



SUNWARM®

**Application and Installation Guide
for sunwarm140 AHU system
(excluding Solar Air Collectors)**



CE The EMC Directive
2004/108/EC
The Low Voltage
directive
2006/95/EC

Application and Installation Guide

for **sunwarm**[®] 140 AHU system
(excluding Solar Air Collectors)

I.1 Introduction

This manual covers the installation and maintenance of the Sunwarm I40 air handling unit only.

For Collector installation instructions refer to manual number 671274, which can be downloaded from the Sunwarm Website.

The air handling unit consists of three main sections; **master unit, coil box and slave unit.**

An installation kit containing various sensors and duct fittings are supplied within the overall package.

I.2 Prior to Installation

The unit is intended for installation in the loft space. The installation must be planned carefully due to the large number of components involved and the ducting needed to produce a complete system. The designer/installer of the system must ensure adequate airflow is delivered into each room and there are provisions for system commissioning;

e.g. dampers and adjustable grilles.

Please take note of the dimensions and weight of the unit; especially regarding the access and manual handling of the unit on site.

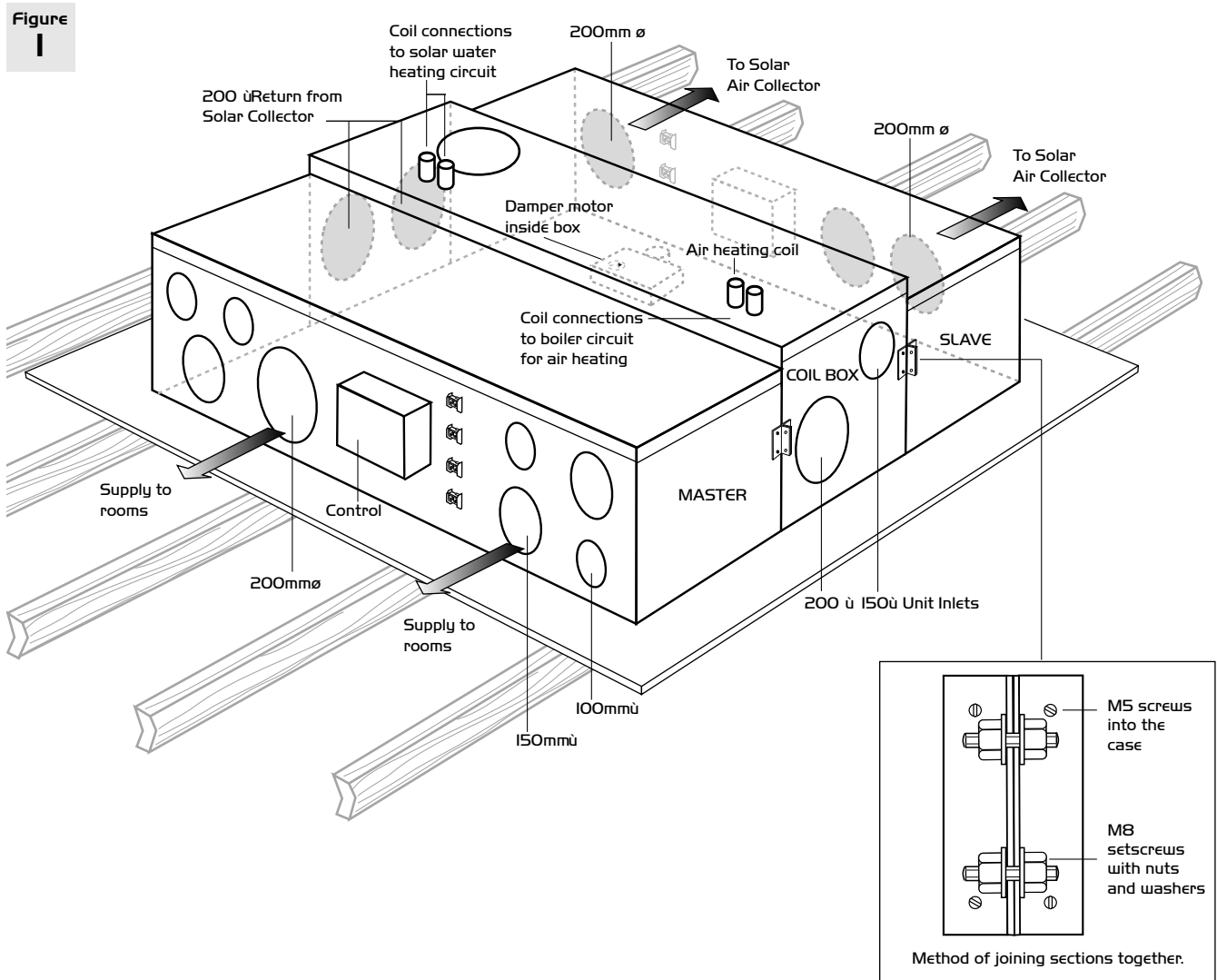
The unit must be able to pass through the loft access (minimum dimensions required are 555 x 370 mm).

The designer must ensure the system complies with all current building regulation that applies; e.g. Part F and L of the building regulations in UK.

I.3 General Arrangement

The general arrangement of the unit is shown in figure 1.

Please note that the orientation is important as the master and the slave units are not identical. If absolutely necessary, it is possible to reverse this to suit site conditions but the setting of the damper must be changed (see figure 2) to ensure correct operation.





2.0 Installation of the Sunwarm I40 Air Handling Unit and Associated Components

2.1 Installation of the air handling unit

The work must be carried by competent persons with the relevant skills. The installation must comply with all relevant regulations that apply, including but not limited to the wiring and CDM regulations.

2.2 Positioning the unit

Place a piece of 25mm thick chipboard or blockboard on the floor of the loft in a convenient position. Place a piece of 25mm foam on top of the board. Position the three sections of the air handling unit on the board (see fig 1 for their arrangement).

Feed the damper control cable protruding from the master unit through the grommet hole in the coil box. Connect the wires into the actuator motor (see fig. 11 on page 12).

Ensure that access for further installation work and future maintenance is maintained.

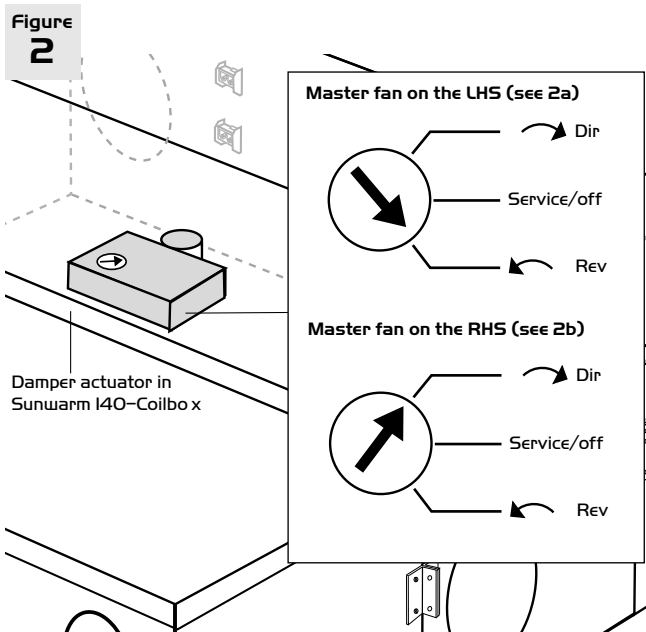
The filters are accessed via the top panel of each fan section and a clearance of 500mm is required above the unit.

2.3 Connecting the sections

Check that the foam strips on the mating faces of the sections are in good condition. Replace these foam strips if necessary.

Fix the connecting brackets onto the unit using M5 screws. Bolt the sections together using the M8 setscrews and nuts provided. See figure 1.

If the handing of the unit is changed, please ensure the setting of the damper motor is adjusted to suit. See figure 2. **This must be carried out with the mains switched off.**



Master Unit

A selection of spigot holes are available:

200mm (1 off)

150mm (3 off)

100mm (4 off)

Use the correct size to suit the airflow. Cut out the blanking plate with a pair of cutters and cut through the foam backing with a sharp knife. Attach the spigot to the hole using the self tapping screws provided.

Slave Unit

Three 200mm holes are provided, two with spigots already attached. Leave the spare hole blanked off unless it is required.

Coil box

Two inlets (**200mm and 150mm**) holes are available. Select the most appropriate one to suit the inlet duct. Cut out the blanking plate with a pair of cutters and cut through the foam backing with a sharp knife. Attach the spigot to the hole using the self tapping screws provided. Leave the spare hole blanked off.

Three 200mm inlet holes are provided, for the return air from the solar air collectors. Two at the end of the coil box (**200mm with spigot fitted**) and one on the lid (**200mm but blanked off**).

Only use the hole in the lid if this becomes necessary, otherwise leave it blanked off.

Figure 2a

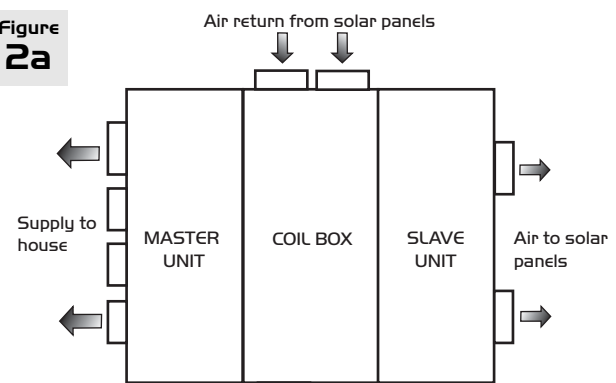
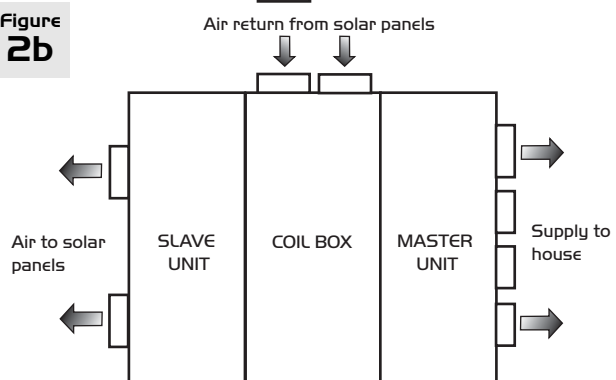


Figure 2b





2.0 Installation of the Sunwarm I40 Air Handling Unit and Associated Components

2.5 Ductwork connections

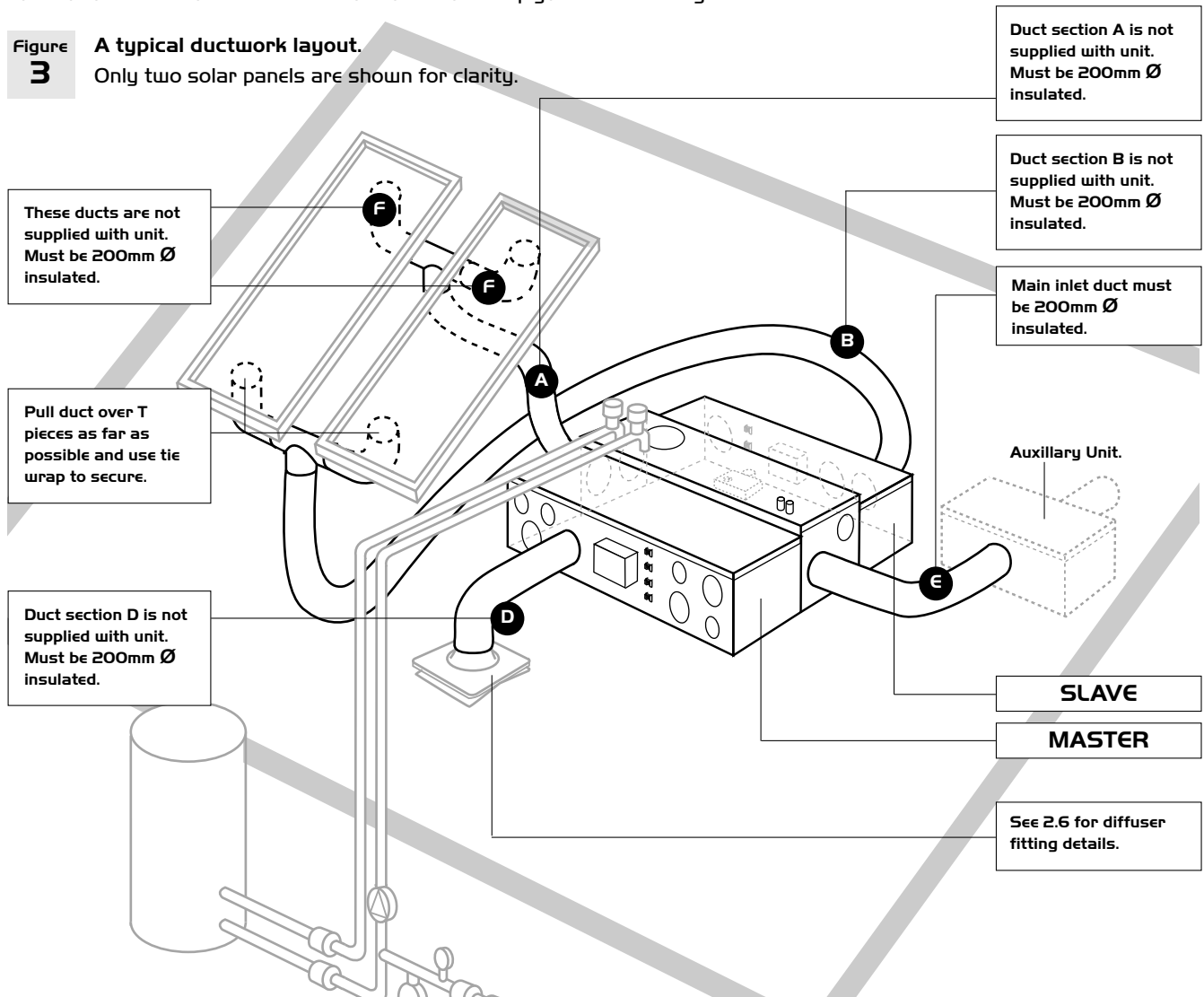
Install the spigots supplied with the solar collector onto the inlet and outlet holes using the self-tapping screws provided. It is advisable to seal the joint between the spigot and the collector using a proprietary sealant. Make sure the solar collector outlet sensor is fitted inside one of the outlet spigots

at the top of the collector.

Thermally insulated ductwork must be used. Ensure the ducting is securely fixed using "Dynotie" zip ties and the cut edges are sealed with 40 micron aluminium adhesive tape.

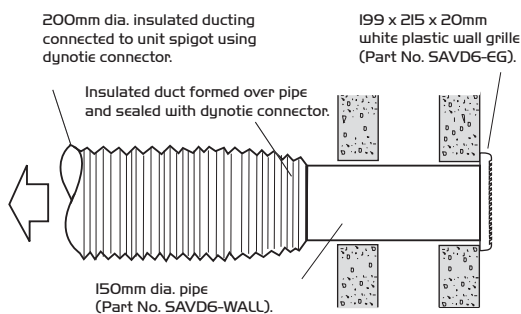
Make sure all the sensors are fitted before connecting securely.

Figure 3 A typical ductwork layout. Only two solar panels are shown for clarity.



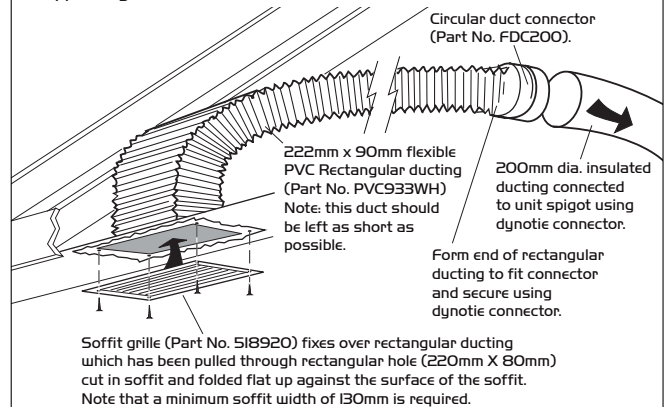
Via a wall grille and ducting

supplied by the installer



Via the soffit through a grille and ducting

supplied by the installer



2.0 Installation of the Sunwarm I40 Air Handling Unit and Associated Components

2.6 Supply Air Diffuser

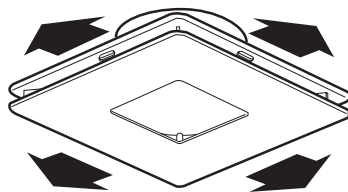
The diffuser has a unique air throw pattern and it must be located correctly in the central hallway in single storey properties or in the ceiling of the top floor landing on 2 or more storey dwellings.

As can be seen (Figure 4) the diffuser discharges air from all four sides along the underside of the ceiling.

Note: Obstructions The diffuser must not be allowed to discharge air if there is an obstruction such as a wall within 1 metre of the diffuser sides, otherwise unacceptable draughts may be experienced.

If the diffuser cannot be repositioned, up to two sides of the diffuser may be closed off using the two foam strips supplied. (see figure 5).

Figure 4



Airflow from four sides

Note: Smoke Detectors

It is important that any open side of the diffuser is not positioned within 1.5m of a smoke detector.

If the diffuser cannot be repositioned, two sides of the diffuser must be closed off using the foam strips supplied so that the open sides face a minimum 1.5m unobstructed path away from the detector.

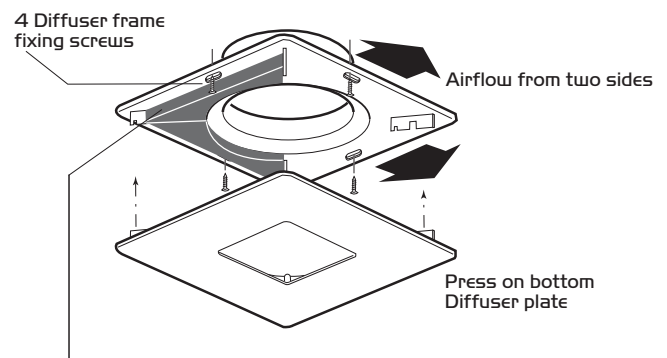
As an alternative to the aforementioned, a smoke detector may be fitted directly onto the underside of the diffuser.

2.7 Fitting the Diffuser Plastic Type

Cut a circular hole 225mm diameter in the ceiling between two convenient joists. Position the diffuser frame and secure it to the underside of the ceiling with the 1 1/2" x 8 csk. hd. screws and plugs provided.

Attach the diffuser plate to the frame using the four built in press on clips provided. Foam strips should also be used as required when this method of installing the diffuser is used.

Figure 5



2 Foam strips (supplied) fit on any of the diffuser sides to guide airflow away from a smoke detector and/or obstructions as required.

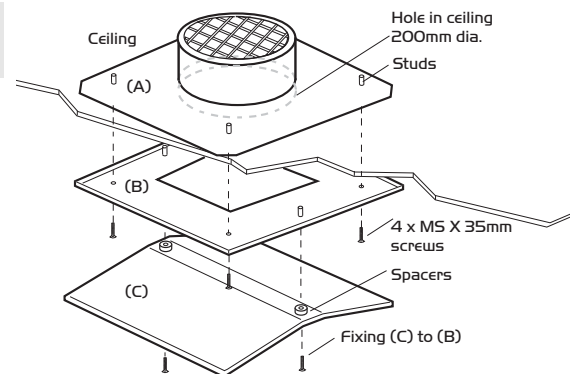
Painted aluminium type c/w intumescent fireblock

Cut a 200mm hole in ceiling and align the top portion of unit (A) above the ceiling over the hole.

Position the central ceiling plate (B) on the ceiling in the room ensuring the the central hole is aligned with the hole in the ceiling. Use the 4 MS X 35mm screws to fix (B) to (A) through the 4 studs positioned on the upper side of (B).

Screw bottom part of the unit (C) to the the ceiling plate (B) through the plastic spacers and into the 2 studs positioned on the upper side of (A).

Figure 6



Note: Due to the higher air resistance of the fireblock, the speed of the unit should be increased by one increment for the particular property (see 4.3 speed setting).

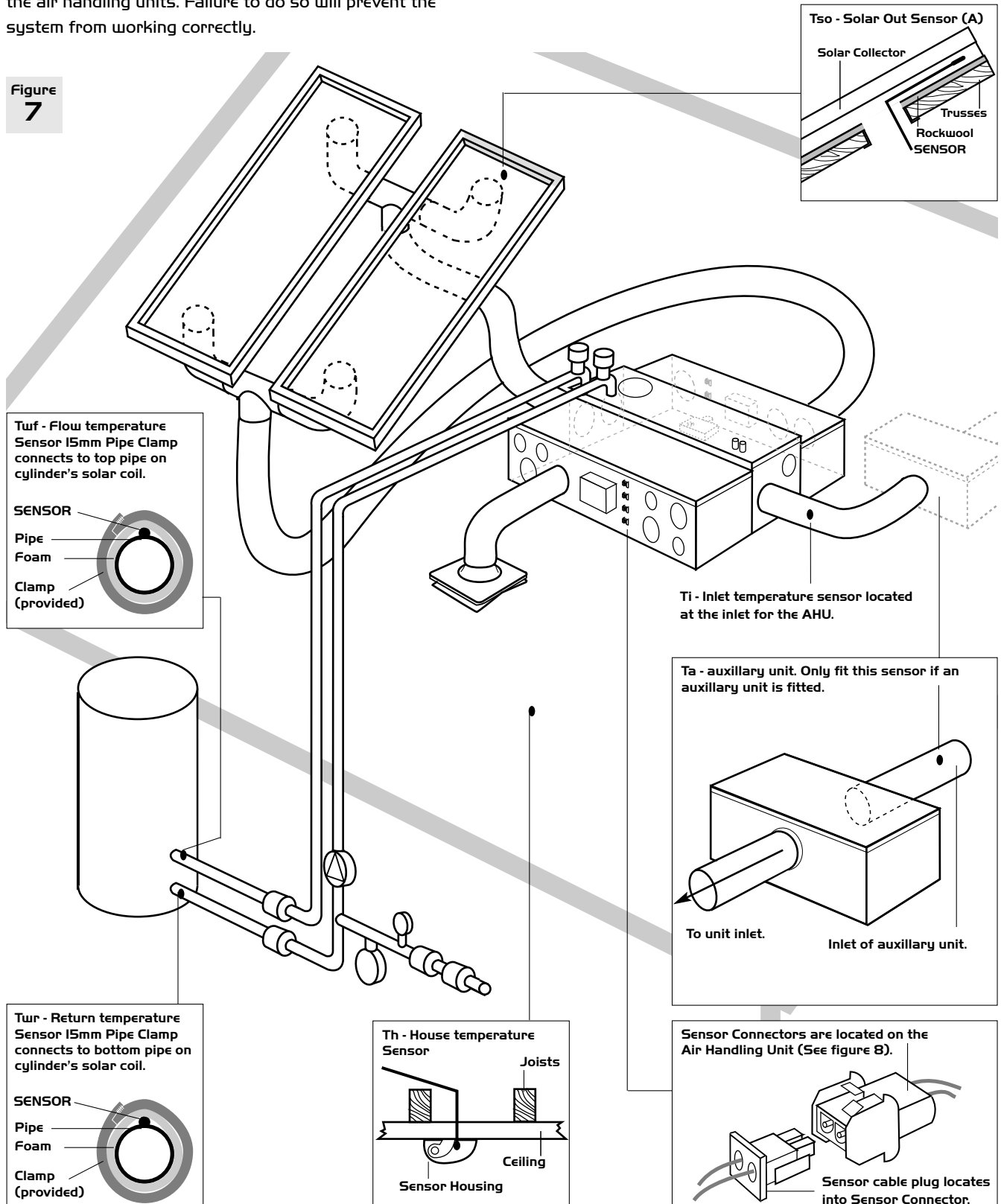


2.0 Installation of the Sunwarm I40 Air Handling Unit and Associated Components

2.8 Temperature Sensor Locations

Correct location of the sensors is essential for the correct operation of the system. Follow the instructions in figure 7 exactly. These connections are low voltage. All sensors must be connected to their respective marked terminal on the air handling units. Failure to do so will prevent the system from working correctly.

Figure 7

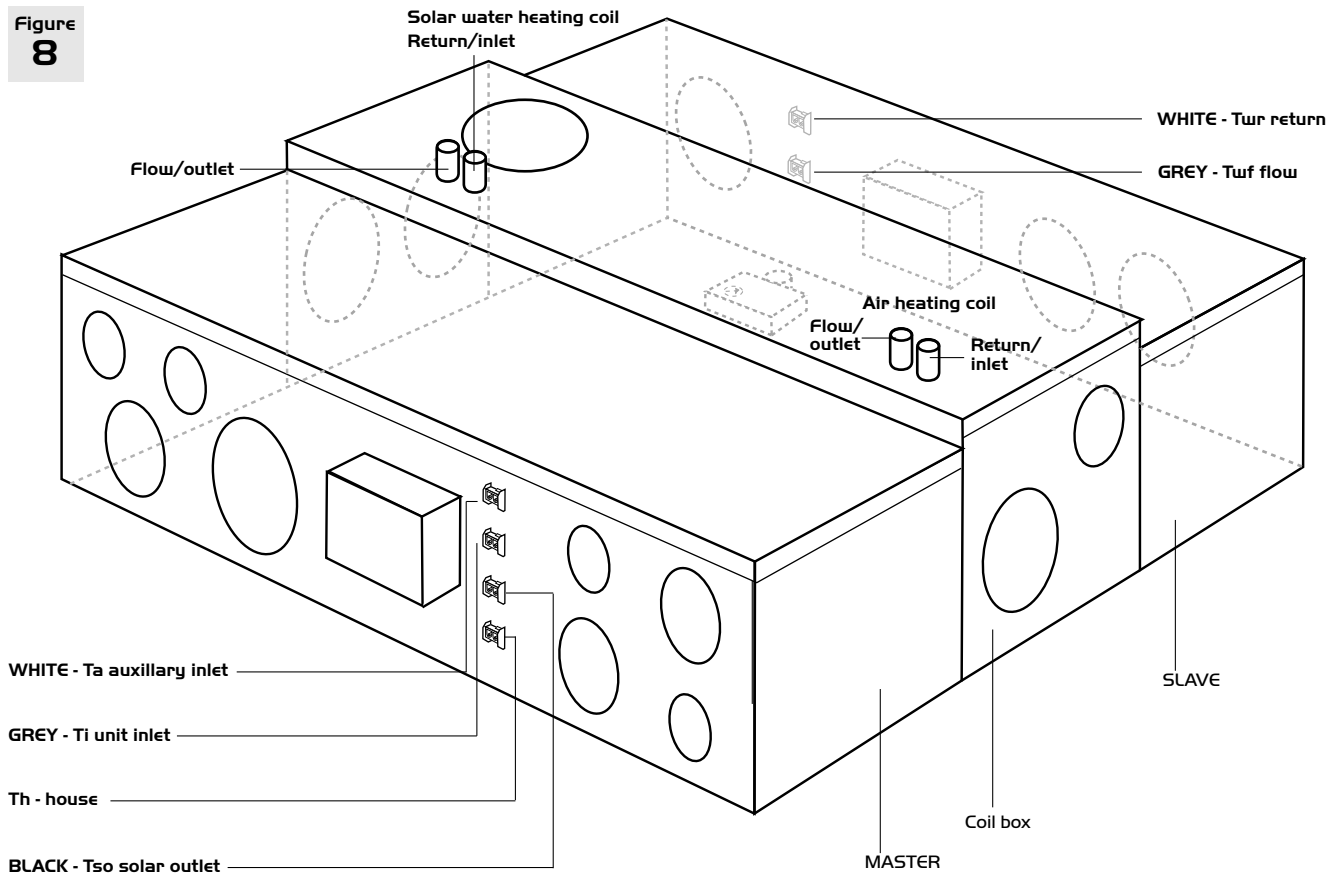


2.0 Installation of the Sunwarm I40 Air Handling Unit and Associated Components

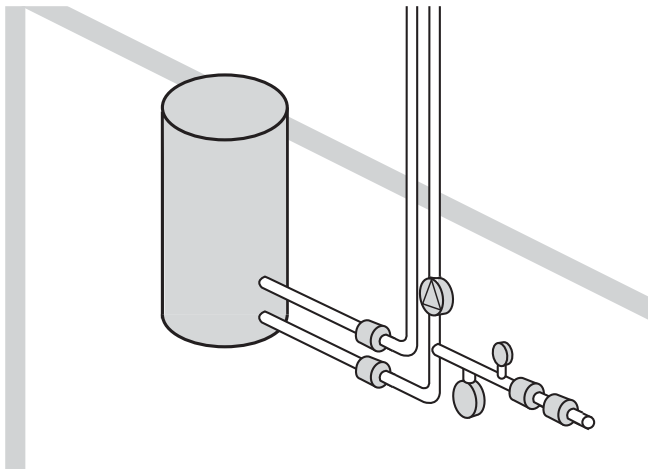
2.9 Temperature Sensor Connections to Air Handling System

Each sensor has its own unique location on the AHU. These are clearly labelled and it is essential these are followed precisely in order for the system to function correctly. See figure 8.

Figure 8



3.0 Installation of the Solar Hot Water Storage System and Associated Components



Solar water heating circuit

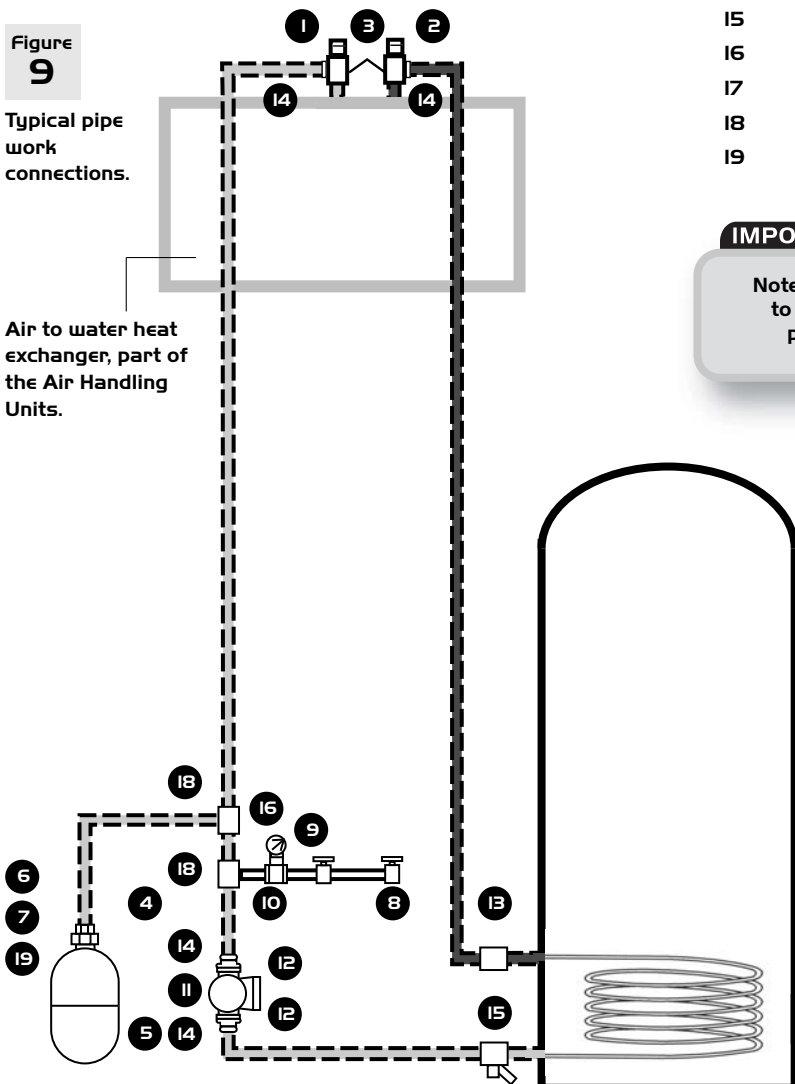
Sunwarm can be integrated with a wide range of solar hot water storage systems. These devices can be purchased through Nuair or be supplied by others.

For best energy gain we would recommend a well insulated hot water cylinder with a high efficiency solar coil at the lowest part of the cylinder.

Figure 9

Typical pipe work connections.

Air to water heat exchanger, part of the Air Handling Units.



For Solar Hot Water Connections refer to figure 9 and the key to components below. Please note all the items listed below form the Solar Loop Kit supplied as an option.

Number	Description
1	3 bar pressure relief valve
2	Air eliminator with Shut off valve
3	2 x 22 x 1/2 inch x 22 compression tee fittings
4	3/4 BSP X 15mm addaptor
5	Expansion vessel 8 litres
6	Expansion vessel bracket
7	2 x No. 12 rawl plugs
8	Combi filling loop
9	3.5 bar pressure gauge
10	15 x 15 x 1/2 inch comp. tee
11	Grundfos 25 - 15 circulator pump
12	2 x 22mm pump isolating valves
13	15mm non return valve
14	4 x 22 x 15 reducer sets
15	Drain cock
16	1/2 inch x 1/4 inch BSP reducing bush
17	PTFE tape (Use only on threaded parts)
18	2 x 15 x 15 x 15 T piece
19	2 No. 10 Posi screws

IMPORTANT

Note: the optional air heating coil must be connected to an auxiliary source and controlled separately, please refer to system designers instructions for connecting this coil.

(Flow) Hot water pipes

(Return) Cold water pipes

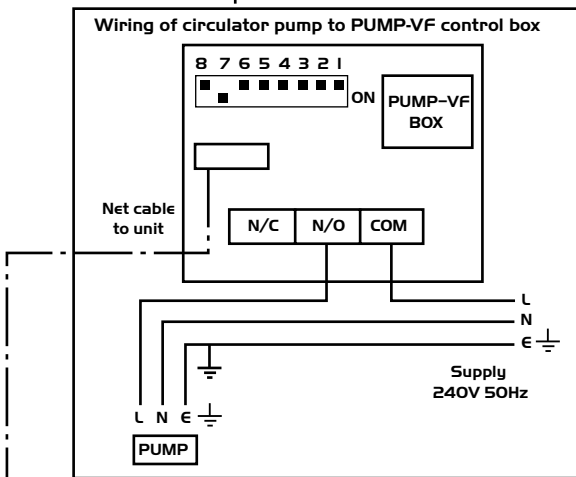
4.0 Electrical Connections

4.1 Wiring

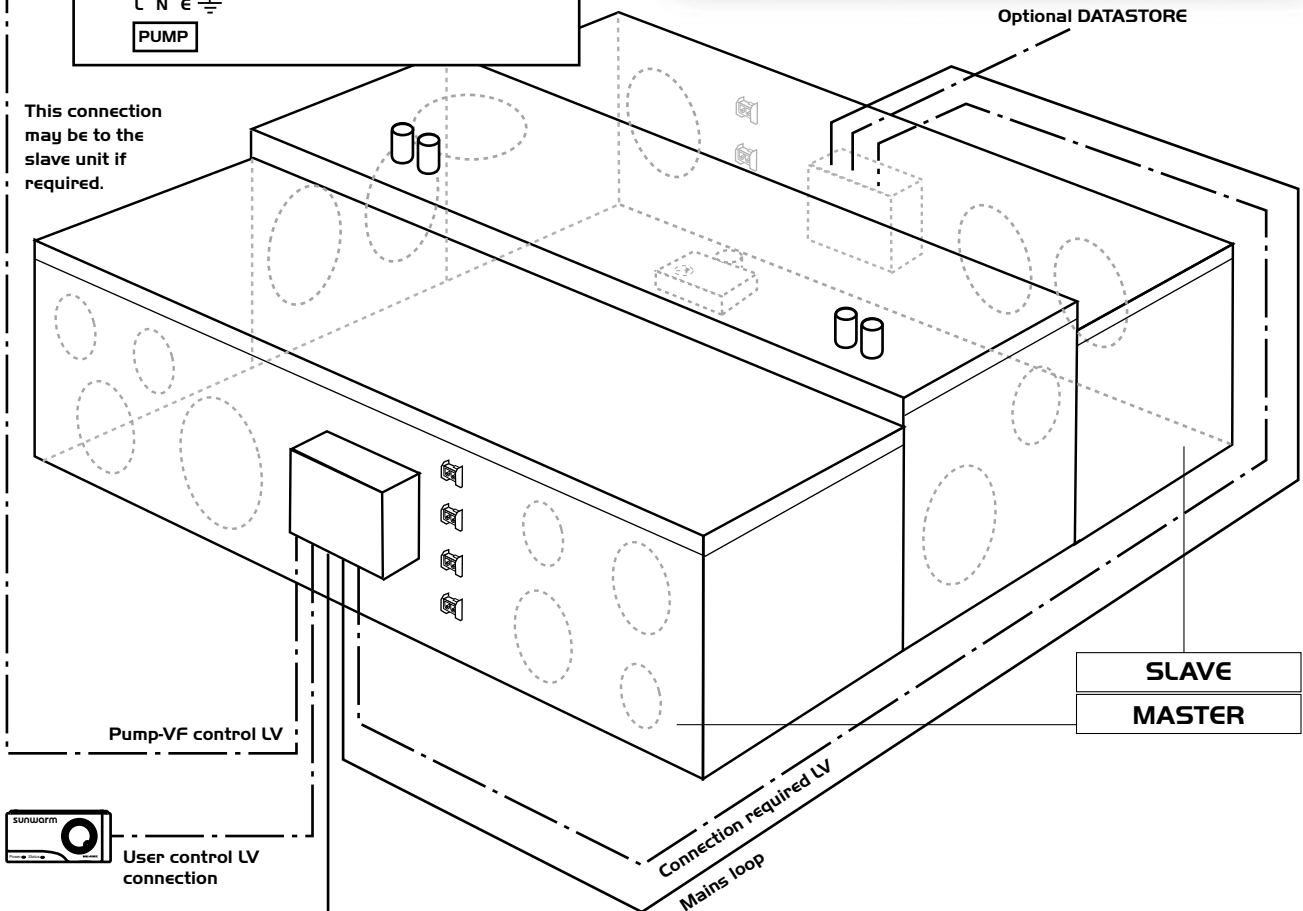
Please note: the electrical connection of the unit must be carried out by a qualified electrician.

Figure 10

Pump Consumptions:
3A fuse
60W (max)



This connection may be to the slave unit if required.



LNE Mains supply
240V 50Hz 1 Ph
via suitable isolator
or fused spur

AHU Electrical details:-

Voltage: 230V 1phase 50Hz

Consumption: 130W (max)

Fuse rating: 3 Amp

NOTE This unit must be earthed.

The three core cable from the mains power supply should be connected to a fixed wiring installation, via a fused isolator, in accordance with current IEE wiring regulations.

LV = Low Voltage Net cable supplied.

IMPORTANT

Turn power supply off before making any connections. Failure to do so will damage the unit and render the warranty void.

IMPORTANT

For good EMC engineering practice, any sensor cables or switched live cables should not be placed within 50mm of other cables or on the same metal cable tray as other cables.

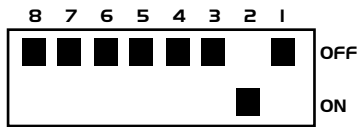


4.0 Electrical Connections

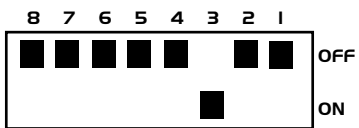
4.1 Wiring cont.

Other conditions could be identified by changing the DIL switch settings of the PUMP-VF unit. Note the PUMP-VF must have software version 1.5 or above to indicate the following:

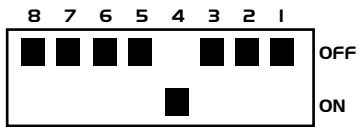
Figure II



The relay will operate when the Sunwarm I40 is running at the maximum boost speed.

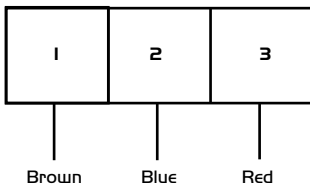


The relay will operate when the target temperature setting of the user control is higher than the house temperature and the target is higher than 19°C.



The relay will operate when the target temperature setting of the user control is less than the house temperature and the target is also less than 19°C.

Wiring to the actuator motor



Loom from the master fan

4.0 Electrical Connections

4.2 User Control

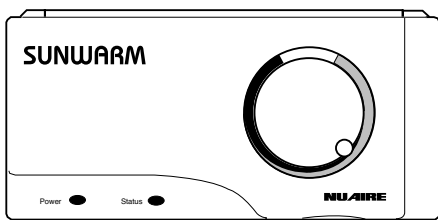
The user control should be fitted to an appropriate wall (fixings supplied). Position the control so that the user can gain easy access. Instructions for fixing are supplied with the control.

Screw the backplate to the wall. Connect the cable (supplied) and clip the control into place. Route the cable to the left and connect to the control module.

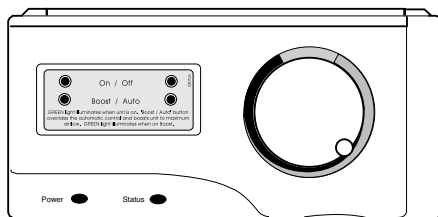
Secure the cable to prevent accidental dislocation.

Figure 12

User control cover closed



User control cover open



User Control Test

Ensure the power light is on green and the status light is either green or amber.

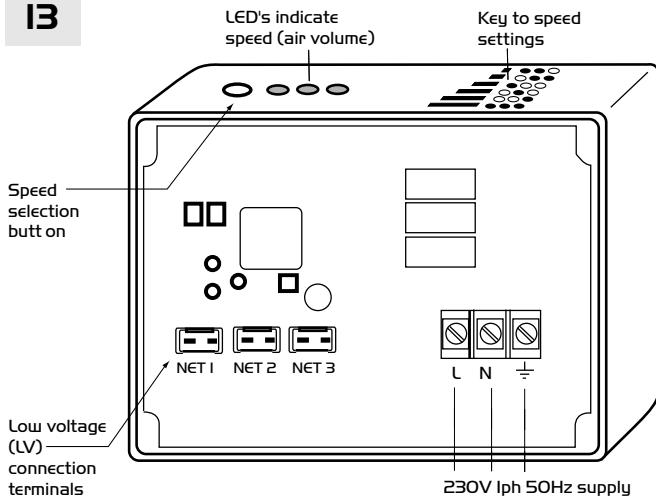
If the power light is not on check the wiring and connections between the fan unit and the user control.

Sunwarm User Control

The user control as shown in figure 12 above, has a target temperature setting dial and two press buttons (under the cover) which enable the fan to be switched off or the airflow to be boosted to its maximum duty.

Figure 13

Master Control Box (cover removed).



4.3 Airflow Adjustment on Master Unit

The unit has six air volume (speed) settings. The setting switch is located on the main control box on the fan case.

Figure 13 shows the LED's that, when illuminated, indicate the corresponding air volume for the unit.

Default setting on middle LED



4.4 Trouble Shooting

If there are any red lights flashing on either the Master Unit or the Slave Unit consult the following table to determine the cause.

On Master Unit :

House sensor not connected	○	●	●
Collector outlet sensor not connected	●	○	○
Inlet sensor not connected	●	○	●
Fan failure	●	●	●

On Slave Unit:

Water return sensor not connected	○	●	○
Return flow sensor not connected	●	○	●
Fan failure	●	●	●

Note: the status LED of the user control will stay on red if there is a fault with the unit.

4.5 Speed indication

Press the speed selection button located on the top of the Ventilation Fan Unit to achieve the required speed setting.

Also see figure 13.

	Button	Led	Led	Led
Speed 1	○	●	●	○
Speed 2	○	○	●	●
Speed 3	○	●	○	○
Speed 4	○	○	●	○
Speed 5	○	○	○	●
Speed 6	○	●	●	●

5.0 Miscellaneous

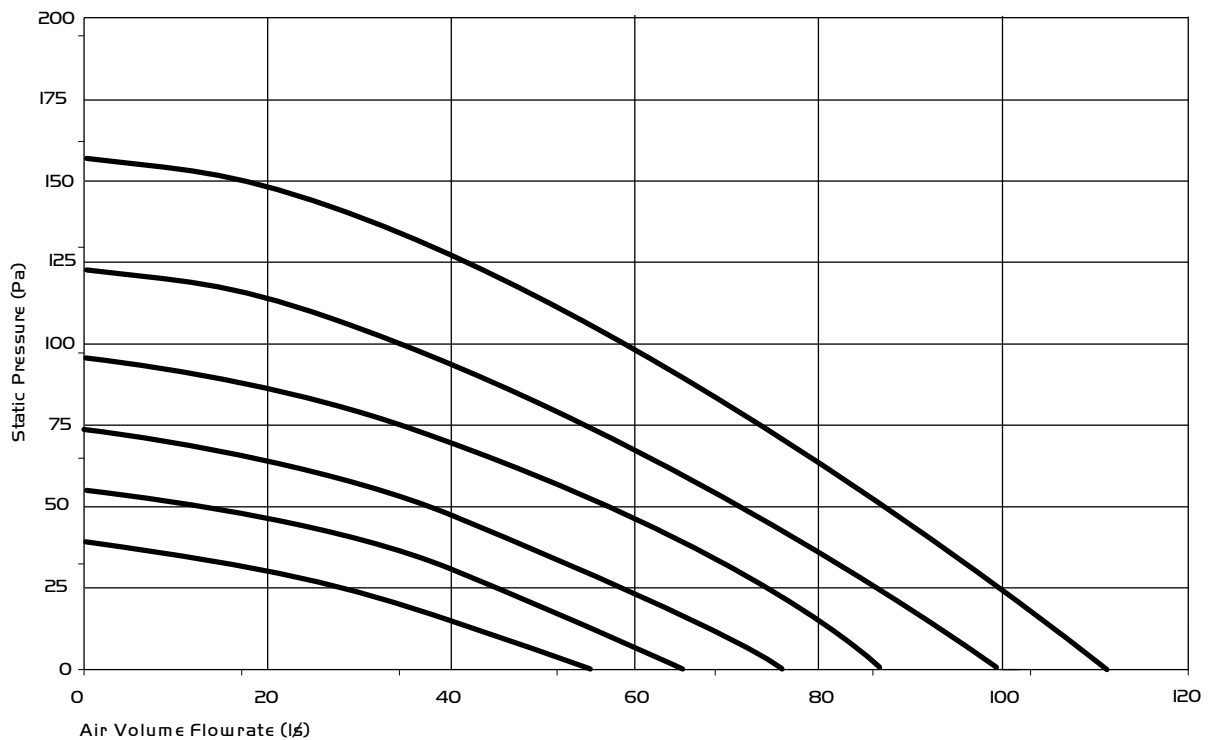
5.1 Airflow Adjustment

The unit has six speed settings and these settings are selectable using the push-button on the side of the control on the ventilation fan. The chart below shows the performance of the unit at different speeds.

However; it should be noted that the pressure losses through flexible ducting and other obstructions (e.g. grilles) are difficult to predict. Therefore a proper commissioning procedure should be followed to ensure the correct air delivery into the rooms.

Figure 14

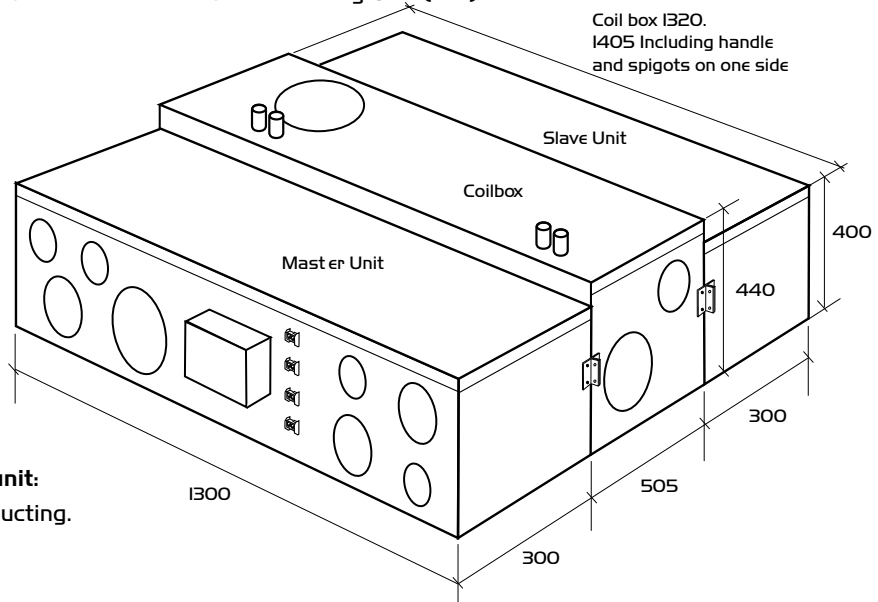
AIR PERFORMANCE (Supply Fan)



5.2 Dimensions and Weight

Figure 15

Dimensions for the sunwarm I40 Air Handling Unit (mm).



Total weight of the unit:
73kg excluding any ducting.



6.0 Maintenance

IMPORTANT

Isolate the mains supply before carrying out any maintenance procedure.

6.1 Maintenance Notes

The air handling unit only requires general cleaning to ensure it function at its optimum. Remove any dust and dirt on the internal parts using a soft brush and a low power vacuum cleaner.

Apart from the filter, there is no user serviceable part.

6.2 Filter Change

After a period of 5 years, the status light on the user control will flash red to indicate the filters require changing. However, local conditions may dictate a shorter period between filter changes.

To change the filters, isolate the power supply and remove the screws securing the top cover of the fan units.

Slide the filter out of the box and replace with new filters (part number 630027). Re-assemble the cover and the screws.

Make sure that the filters are installed in the correct orientation. Filters have an arrow on the side indicating the direction of the air flow. These arrows should be pointing towards the coil box in the middle of the AHU's.

To reset the filter timer:

Switch on the mains power to the unit and ensure it is operating. Press and hold button on the ventilation fan unit for 10sec to reset the timer. **The control will confirm this by flashing all 3 LED 5 times.**

7.0 Warranty

The 5 year warranty starts from the day of delivery and includes parts and labour for the first year. The remaining 4 years covers parts only. This warranty is conditional on planned maintenance being undertaken.

8.0 Disclosure

A value for solar energy gained may be given by Nuair; this is a theoretical figure based on historical weather data and test results. However, the actual amount of solar energy collected is affected by a number of factors. These include the local micro-climate, the unit's interaction with other equipment (e.g. boiler) in the building, and the operational setting chosen by the occupants. Therefore any energy figures given are indicative of potential energy gain available and do not form part of our contract of sales.

9.0 Service Enquiries

Service issues can be handled by your installer or Nuair. Our service department will be happy to provide any assistance required, initially by telephone and if necessary arrange for an engineer to call.

Telephone 02920 858 255



10.0 Commissioning the System, checklist

Ref code	Item Documentation	Yes	No	N/A	Notes
Doc 1)	Documentation left with building occupier 1) User manual 2) Installation & maintenance				
Doc 2)	Solar system commissioning certificate completed and signed				
Doc 3)	Cylinder/store commissioning certificate completed and signed (if store replaced)				
Doc 4)	DHW drain location and DHW isolation points pointed out				
Doc 5)	System schematic drawing (mechanical and electric) Pointed out				
Doc 6)	Specialist maintenance tasks, schedule and parts list Filter Pressure				
Doc 7)	Manual DHW drain-off method to prevent over-heating is prescribed and safe (if required)				
Doc 8)	User actions to prevent freeze damage to be stated				
Doc 9)	De-commissioning method including any hazardous substances to be stated				
Doc 10)	All end-user and manufacturer's instructions for all installed solar water heating equipment shown and explained to end-user. Document storage location to be explained				
Doc 11)	Where required by PED (pressure has potential to exceed 0.5 bar and temperature over 110°C), evidence left on site of compliance with essential safety requirements with CE mark				
Doc 12)	Manufacturer's written installation requirements to be left on-site for any fitted electrical and mechanical equipment.				
Doc 13)	Hot water store listed as approved by Clear Skies Labelling and type of replacement store to building regulations				
Doc 14)	System Registration documented on page 20				



10.0 Commissioning the System, checklist

Ref code	Item	Yes	No	N/A	Notes
Electrical					
Elec 1)	Check all electrical connections per figure 10				
Elec 2)	240V isolation switch and fuse protection fitted				
Elec 3)	Class I equipment such as pumps etc is earthed				
Elec 4)	All wiring supported and routed reasonably and of correct length				
Elec 5)	Cable to pump is heat resisting flex				
Elec 6)	All cabling correct current rating, type and suitable for purpose				
Elec 7)	Cable sheaths taken into enclosures and glands				
Elec 8)	All connections are enclosed				
Elec 9)	Check all sensor connections per figure 8				
Elec 10)	Check solar flow sensor to be close to tank				
Elec 11)	Check solar return sensor to be close to tank				
Elec 12)	LV and 240V wires are min 5cm apart				
Roof					
Roof 1)	Collector appearance OK				
Roof 2)	No significant shading across collector				
Roof 3)	Collector orientation checked with that on application				
Roof 4)	Auto air vent not obstructed				
Roof 5)	Roof fixings robust and weather tight. Roof penetrations i.e. sarking felt made good				
Roof 6)	Collector mountings solid				
Operation					
Oper 1)	LED'S on user control are correct pattern				
Oper 2)	Electrical controls and sensors are operating				
Oper 3)	Reverse flow protection identifiable from schematic				
Oper 4)	If a hot water store does not have an open vent then a combination of thermostatic control device, energy cut-off device and heat dissipation method should be present. (i.e. unvented stores and sealed thermal stores)				
Oper 5)	If a hot water store has an open vent it must have at least a thermostatic control or a temperature relief valve				
Oper 6)	All safety devices to operate correctly				
Oper 7)	Check for excessive pump noise				
Oper 8)	Check ventilation units, correct set up (Master/Slave)				
Oper 9)	Sufficient expansion capability in cisterns and vessels				
Oper 10)	Check all ductwork, connections and type				
Oper 11)	Check for fan noise				
Oper 12)	Check diffuser location				



10.0 Commissioning the System, checklist

Ref code	Item General	Yes	No	N/A	Notes
Gen 1)	Prevention of water backflow into potable rising main by check valve. Filling loop is disconnected				
Gen 2)	Sufficient drain points - to enable all pipes to be drained				
Gen 3)	Materials are rated and WRAS listed at stagnation temperature and pressure				
Gen 4)	Open vent termination over correct cistern				
Gen 5)	No obstruction before safety valves or vents. Vents and discharge pipes to be correctly graded and exhaust locations are safe - no scald risk to people				
Gen 6)	Sound engineering practice to be used or evidence left on site of higher conformity according to PED. All pressure components to be labelled and identifiable				
Gen 7)	Pipe clips and insulation to be sufficient for stagnation temperatures				
Gen 8)	All indoor components in unheated areas to be sufficiently protected from freeze damage				
Gen 9)	Anti scald measures are in place e.g. controller can be set or auto blend valve is fitted				
Gen 10)	Pressure relief measures will operate before failure risk of most vulnerable component				
Gen 11)	If replaced, DHW back-up heat source to have time switch				
Gen 12)	If replaced, DHW back-up heat source to have correctly located thermostat and interlock				
Gen 13)	On replacement cylinders, all connected pipes to be insulated where practicable				
Gen 14)	Hot water store sufficient and dedicated pre-heat volume for user requirements				
Gen 15)	Hot water store sensor pockets or digital readout				
Gen 16)	Check auxiliary heat source is capable of heating store to at least 55°C to prevent legionella				
Gen 17)	All unions, and glands are free from leaks; no leaking evident elsewhere e.g from pipework joints etc.				
Gen 18)	All pipework is adequately clipped, insulated and components are adequately supported				
Gen 19)	Pipe insulation to be firmly in place and secured at junctions and corners				
Gen 20)	Penetrations in building made good. Debris removed				
Gen 21)	Check solar loop pressure is 1 to 1.5 bar				
Gen 22)	Increase solar loop pressure to test relief valve				
Gen 23)	Check plumbing components per figure 9				



Notes: to turn the pump on manually, on the ES-VF (Pump) box turn switch 8 on. Make sure you return it to off when testing is finished.

DECLARATION OF INCORPORATION AND INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE

We declare that the machinery named below is intended to be assembled with other components to constitute a system of machinery. The machinery shall not be put into service until the system has been declared to be in conformity with the provisions of the EC Machinery Directive.

Designation of machinery: SUNWARM I40
Machinery Types: SUNWARM I40
Relevant EC Council Directives: 98/37/EC as amended by 98/79/EC (Machinery Directive)
Applied Harmonised Standards: BS EN ISO 12100-1, BS EN ISO 12100-2, EN294, EN60204-1, BS EN ISO 9001
Applied National Standards: BS848 Parts One, Two and Five

Signature of manufacture representatives:



Name:	Position:	Date:
1) C. Biggs 	Technical Director	20. 07. 07
2) W. Glover 	Manufacturing Director	20. 07. 07

CE DECLARATION OF CONFORMITY

We declare that the machine named below conforms to the requirements of EC Council Directives relating to Electromagnetic Compatibility and Safety of Electrical Equipment.

Designation of machinery: SUNWARM I40
Machinery Types: SUNWARM I40
Relevant EC Council Directives: 2004/108/EC (EMC) 2006/95/EC (Low Voltage Directive)
Applied Harmonised Standards: EN55014-1, EN55014-2, EN60335-2-80
Basis of Self Attestation: Quality Assurance to BS EN ISO 9001 BSI Registered Firm Certificate No. FM 149

Signature of manufacture representatives:

Name:	Position:	Date:
1) C. Biggs 	Technical Director	20. 07. 07
2) W. Glover 	Manufacturing Director	20. 07. 07

INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE OF NUAIRE VENTILATION EQUIPMENT

To comply with EC Council Directives 98/37/EC Machinery Directive and 2004/108/EC (EMC).

To be read in conjunction with the relevant Product Documentation (see 2.1)

1.0 GENERAL

- 1.1 The equipment referred to in this Declaration of Incorporation is supplied by Nuairé to be assembled into a ventilation system which may or may not include additional components.
 The entire system must be considered for safety purposes and it is the responsibility of the installer to ensure that all of the equipment is installed in compliance with the manufacturers recommendations and with due regard to current legislation and codes of practice.

2.0 INFORMATION SUPPLIED WITH THE EQUIPMENT

- 2.1 Each item of equipment is supplied with a set of documentation which provides the information required for the safe installation and maintenance of the equipment. This may be in the form of a Data sheet and/or Installation and Maintenance instruction.
 2.2 Each unit has a rating plate attached to its outer casing. The rating plate provides essential data relating to the equipment such as serial number, unit code and electrical data. Any further data that may be required will be found in the documentation. If any item is unclear or more information is required, contact Nuairé.
 2.3 Where warning labels or notices are attached to the unit the instructions given must be adhered to.

3.0 TRANSPORTATION, HANDLING AND STORAGE

- 3.1 Care must be taken at all times to prevent damage to the equipment. Note that shock to the unit may result in the balance of the impeller being affected.
 3.2 When handling the equipment, care should be taken with corners and edges and that the weight distribution within the unit is considered. Lifting gear such as slings or ropes must be arranged so as not to bear on the casing.
 3.3 Equipment stored on site prior to installation should be protected from the weather and steps taken to prevent ingress of contaminants.

4.0 OPERATIONAL LIMITS

- 4.1 It is important that the specified operational limits for the equipment are adhered to e.g. operational air temperature, air borne contaminants and unit orientation.
 4.2 Where installation accessories are supplied with the specified equipment eg. wall mounting brackets. They are to be used to support the equipment only. Other system components must have separate provision for support.
 4.3 Flanges and connection spigots are provided for the purpose of joining to ductwork systems. They must not be used to support the ductwork.
 4.4 In the event of RF interference the fan may change speed. This is normal and will have no adverse effect on the fan. The speed will return to normal once the interference has subsided.

5.0 INSTALLATION REQUIREMENTS

In addition to the particular requirements given for the individual product, the following general requirements should be noted.

- 5.1 Where access to any part of equipment which moves, or can become electrically live are not prevented by the equipment panels or by fixed installation detail (eg ducting), then guarding to the appropriate standard must be fitted.
 5.2 The electrical installation of the equipment must comply with the requirements of the relevant local electrical safety regulations.
 5.3 For EMC all control and sensor cables should not be placed within 50mm or on the same metal cable tray as 230V switched live, lighting or power cables and any cables not intended for use with this product.

6.0 COMMISSIONING REQUIREMENTS

- 6.1 General pre-commissioning checks relevant to safe operation consist of the following:
 Ensure that no foreign bodies are present within the fan or casing.
 Check electrical safety. e.g. Insulation and earthing.
 Check guarding of system.
 Check operation of Isolators/Controls.
 Check fastenings for security.
 6.2 Other commissioning requirements are given in the relevant product documentation.

7.0 OPERATIONAL REQUIREMENTS

- 7.1 Equipment access panels must be in place at all times during operation of the unit, and must be secured with the original fastenings.
 7.2 If failure of the equipment occurs or is suspected then it should be taken out of service until a competent person can effect repair or examination. (Note that certain ranges of equipment are designed to detect and compensate for fan failure).

8.0 MAINTENANCE REQUIREMENTS

- 8.1 Specific maintenance requirements are given in the relevant product documentation.
 8.2 It is important that the correct tools are used for the various tasks required.
 8.3 If the access panels are to be removed for any reason the electrical supply to the unit must be isolated.
 8.4 A minimum period of two minutes should be allowed after electrical disconnection before access panels are removed. This will allow the impeller to come to rest.
NB: Care should still be taken however since airflow generated at some other point in the system can cause the impeller to "windmill" even when power is not present.
 8.5 Care should be taken when removing and storing access panels in windy conditions.



**SOLAR SYSTEM
COMMISSIONING CERTIFICATE**

Sunwarm International, a division of Nuaire
Ltd, confirms that the installation of this
Sunwarm System –

serial no. _____ meets all
necessary manufacturer requirements and
applicable laws.

Signature of Authorised Commissioning Officer,

_____ Date _____





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