HANWEST AQUA SYSTEMS PTY LTD
HEAT EXCHANGERS CONTROLS
ABN 57 617 730 711

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INSTALLATION INSTRUCTIONS

FOR MODEL HAN-L6 / PCB-087 WITH EARTH SHIELD CABLE MICROPROCESSOR AIR CONDITIONING SYSTEM CONTROLLER

APPLICATION

The HAN-L6 microprocessor air conditioning controller is suitable for installation with all split or one piece packaged air conditioning units. The HAN-L6 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.

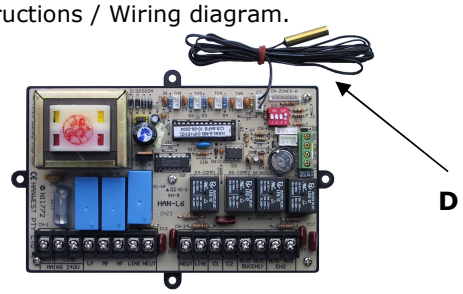
The standard HAN-L6 is supplied with the control dip switches set for reverse cycle operation.

PACKING CHECKLIST – 1 HEAT / 1 COOL REVERSE CYCLE

The HAN-L6/PCB-087 when supplied contains the following items:

A) HAN-L6 room wall control and mounting plate.
B) PCB-087 power relay board.
C) PCB enclosure.
D) Indoor coil system warm up sensor (connected to PCB).
E) 10 metre interconnecting lead.
(20 metre extended interconnecting lead optionally available).
F) Installation instructions / Wiring diagram.


A



B


C

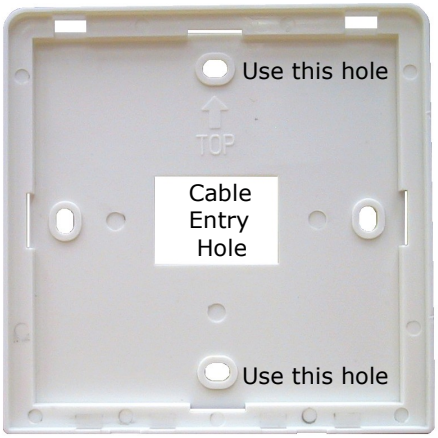

D

INSTALLATION PROCEDURE

A) HAN-L6 ROOM WALL CONTROL

The HAN-L6 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.

HAN-L6 MOUNTING PLATE



Check the wall where the HAN-L6 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-L6.

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. Do not use aluminium duct tape.**

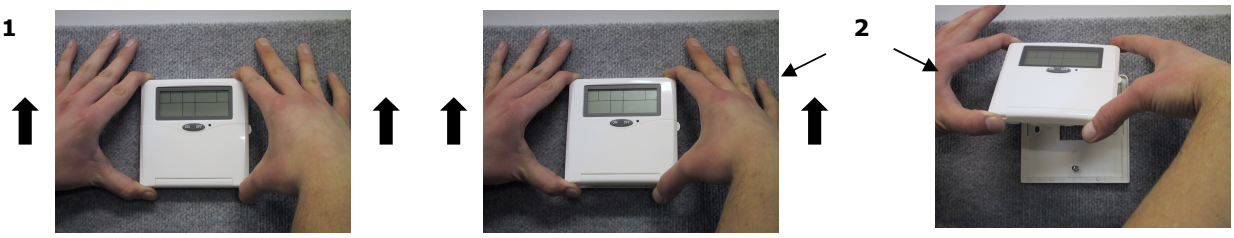
<u>Important :</u> The interface cable to connect the HAN-L6 wall control & the PCB-087 main board is a 4 core & shield (green). The 4 core wires are colour coded to correspond to the terminal colour coding on the HAN-L6 & PCB-087. The green shield wire should be cut off at the wall control end to prevent the shield wire coming into contact with circuit components in the back of the HAN-L6. <u>Do not</u> 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.

To install HAN-L6 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.

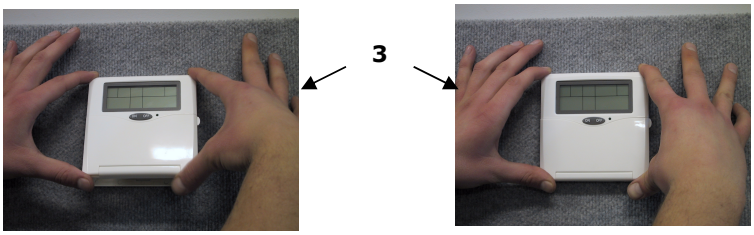
HAN-L6 REMOVAL (For service or adjustment)

1) To remove HAN-L6 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-087 (PCB) POWER RELAY MODULE

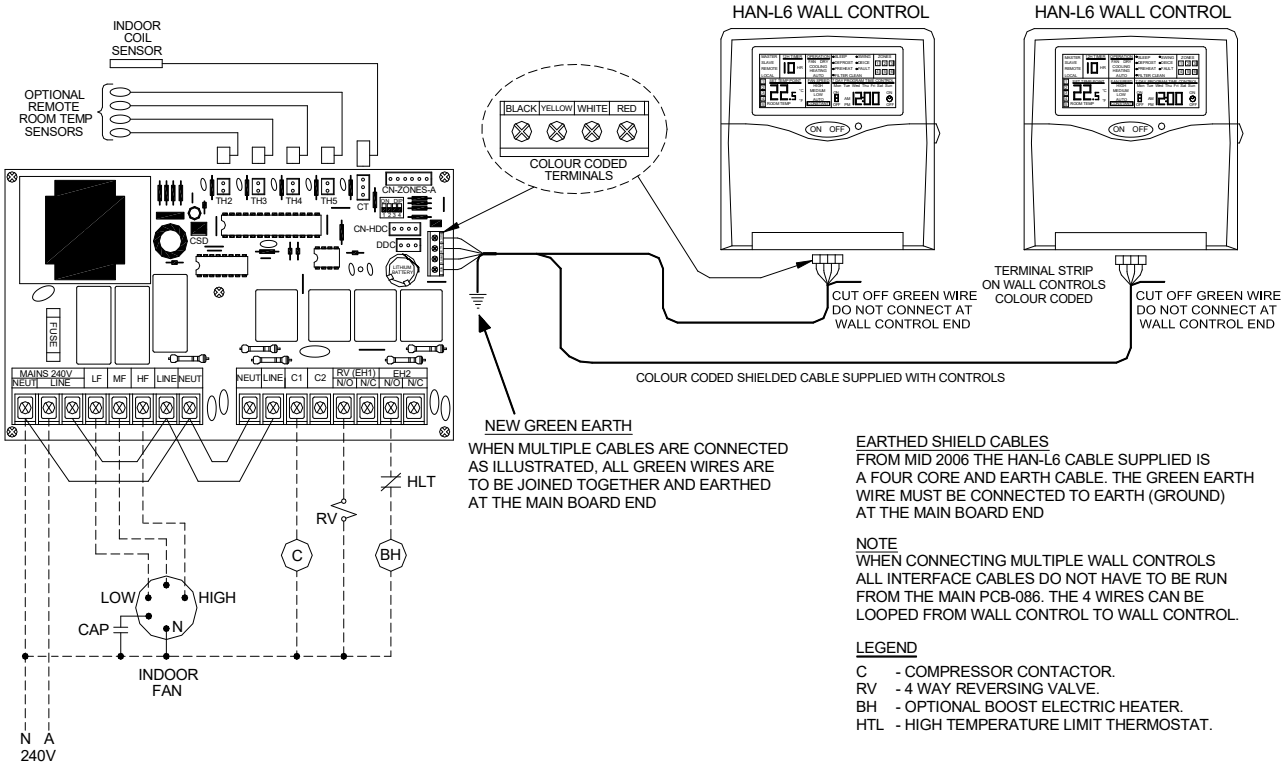
The power relay module is generally installed at the indoor (fan coil) unit. Install the PCB in a well ventilated location where it will not be exposed to moisture or excessively high temperatures. Temperzone make a control box for this. See "HAN-L6" Control Box Kit.

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.

If the fan coil unit does not have an external electrical box, install the PCB in the optional ventilated enclosure (Part no. – PBEC-1) available from your control supplier.

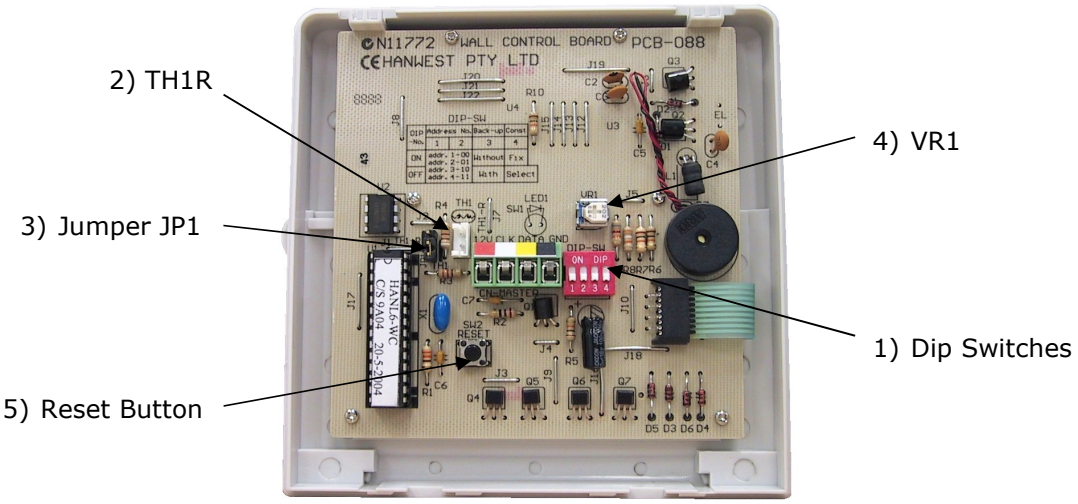
HAN-L6/PCB-087 connection layout



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

ITEM "A" HAN-L6 WALL CONTROL.

When the HAN-L6 is removed from the wall plate the following items are located on the rear of the PCB-088.



HAN-L6 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 the setting of these switches is not important when a single HAN-L6 wall control is used in an installation.

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) TH1R - TH1R is a 2 pin plug to enable an optional remote sensor to be installed from the HAN-L6 wall control. (There are also 4 remote sensor plugs located on the main PCB-087 located in the fan coil unit. Refer 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-L6 control. The control is supplied with the jumper positioned for the on board sensor in the control to be in circuit. When an optional remote sensor is installed this jumper must be moved to bridge the centre and top pins to place the remote sensor in circuit and disable the on board sensor.

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-L6 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 VRI.

5) Reset Button - The CPU in the HAN-L6 can be rebooted & the EEPROM memory cleared as follows. For this procedure the main power must be on.

a) Remove HAN-L6 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-L6 on to back plate.

ITEM "B" PCB-087 MAIN BOARD.

Connections. There are 3 screwed terminal strips for the following external connections located on the PCB-087.

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 shieded serial interface cable to the HAN-L6 wall controls.

4) **TH2 – TH3 – TH4 – TH5** are 2 pin plugs for optional remote sensors.

5) **CT** 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 use plastic cable ties or plastic clips of any type.

6) **CN-ZONES A** a 6 pin plug for connection of the optional PCB-086 zone relay board.

7) **CN-HDC** this plug is not assigned.

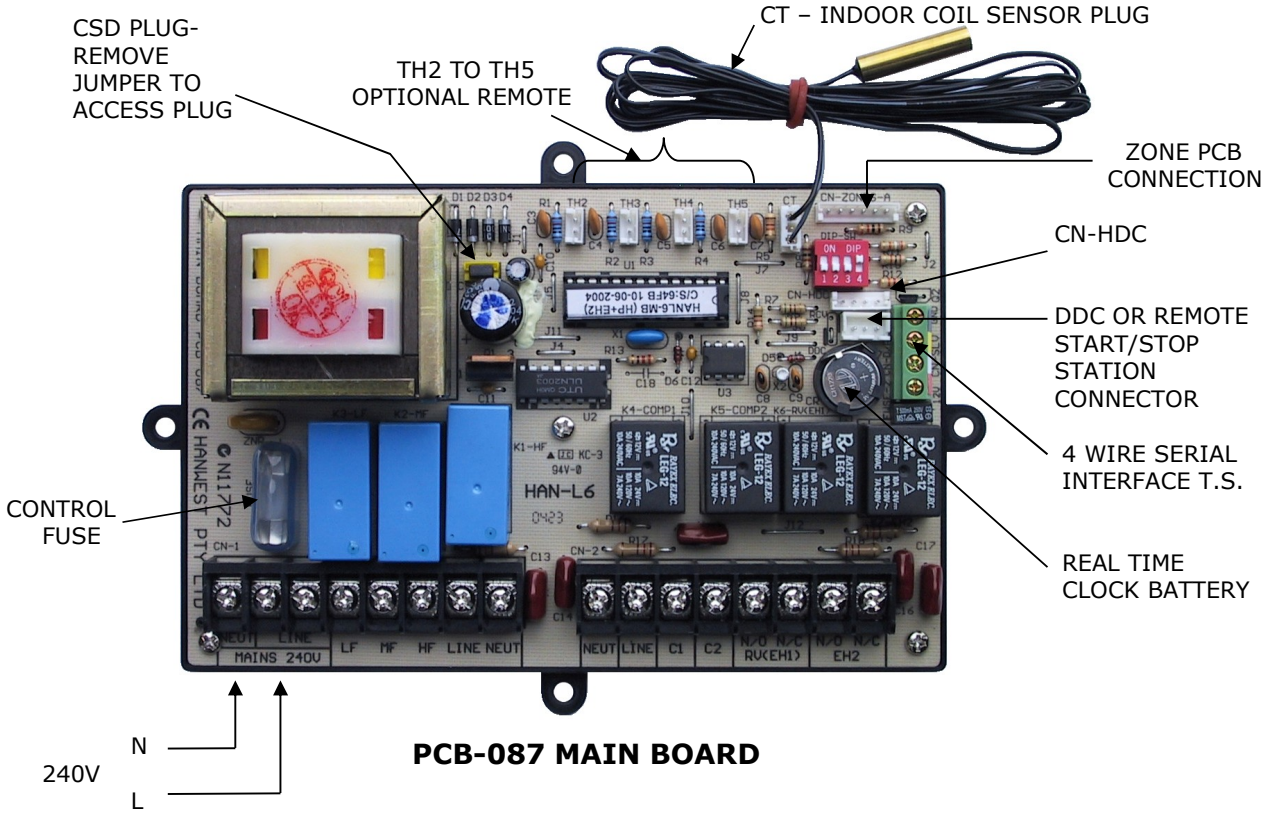
8) **CN-DDC** is located directly behind CN-SLV low voltage terminal block. This is for the connection to a DDC or BMS system or a remote Start/Stop station. An optional remote switch with a LED indicator is available.

9) **CR** back up battery for the real time clock.

10) **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 only operation. – ON cool operation.
- **DIP 3** This dip switch is not assigned and should be left OFF.
- **DIP 4** This dip switch is not assigned and should be left ON.

11) Fuse located between the transformer and CN-1 terminal strip is a 240V 2 amp control fuse for the transformer control circuit.



PCB-087 MAIN BOARD

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