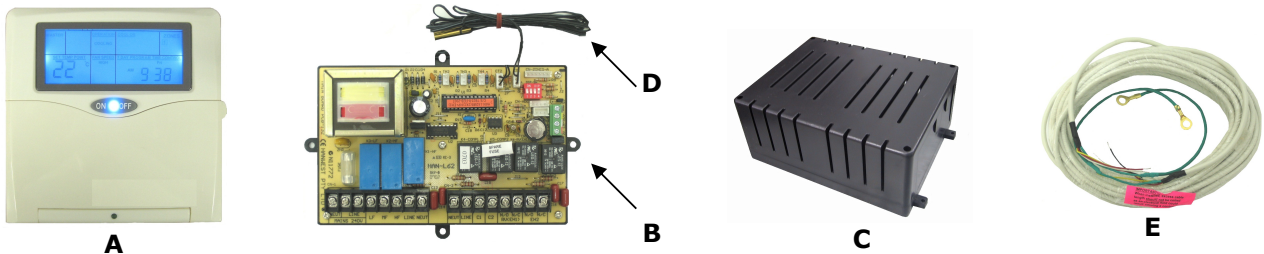
There are two model HAN-L62 controllers.

- A) Model HAN-L62HP for reverse cycle (heat pump) air conditioners. This model is suitable for 1 stage cool / 1 stage heat with optional boost heat or 2 stage cool / 2 stage heat with optional boost electric heat. (Boost electric heat operation is dipswitch selectable.)
- B) Model HAN-L62EH for cool only air conditioners with electric heat. This model is suitable for 1 stage cool / 1 stage heat or 2 stage cool / 2 stage heat operation.

PACKING CHECKLIST – HAN-L62HP

The HAN-L62/PCB-132 when supplied contains the following items:

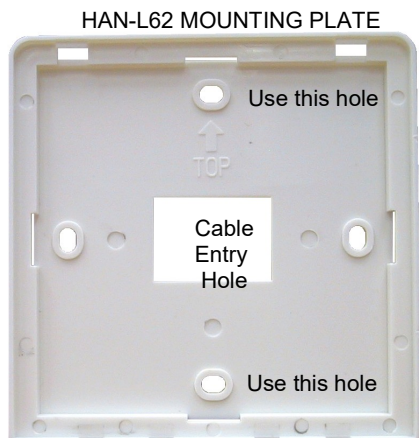
- A) HAN-L62 room wall control and mounting plate.
- B) PCB-132 power relay board (already fitted inside PBEC-L62)
- C) PBEC-L62 vented power board enclosure.
- D) 1 off Indoor coil system warm up sensor (connected to PCB). For 2 Stage, order an additional sensor.
- E) 10 metre interconnecting lead.
(20 metre extended interconnecting lead optionally available).
- F) Installation instructions / Wiring diagram.



INSTALLATION PROCEDURE

A) HAN-L62 ROOM WALL CONTROL

The HAN-L62 is supplied with a separate wall mounting plate which is fastened to the wall and allows the control to be installed with all fastening screws concealed.



Check the wall where the HAN-L62 is to be located is flat and true before fastening the wall mounting plate. Fixing the mounting plate to a distorted surface may damage the control.

Fasten the wall mounting plate by the screw holes as indicated in photo. Always use the top and bottom holes as indicated. It is essential to use the lower hole to provide sufficient support to the mounting plate when removing the HAN-L62.

Drill hole in wall to allow cable entry.

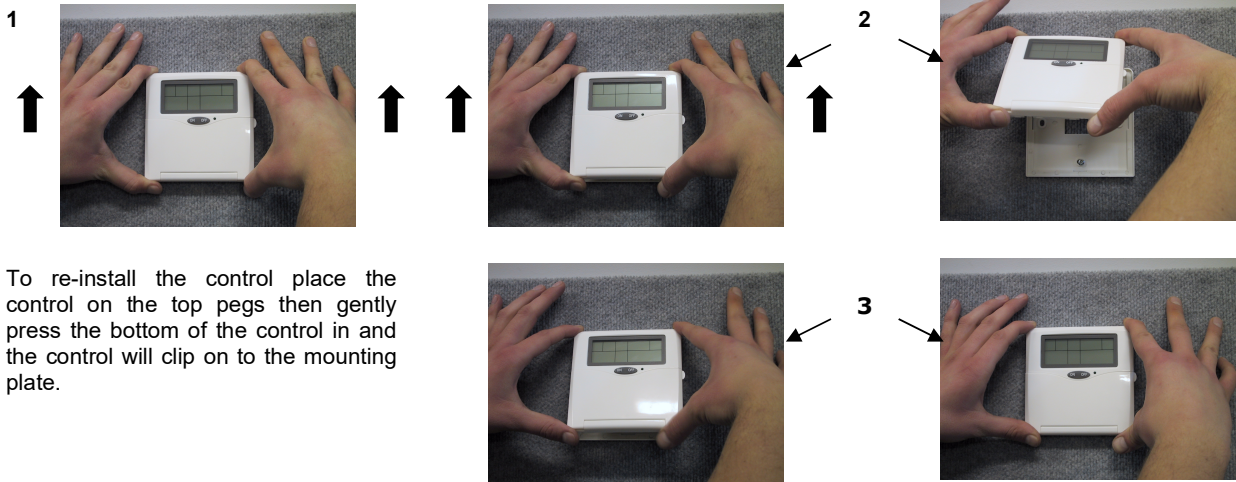
Install interconnecting cable supplied. **Fill around cable with foam or cover hole with PVC tape to prevent draft from wall cavity affecting control operation and damage to PCB due to dust accumulation. Do not use aluminium duct tape.**

Important : The interface cable to connect the HAN-L62 wall control & the PCB-132 main board is a 4 core & shield (green). The 4 core wires are colour coded to correspond to the terminal colour coding on the HAN-L62 & PCB-132. The green shield wire should be cut off at the wall control end to prevent the shield wire coming into contact with circuit components in the back of the HAN-L62. **Do not** run the interface cable for more than 2 metres with line voltage cables. **Do not** fasten the interface cable to copper refrigerant lines, water pipes or any other metal objects that could act as an aerial to attract electrical noise or interference. **Do not** coil excess cable in a wall cavity or ceiling space – spread out.

To install HAN-L62 onto mounting plate, locate the pegs on the top of the control with the recesses in the mounting plate . Carefully press in the bottom of the control to engage the lower fasteners.

HAN-L62 REMOVAL (For service or adjustment)

- 1) To remove HAN-L62 from the wall mounting plate after installation, place two hands on the control and exert upward pressure.
- 2) Hold the control with 2 hands and force upwards while easing the bottom of the wall control away from the wall. When the bottom edge comes out lift the control from the top pegs.



- 3) To re-install the control place the control on the top pegs then gently press the bottom of the control in and the control will clip on to the mounting plate.

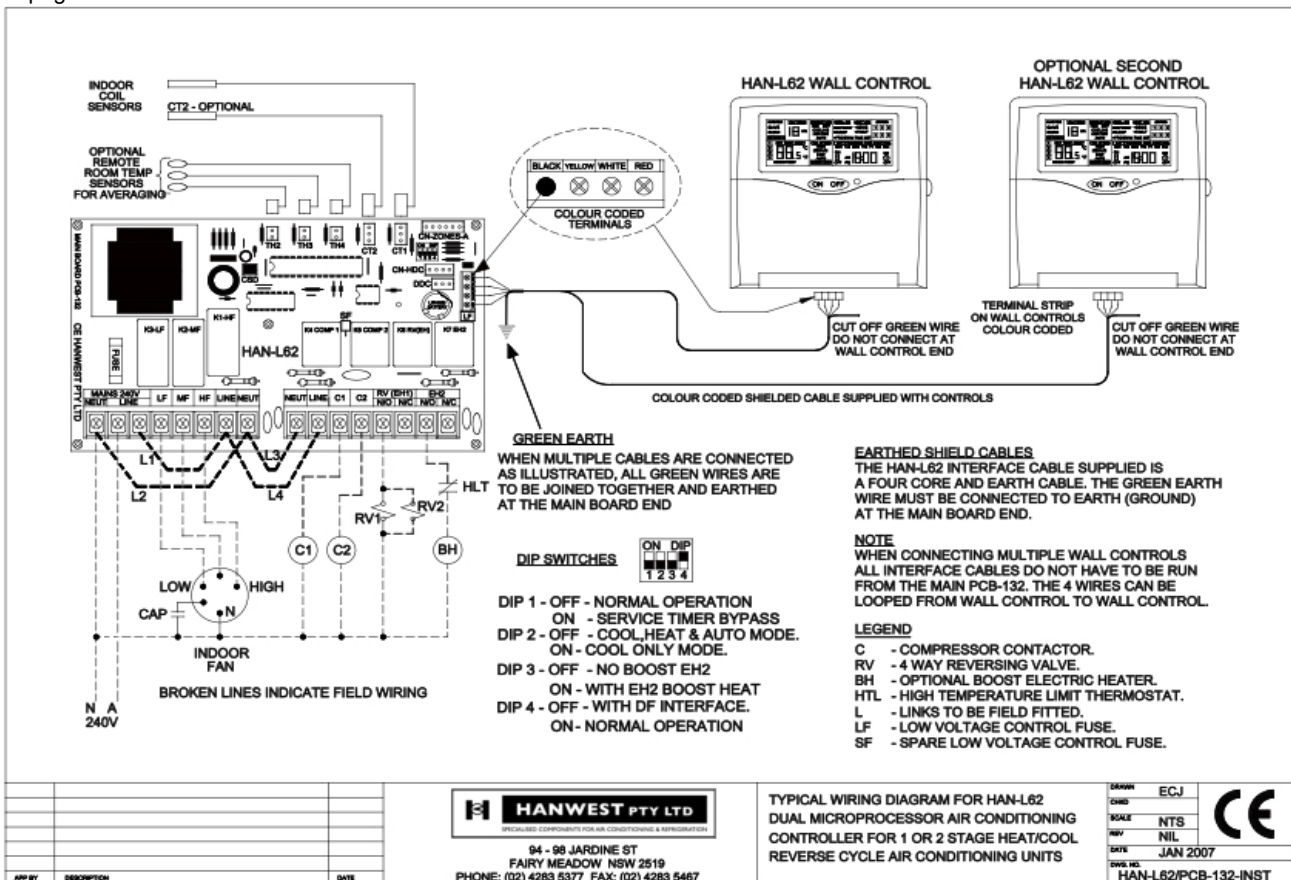
B) PCB-132 (PCB) POWER RELAY MODULE

The power relay module is generally installed at the indoor (fan coil) unit. Install the PCB in a well ventilated location where it will not be exposed to moisture or excessively high temperatures.

Indoor (fan coil) unit PCB main board installation

Locate the PCB in a suitable location for electrical control equipment. Do not install the PCB where it will be subject to the air leaving the indoor coil. On the cooling cycle, the leaving air can be at a near saturated condition and could cause condensation/moisture accumulation on the PCB resulting in damage to the PCB. During winter operation high temperatures in the fan coil can be experienced which could also affect control operation.

The wiring diagram below relates to output signals being 240 volt. For 24 volt or mixed outputs see 'Alternative Outputs' on page 3.



NOTE: For indoor coil installation instructions see note 5 "CT1" on page 4 of this document.

ALTERNATIVE OUTPUT CONNECTIONS FOR PCB-132 POWER RELAY MODULE

PART 1a: The wiring diagram on page 2 shows field supplied and installed links L1 & L2 supplying 240 Volts to Line & Neutral terminals on CN1. This in turn provides 240 volt outputs to operate a 3 speed indoor fan motor, or when LF, MF & HF are looped, a single 240 volt output to operate a single speed fan motor or a 240 volt fan relay.

PART 1b: When links L3 & L4 are installed from CN1 to Line & Neutral terminals on CN2, both compressor outputs C1 & C2, RV (EH1) & EH2 will be 240 Volts.

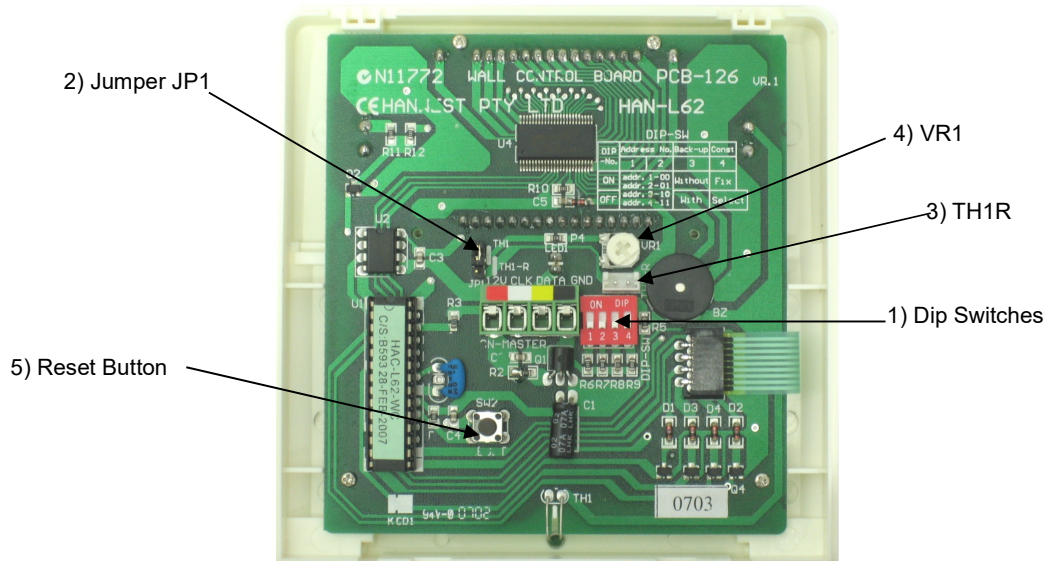
PART 2: 24 Volt Control circuits only. For air conditioning units with 24 volt control circuits, DO NOT INSTALL LINKS L1,L2, L3 & L4. Instead, connect 24 volts (supplied by air conditioning unit) to 'Line' terminal on the **right** hand side of CN1 and to 'Line' terminal on CN2. **All outputs will then be 24 Volts only.**

PART 3: 240 Volt indoor fan output with 24 volt compressor and reversing valve output

For 240 volt fan output, install links L1 & L2. This will give 240 volt fan output options as described in PART 1a. For 24 volt compressor and reversing valve outputs, DO NOT INSTALL LINKS L3 & L4. Instead, connect 24 volts (supplied by air conditioning unit) to 'Line' terminal on CN2. **All outputs for C1,C2 & RV (EH1) plus EH2 will then be 24 Volts only.**

ITEM "A" HAN-L62 WALL CONTROL

When the HAN-L62 is removed from the wall plate the following items are located on the rear of the PCB-126.



HAN-L62 REAR VIEW

1) Dip Switches

A dip switch block with 4 dip switches is located beside the colour coded screw terminals for the interface cable connection. The function of the dip switches is as follows.

- Dip No 1 & Dip No 2 - These are control address switches and are off for 1 control. When more than 1 control is used see Hanwest bulletin L62DCK-INST.
- Dip No 3 - The control is supplied with this switch in OFF (down) and this enables all of the last control settings to be maintained in the eeprom memory. When this switch is in the "On" position (up) the eeprom memory for all last control settings is disabled. For normal operation Dip No 3 should be "Off" (down).
- Dip No 4 - This switch is for locking the indoor fan operation to constant operation in Cool – Heat – Auto modes. The control is supplied with this switch "Off" (down) to allow constant or intermittent fan operation to be selected by pressing the Fan Speed tab on the membrane pad on the control when the front door is opened. If the control is installed in a commercial installation where constant air flow is required to comply with ventilation code requirements Dip No 4 should be switched "On" (up).

- 2) TH1-R** - TH1-R is a 2 pin plug to enable an optional remote sensor to be installed from the HAN-L62 wall control. (There are also 3 remote sensor plugs on the main PCB-132 located near the fan coil. Refer also to main PCB section of these instructions).

- 3) Jumper JP1** - Is located beside the 2 pin plug to enable an optional remote sensor to be connected to the HAN-L62 wall control. The wall control is supplied with the jumper positioned for the on board sensor of the wall control to be in circuit. When an optional remote sensor is installed into TH1-R the JP1 jumper must be moved to bridge the centre and bottom pins to place the remote sensor in circuit and disable the on board sensor. Note: Do not change JP1 unless a remote sensor is plugged into TH1-R of the wall control.

- 4) **VR1** - Is located above the dip switch block and is a control temperature calibration variable resistor. Temperature calibration may only be required where an optional remote sensor is installed from the HAN-L62 wall control and the cable length exceeds 10 metres.
To calibrate sensor press room temp display tab & select 1) on the left hand side of the temperature display sector in the display window. The sensor temperature will be shown.
Using a mercury thermometer as a reference adjust the sensor display temperature by gently rotating VR1.
- 5) **Reset Button** - The CPU in the HAN-L62 can be rebooted & the EEPROM memory cleared as follows. For this procedure the main power must be on.
- a) Remove HAN-L62 from wall plate.
 - b) Change no. 3 dip switch to "On".
 - c) Press reset button.
 - d) After control display restarts change dip switch no. 3 to "off".
- Install HAN-L62 on to back plate.

ITEM "B" PCB-132 MAIN BOARD

Connections. There are 3 screwed terminal strips for the following external connections located on the PCB-132.

- 1) **CN1** with 8 screwed terminals.
240V AC Line and Neutral.
Line & neutral input for fan outputs LF - MF - HF.
- 2) **CN2** with 8 screwed terminals.
Line & neutral input for control outputs C1 - C2 - RV (EH1) - EH2
- 3) **CN-SLV 4** colour coded screwed terminals for connection of the low voltage shielded serial interface cable to the HAN-L62 wall controls.
- 4) **TH2 - TH3 - TH4** are 2 pin plugs for optional remote sensors. When installing remote sensors into any of these plugs, do NOT alter JP1 on the wall control unless there is a remote sensor plugged into the rear of the wall control via TH1-R
For further information on remote sensors, refer to page 5
- 5) **CT1** Is a 3 pin plug for connection of the indoor coil sensor. Indoor coil sensor (CT) must be installed in indoor coil in a copper pocket with thermal paste or fixed with a metal clip to ensure effective heat transfer. Do not place in return air duct. Do not use plastic cable ties or plastic clips of any type.
- 6) When the HAN-L62HP is installed on a 2 cool / 2 heat system a second indoor coil sensor can be connected to CT2 so both systems have an indoor coil sensor for system warm up in heat mode and indoor coil de-ice control in cool mode.
- 7) **CN-ZONES A** a 6 pin plug for connection of the optional PCB-086 zone relay board.
- 8) **CN-HDC** this plug is not assigned.
- 9) **CN-DDC** is located directly behind CN-SLV low voltage terminal block. This is for the connection to a DDC or BMS system or a remote Start/Stop station. An optional remote switch with a LED indicator is available.
- 10) **CR** back up battery for the real time clock.
- 11) **DIP-SW** is the dip switch with 4 dip switches. When the control leaves the factory dip switch no's 1 - 2 & 3 are "OFF" and no. 4 is "ON". The dip switch functions are as follows:

| | |
|--------------|---|
| DIP 1 | OFF normal operation - ON service position (timer bypass) for testing the control only. |
| DIP 2 | OFF cool/heat operation. - ON cool only operation. |
| DIP 3 | OFF no boost heat - ON for boost heat. |
| DIP 4 | This dip switch is not assigned and should be left ON. |
- 12) Fuse located between the transformer and CN-1 terminal strip is a 240V 2 amp control fuse for the transformer control circuit.
- 13) Replaceable Low Voltage Fuse for DC power to HAN-L62 Wall Control located between interface cable terminal strip & K7 (EH2) relay. The spare fuse is located between compressor relays K4 & K5 or on the base of the ventilated enclosure.
- 14) **CSD.** 2 pin receptacle for control shut down. Eg. Fire trip relay.

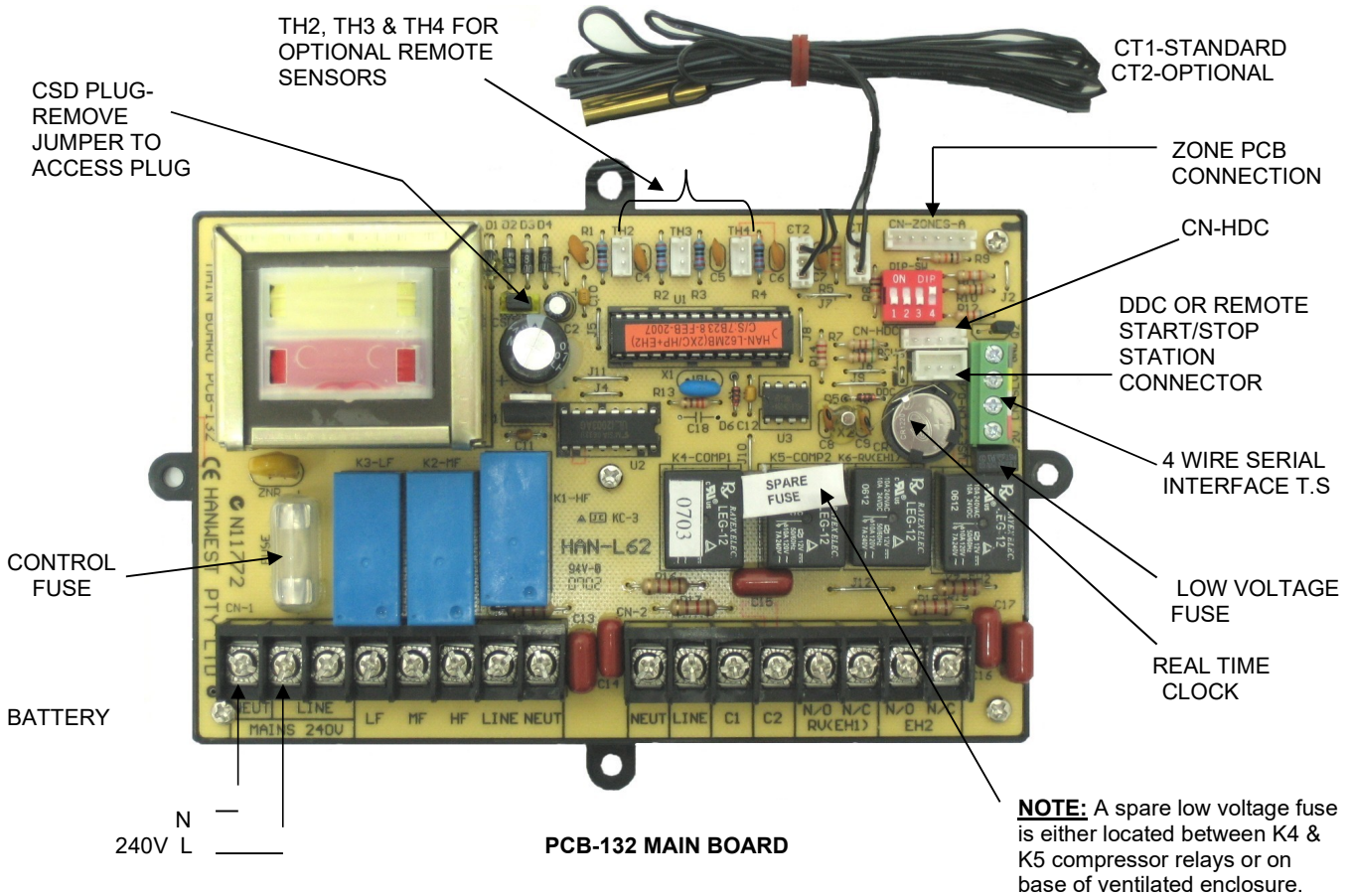
IMPORTANT

If the HAN-L62 Wall Control has no power before replacing the fuse, check the interface cable connections at the HAN-L62 Wall Control & the PCB-132 Main Board. This fuse generally only ruptures if the wiring connections are incorrect or shorted.

LOCKING UNUSED ZONES

On installations where less than 6 zones are used, zones 3-4-5-6 can be locked off to prevent unused zones being turned on. To lock the zones off press the zone button and hold for 3 seconds. To unlock the zone press the zone button and hold for 3 seconds.

ITEM "B" PCB-132 MAIN BOARD



The control should only be installed by a suitably qualified tradesman.

IMPORTANT NOTE:

When using this HAN-L62 kit to replace **any** Hanwest series controller, **both** the wall control **and** the power relay board must be replaced – do not attempt to mix and match.

Failure to observe these instructions may lead to damage of the Han-L62 control and void warranty.

REMOTE SENSORS

Any remote sensors connected to TH2, TH3 & TH4 on the power relay board can be activated/deactivated by using the zone buttons located in the bottom right hand corner of the wall control touch pad (remove white sticker to expose zone buttons).

Zone 2 controls TH2, Zone 3 controls TH3 and Zone 4 controls TH4

Zone 1 controls the wall control sensor whether it be the onboard sensor or any remote sensor connected to TH1-R (refer to TH1-R and Jumper JP1 on page 3 for further instructions) Zones 5 & 6 are not sensed.

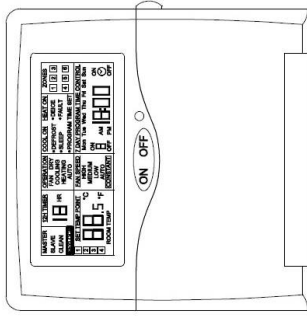
Activated zone sensors are indicated in the top right hand corner of the screen display.

If no remote sensors are connected to the power relay board then zone 1 (wall control) becomes the default sensor.

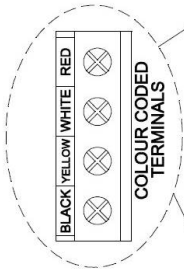
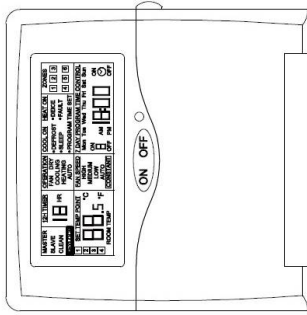
If a remote sensor is connected to the power relay board and that zone is the only one activated, the system will sense from that sensor only.

If two or more sensors are activated, the system will average across those sensors.

OPTIONAL SECOND HAN-L62 WALL CONTROL



HAN-L62 WALL CONTROL



CUT OFF GREEN WIRE DO NOT CONNECT AT WALL CONTROL END

TERMINAL STRIP ON WALL CONTROLS COLOUR CODED

CUT OFF GREEN WIRE DO NOT CONNECT AT WALL CONTROL END

COLOUR CODED SHIELDED CABLE SUPPLIED WITH CONTROLS

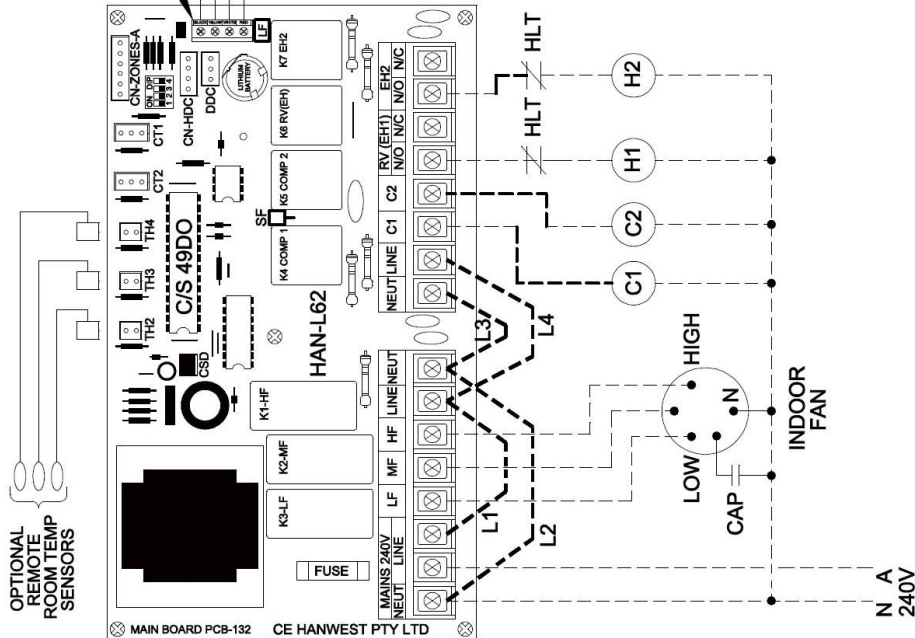
GREEN EARTH

WHEN MULTIPLE CABLES ARE CONNECTED AS ILLUSTRATED, ALL GREEN WIRES ARE TO BE JOINED TOGETHER AND EARTHED AT THE MAIN BOARD END

DIP SWITCHES



- DIP 1 - OFF - NORMAL OPERATION
- ON - SERVICE TIMER BYPASS
- DIP 2 - OFF - COOL, HEAT & AUTO MODE.
- ON - COOL ONLY MODE.
- DIP 3 - OFF - NO BOOST LOGIC HEAT
- DIP 4 - OFF - WITH DF INTERFACE
- ON - NORMAL OPERATION



OPTIONAL REMOTE ROOM TEMP SENSORS

MAIN BOARD PCB-132 CE HANWEST PTY LTD

NOTE
WHEN CONNECTING MULTIPLE WALL CONTROLS ALL INTERFACE CABLES DO NOT HAVE TO BE RUN FROM THE MAIN PCB-132. THE 4 WIRES CAN BE LOOPED FROM WALL CONTROL TO WALL CONTROL.

LEGEND

- C - COMPRESSOR CONTACTOR.
- RV - 4 WAY REVERSING VALVE.
- H1 - ELEMENT HEATER 1.
- H2 - ELEMENT HEATER 2.
- HTL - HIGH TEMPERATURE LIMIT THERMOSTAT.
- L - LINKS TO BE FIELD FITTED.
- LF - LOW VOLTAGE CONTROL FUSE.
- SF - SPARE LOW VOLTAGE CONTROL FUSE.

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| CE | DRAWN | DS |
| | CHKD | |
| | SCALE | NTS |
| | REV | REV1 |
| DATE | OCTOBER 2008 | |
| DWG. NO. | HAN-L62/PCB-132EH-INST-REV1 | |

TYPICAL WIRING DIAGRAM FOR HAN-L62 DUAL MICROPROCESSOR AIR CONDITIONING CONTROLLER FOR 1 OR 2 STAGE COOL 1 OR 2 STAGE ELEMENT HEAT AIR CONDITIONING UNITS



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