



AA300AVH/AA500AVH

Owner installation manual (SD611250 issue 7)





HEALTH AND SAFETY WARNING



As the dehumidifier embodies electrical and rotational equipment, ONLY competent persons should carry out any work on this type of machine.

(SEE GUARANTEE)

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HEALTH AND SAFETY WARNING



This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

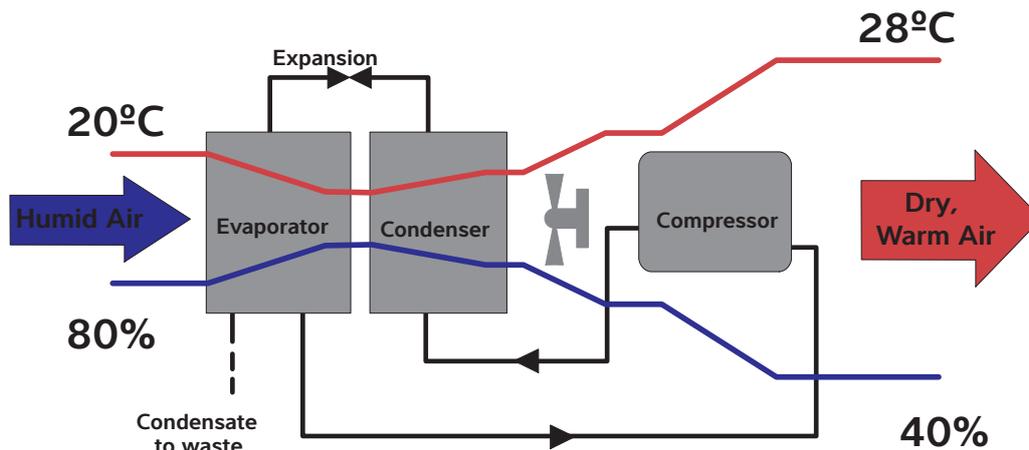
Disconnect from the mains supply and wait three minutes before removing panels and commencing work on this machine.

1.0 HOW THE CALOREX 'AA300/AA500' WORKS

The Calorex 'AA300 and AA500' are packaged refrigerant type dehumidifiers that are specifically designed to provide humidity control and room heating (optional) for a swimming pool hall.

The Calorex units are designed to be connected into an air distribution system that will provide a uniform flow of air through out the hall. An optional fresh air entry point is available.

How a Calorex Dehumidifier Works



Principles of operation – air to air dehumidifier

The process of dehumidification involves moisture laden air being drawn through a refrigerated coil (evaporator). At this point the air is rapidly cooled below its dew point, condensing the water vapour and recovering its latent heat energy for reuse. The cooled air is then passed across a condenser where it is reheated and returned to the room as warm, dry air.

The Calorex 'AA300/AA500' works by physically removing excess moisture from the pool hall air. This is achieved by recirculating air from the pool hall through the unit and removing moisture from the air by use of the machines internal refrigeration circuit.

As a by product of this process the Calorex 'AA300/AA500' will convert the energy it has absorbed into sensible heat. This heat is added back into the return air stream and consequently provides supplementary hall heating. For every 1kw of power consumed the Calorex 'AA300/AA500' will return approximately 2.5kw of heat. This process is controlled by a humidistat that measures the pool hall humidity and controls the machine to a set point that can be adjusted to suit the clients need.

As an option the Calorex 'AA300/AA500' can be supplied with a low pressure hot water (LPHW) air heater. The LPHW should be fed with hot water at 80°C# and will provide space heating for the pool hall. The LPHW is integrally fitted into the Calorex 'AA300/AA500' and is supplied with an adjustable thermostat, three way control valve and a switch relay to control a boiler or pump. The boiler and pump are not supplied with this option.

Note.

Consult Dantherm Ltd. for heat exchangers that are suitable for lower flow temperatures.

THE CALOREX AA300 AND AA500.

FEATURES

1.Remote control panel

The Calorex 'AA300/AA500' is supplied as standard with a remote control panel that can be mounted up to 20m away from the unit. (The cable supplied with the AA300/AA500 is 1.8m).The control panel features 12V circuits and interconnecting cable is easily connected to the unit by 'D' type fittings.

The control panel will indicate pool hall humidity through an adjustable set point digital humidistat, power on, fault, machine 'dehumidifying' and defrost status. An on/off switch is also provided.

When the unit is supplied with an optional LPHW the panel will also indicate pool hall air temperature through an adjustable set point thermostat. A time clock will allow 'set back air temperature' for unoccupied periods. An indicator light will show when the unit is heating.

The power to each model in the range is fed via din rail mounted terminal blocks located in the electric box of the unit.

CONTROL PANEL STANDARD UNIT

Humidity display and lamp



Mains On/Off switch

Mains lamp

Fault lamp

Defrost lamp

CONTROL PANEL WITH AIR LPHW FITTED

Humidity display and lamp

Air temperature display and lamp

Time Clock



Mains On/Off switch

Mains lamp

Fault lamp

Defrost lamp

CONTROL PANEL WITH AIR AND WATER LPHW FITTED

Humidity display
and lamp

Air temperature
display and lamp

Water temperature
display and lamp

Time Clock



Mains On/Off
switch

Economy
switch

Mains lamp

Fault lamp

Defrost lamp

2. Constant flow centrifugal fan.

When the AA300/AA500 is delivered the fan is set to run at two speeds: medium speed when the machine senses a demand for dehumidification (and air heating) and low speed for when there are no demands.

If little or no ducting is fitted and the air flow is too high, the top speed of the fan can be changed from high to medium. See instructions on page 10 and circuit diagram in section 2.5 for instructions on how to do this.

When fitting the remote sensor box it is possible to switch off the low speed fan MCB thus making the fan run only when there are demand for dehumidification and/or air heating. See page 25.

3. Optional flexible duct fittings.

4. Rotary compressor

5. A non CFC refrigeration circuit.

1.1 OPERATION

The AA300/AA500 is connected to the control panel and then to the isolated mains supply as described in section 2.3. The isolator is then energised. The MAINS light on the side of the heat pump will illuminate indicating mains ON. If the AA300/AA500 is fitted with an LPHW the time clock will start to run. The time clock has a battery reserve fitted which when charged will run for 100 hours so that isolating the machine for short periods will not affect the time clock settings.

The AA300/AA500 unit is switched on to normal operation by an ON (I)/OFF (O) switch on the console.

When switched on the red indicator light will illuminate and digital controller(s) will light up.

Providing that the controls are set to the correct parameters; nominally 60% RH, (28°C air temperature), the machine will operate automatically.

For AA300/AA500s with LPHW fitted, the 'unoccupied' temperature is set on the digital air controller and will be switched in/out by the time set on the time clock.

As the unit operates, the indicator lights will show the state of the control conditions, ie dehumidification, heat to air.

See section 3.0 for control panel symbols.

PARAMETER CONTROLLERS

Each parameter, Relative Humidity (and Air Temperature) is sensed within the machine and the signal is taken to the relevant digital controller.

The RH controller has two switching channels, OUT1 (the Set Point) which is set from the front panel, and OUT2 which is factory preset.

When fitted, the Air Temperature controller has three switching channels, one of which is for setting the OCCUPIED/ UNOCCUPIED air temperature. (See section 1.2)

When fitted, the Water temperature controller has two switching channels, OUT1 (the Set Point) which is set from the front panel, and OUT2 which is factory preset.

Each channel has a switching differential which is also factory pre-set. None of the factory settings should be tampered with.

When the re-settable channel is adjusted all other settings and differentials automatically follow at the correct relationship.

Nominal set point values & diffs

RH%	=	60%	diff	3%
Air temperature	=	28°C	diff	0.5 °C
Water temperature	=	26°C	diff	0.2 °C

Please note: on AA machines with LPHW, in occupied mode dehumidification stops once the air temperature is 2.5°C above set point.

1.2. HUMIDITY & AIR TEMPERATURE AND CONTROLS

HUMIDITY DIGITAL CONTROLLERS

To Program the Set Point. Press down P, SP1 and Set Point value will be displayed alternately.

Press the ▲ or ▼ key to change the value of SP1. Once the desired value is displayed press P to memorise the value. The display will revert to the present reading.

NOTE: If anything else shows on the display leave alone for 1 minute until the display returns to normal.



AIR TEMPERATURE DIGITAL CONTROLLER AND AA MACHINES WITH AIR HEATING

The digital controller for controlling air temperature can be changed as follows:

To program the set point, press P button once and release it. SP1 (set point) and set point value e.g. 28 will be displayed alternately. Press P again AL 1 (-4.5) will show. This is the difference between the set point and AL 1 plus a constant 0.5 e.g. $28 - 4.5 + 0.5 = 24^{\circ}\text{C}$ (unoccupied) SP1 and AL 1 can be changed in the same way as described for humidity.

NOTE: AL 1 can only be set -1 to -10 below SP1 value.



WATER TEMPERATURE CONTROLLER

To Program the Set Point. Press down P, SP 1 and Set Point value will be displayed alternately.

Press the ▲ or ▼ key to change the value of SP 1. Once the desired value is displayed press P to memorise the value. The display will revert to the present reading.



NOTE: If the readings on the digital controllers are not the same as the actual pool hall conditions, an offset into the digital controller can be set. However, before this is done an inspection of the installation should be made to ensure air conditions into the unit are the same as those in the pool hall. Air leakage into the units return air from other spaces should be sealed before adjustments are made. See technical manual.

1.3 TIME CLOCK SETTINGS

TIME CLOCK (Machines with LPHW only)

The time clock is a quartz 24 hour clock with 100 hours battery reserve used to control the automatic operation on the AA300/500 units per 24 hour time cycles.

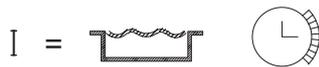
The time clock setting determines the OCCUPIED/UNOCCUPIED periods and is set to match the operators requirements regarding opening and closing times for the pool and possible times where the pool is covered.

The two settings are OCCUPIED or day time, and UNOCCUPIED or night time (covered).

The most obvious action of this change is to lower the pool hall air temperature to a determined level to conserve air heating energy. This lowering of temperature is allowable because of the quiescent, and ideally covered, condition of the pool.

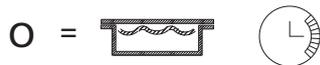
Pool water occupied

(no pool cover)



Pool water unoccupied

(pool covered)



SETTING FOR AUTOMATIC OCCUPIED/UNOCCUPIED OPERATION WITH REMOTE INTERFACE

To set for remote control of occupied/unoccupied, slide lever to 'O'. See section 2.3.2, Note 1 for more information on remote interface.

SETTING FOR MANUAL OCCUPIED/UNOCCUPIED OPERATION

To set for manual occupied period (or override automatic unoccupied period) slide the lever to 'I' for 'occupied'.

SETTING ACTUAL TIME

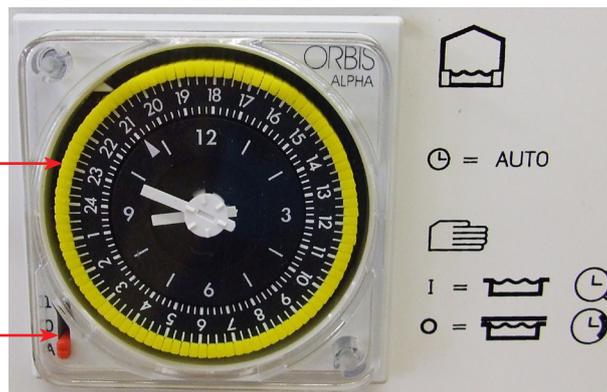
Turn the large clock hand clockwise until the correct time of day is set, ensuring that the correct half of the day is chosen (24 hour clock).

SETTING FOR AUTOMATIC OCCUPIED/UNOCCUPIED OPERATION WITH TIME CLOCK

SEGMENTS



AUTOMATIC AND MANUAL SETTING LEVER

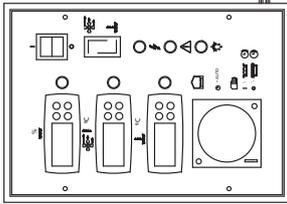


To set for automatic time clock control of occupied/unoccupied, slide the lever to 'A'. Each yellow segment represents a 15 minute time period. Extend outward the segments for a period of time when the pool is occupied (i.e. used or uncovered) per day.

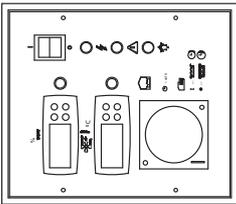
2.0 INSTALLATION

UNPACKING

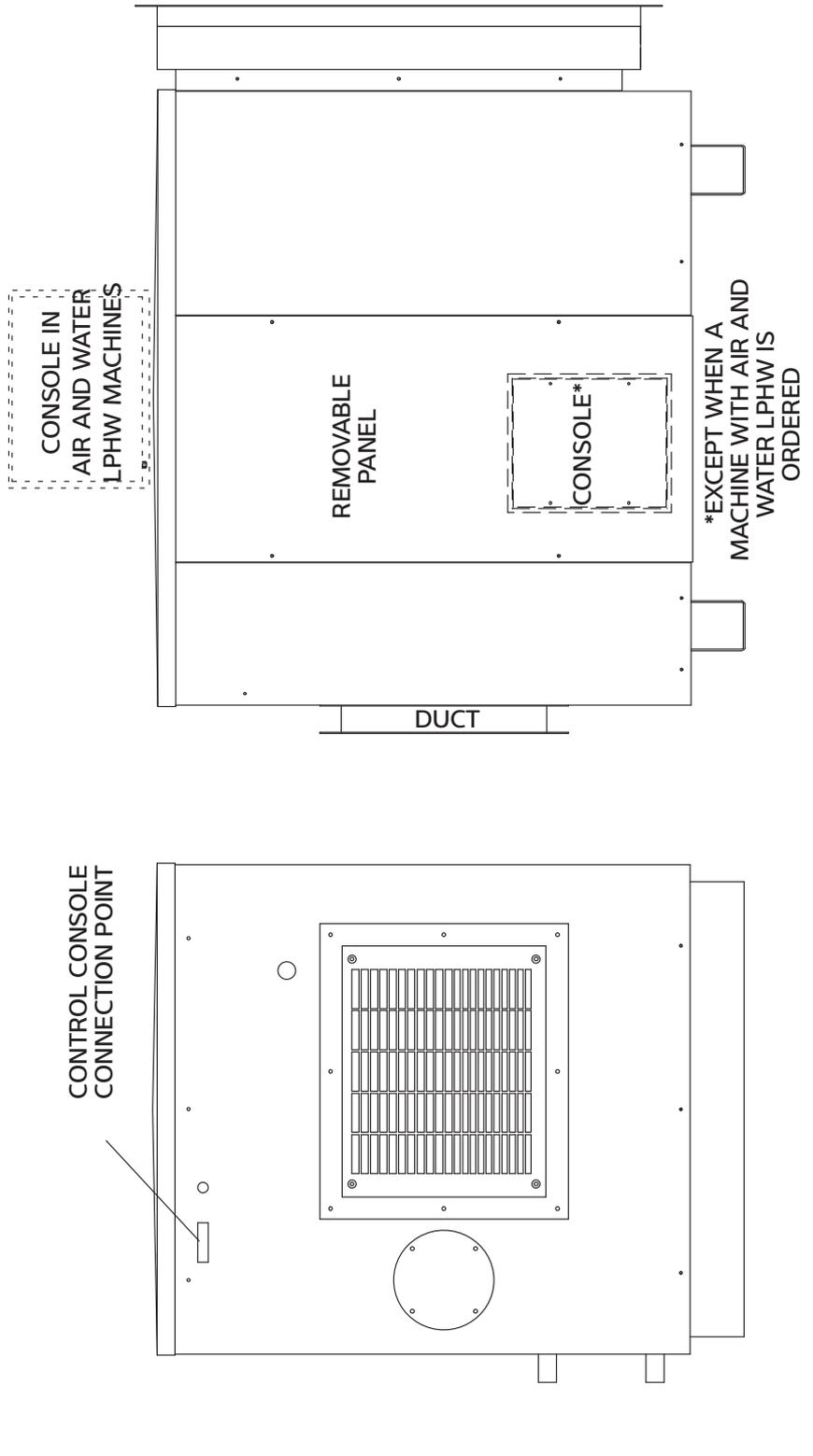
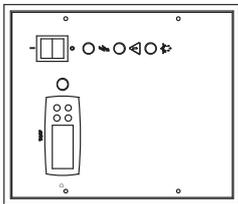
CONTROL CONSOLE
WITH AIR AND WATER
LPHW FITTED



CONTROL CONSOLE
WITH AIR LPHW
FITTED



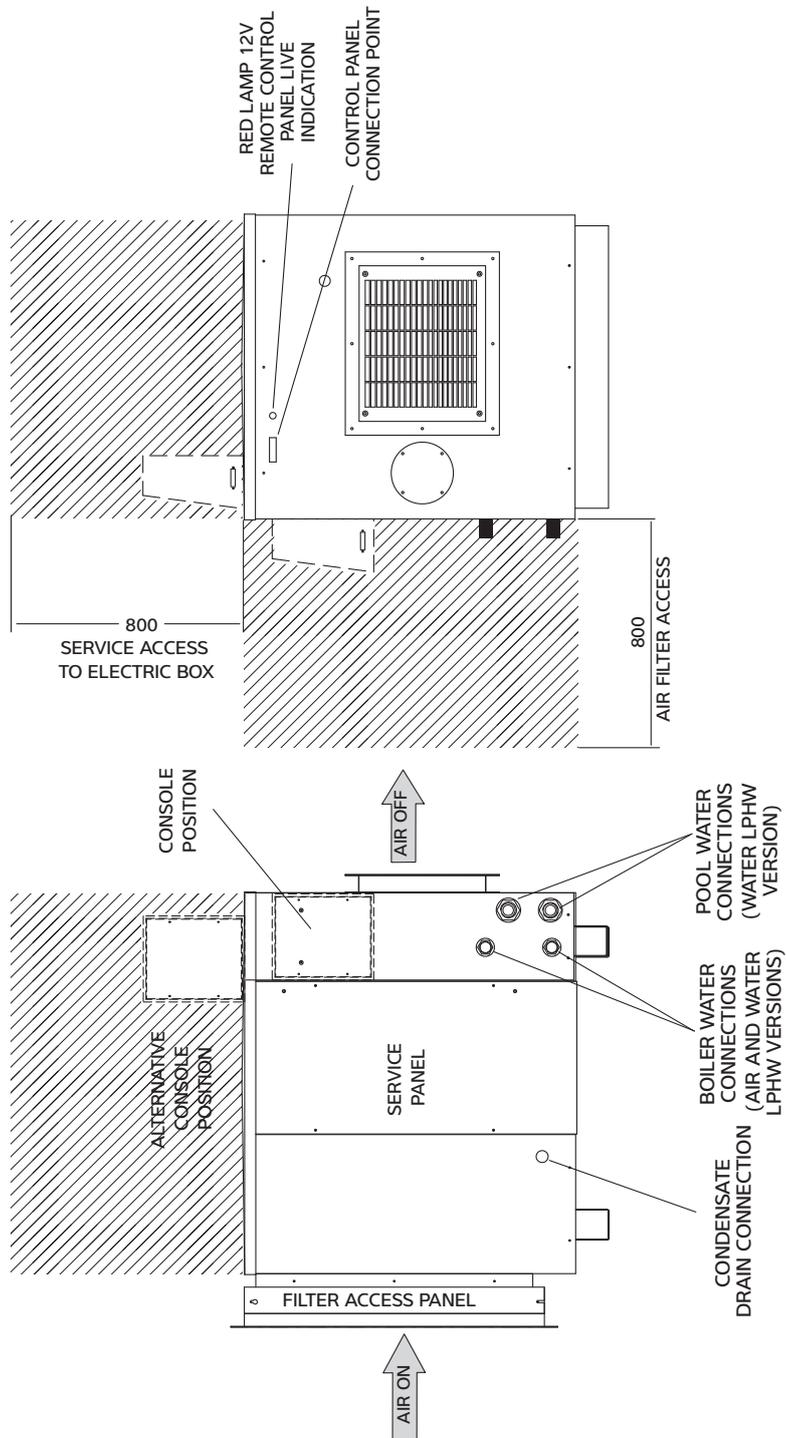
CONTROL CONSOLE



On delivery the console for the AA300/AA500 will be inside the machine. To retrieve the console unfasten the removable panel on the heat pump. The console should be in the position shown, protected by bubblewrap.

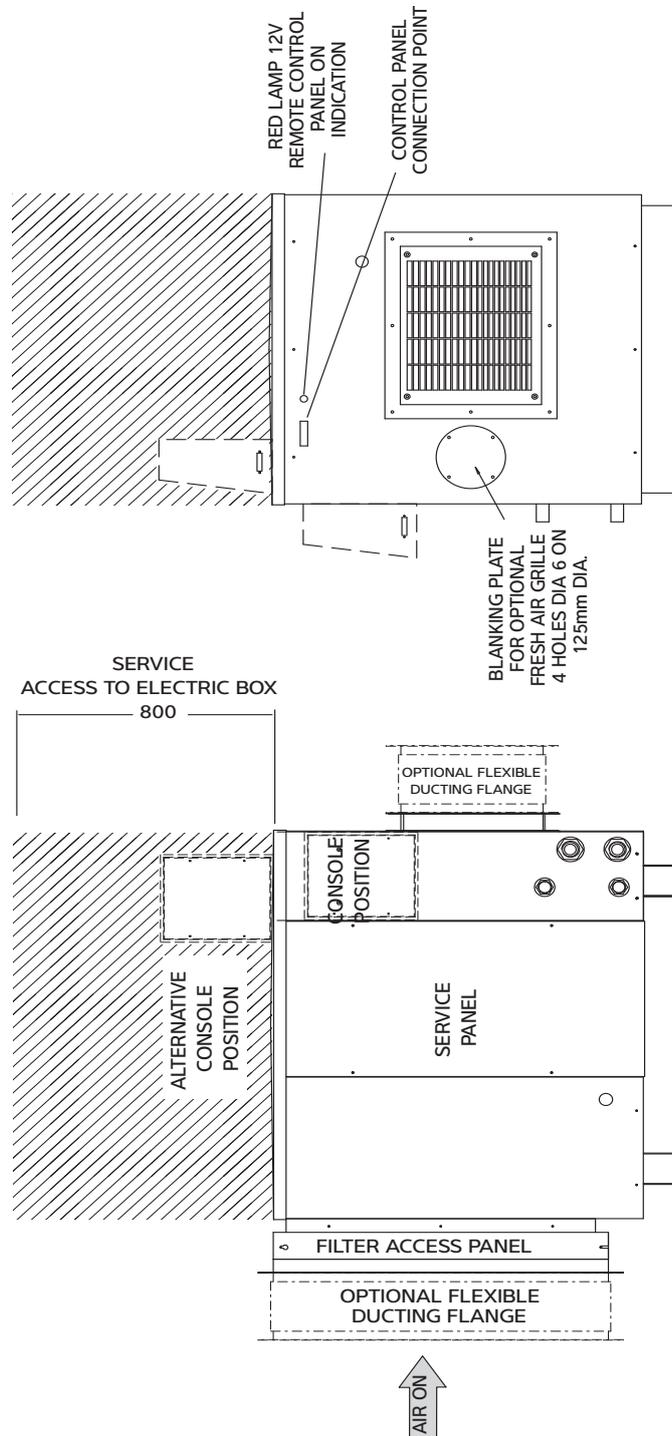
Note: the removable panel is on the opposite face of the heat pump to the water connections. When a machine is supplied with Air and Water LPHW the console will be in a box on top of the machine.

SITING, MACHINE LOCATION



If the optional flexible ducting flange is not used, due consideration to resonant noise through the duct work must be made.

INSTALLATION WITH OPTIONAL FEATURES



Ensure duct work pressure drop does not exceed resistance given in data sheet.

If unit is located in a plant room at pool hall air temperatures, any ambient air ducting must be heavily insulated.

Recommend fresh air/spring return dampers to be fitted to Fresh air ductwork for sub zero ambient applications in case of power failure.

2.1 PLUMBING

CONDENSATE DRAIN

The condensate drip tray in the 'AA300/AA500' unit collects the water removed by the dehumidification process.

It is therefore necessary to ensure that the 'AA300/AA500' unit is placed on a level plinth so that the condensate can run away and not overflow the edges of the drip tray inside the machine.

The 'AA300VHF' has a 3/4" BSPM threaded condensate drain connection.

The drain pipe should run away with adequate fall to waste ie 1/2" per foot minimum and must incorporate a 'U' trap & tun dish.

BOILER PLUMBING

The boiler connections on the machine are 3/4" BSPM. for connecting the boiler water flow and return.

Suitable breakable couplings, isolation, and drain down valves should be installed in the boiler water flow and return pipes local to the 'AA300/AA500' unit.

Refer to the boiler manufacturers instructions before designing the pipework system.

POOL WATER CONNECTIONS

The pool water connections in the machine are 1" BSPM uPVC.

Suitable breakable couplings, isolation, and drain down valves should be installed in the pool water flow and return pipes local to the 'AA300/AA500' unit.

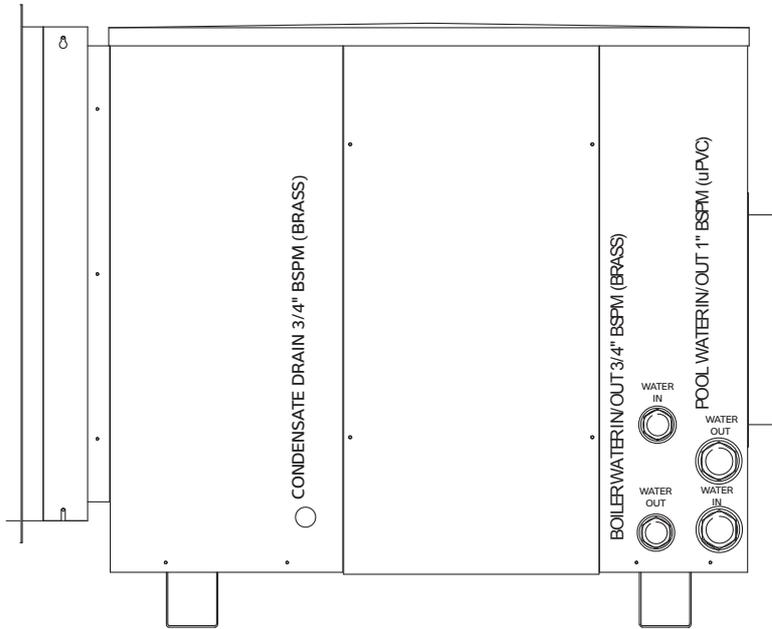
IMPORTANT GENERAL CONDITIONS

- 1) Do not route water pipes across service access panels or air inlet/outlets.
- 2) The water circuits to and from the 'AA300/AA500' unit should be capable of maintaining the specified water flow limits required by the machine. See Data sheet section 4.0.
- 3) All pipework must be adequately supported with allowance for expansion and contraction especially with regard to the plastic pipework.
- 4) It is recommended that when installing water systems the last connections to be made should be adjacent to the 'AA300/AA500' unit to avoid undue stresses on the unit connections.

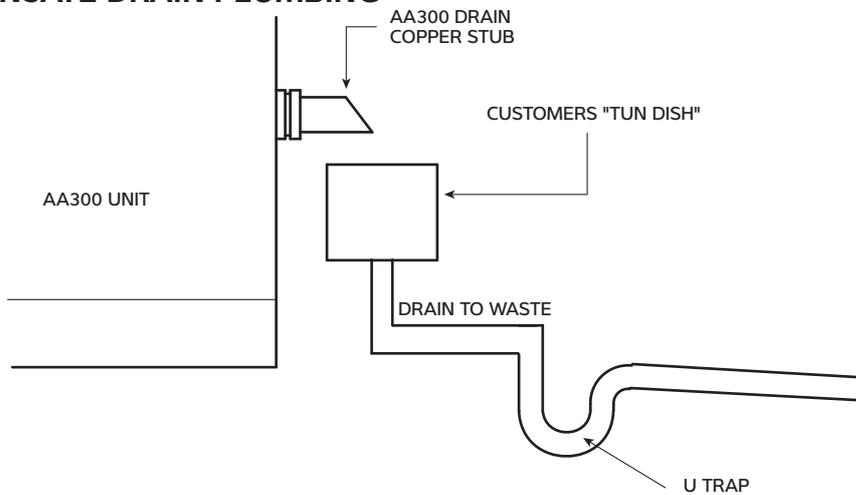
2.2 WATER CONNECTIONS

(ALSO SEE SECTION 2.1)

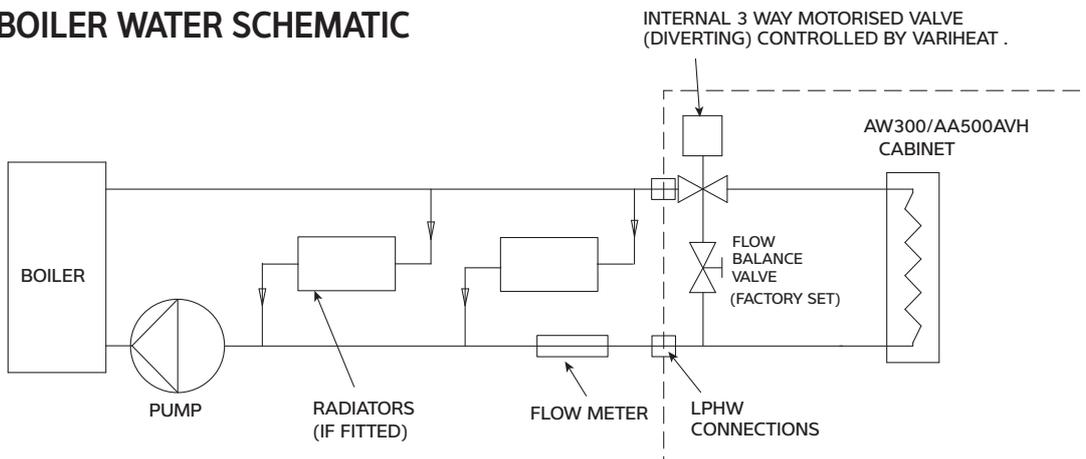
WATER CONNECTIONS



CONDENSATE DRAIN PLUMBING



BOILER WATER SCHEMATIC



2.3 ELECTRICAL INSTALLATION

ELECTRICAL SAFETY

It is important to ensure that all aspects of the installation comply with the latest I.E.E. Regulations.

It is also important to ensure that any remote devices which terminate within the pool hall are of the type and voltage as specified in the latest I.E.E. Regulations.

The machine should be installed in accordance with EMC2004/108/EC.

PROTECTED SUPPLY

Whilst not mandatory, Dantherm Ltd. recommends that an R.C.C.B. is always fitted or that the supply is to local electricity authority recommendations, and that all ducting is bonded in accordance with these regulations.

The supply to the machine should incorporate fuses or motor rated circuit breakers (type GU) to specified rating (see data sheet) H.R.C. fuses are recommended. An all pole switched isolator must be fitted within clear view of the machine and not more than 2 metres away. The isolator must have a minimum of 3mm air gap when in the off position.

INCONSISTENT ELECTRICAL SUPPLY.

The following limits of operation must not be exceeded if Calorex machines are to be guaranteed either in performance or warranty terms :

	Min	Max
Voltage, single phase	207V	253V
Frequency	47.5Hz	52.5Hz

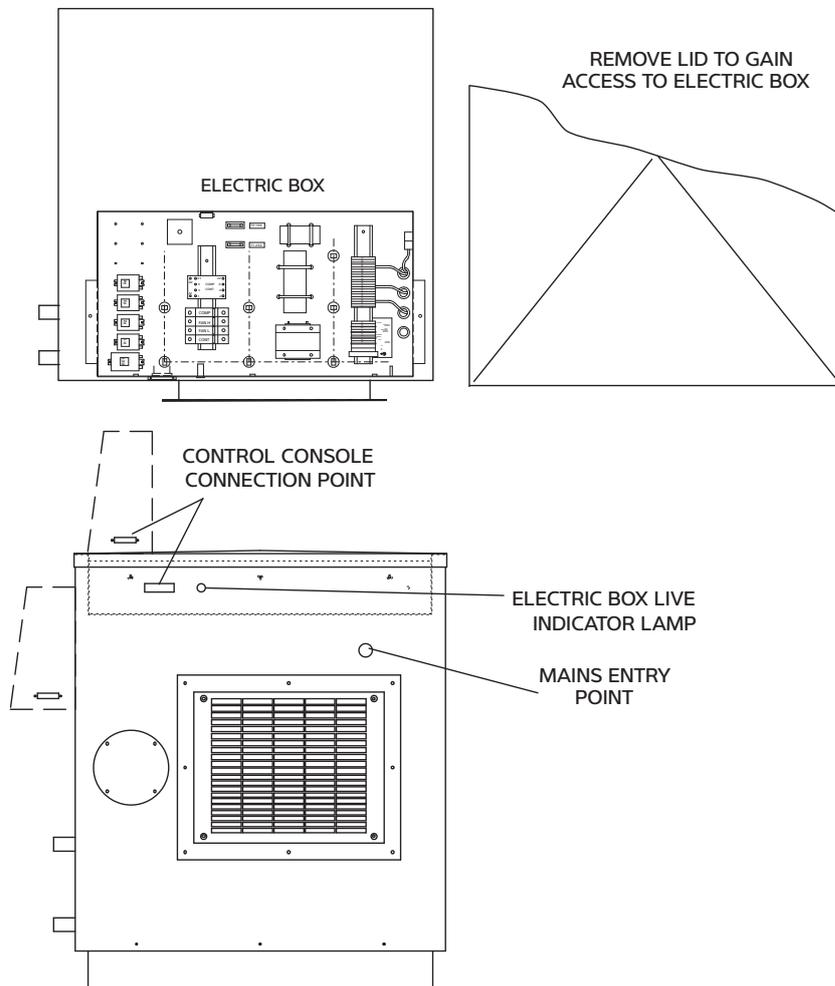
N.B The voltage must be measured at the heat pump mains terminals with all the fans/compressors

running at the rated condition.

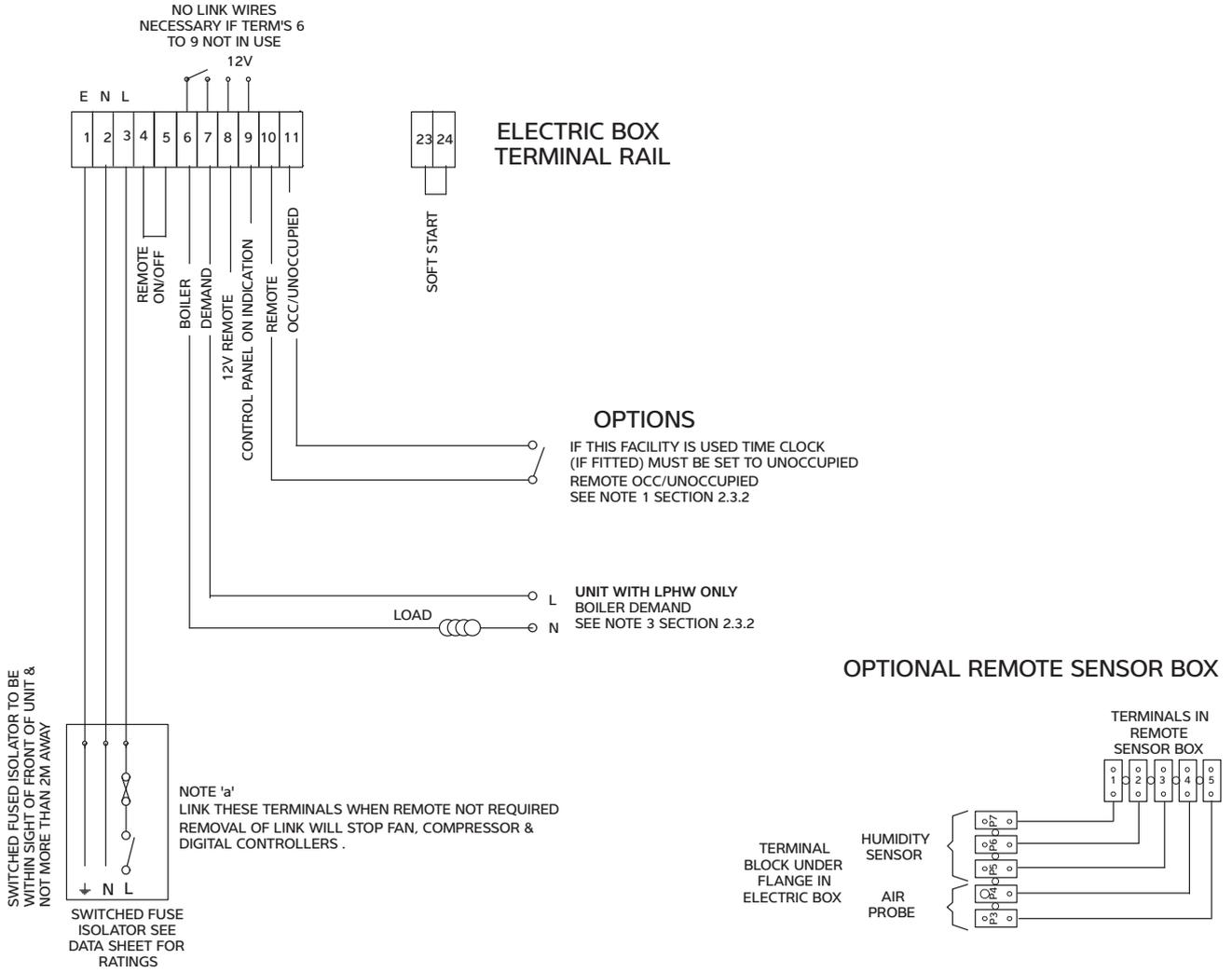
CORRECT CABLE SIZING

The cable supplying electricity to a machine with a given load must increase in cross sectional area (CSA) as the length increases in order that the voltage drop within the cable does not exceed recommended limits.

Cable sizing should be calculated by an approved electrician with due consideration to I.E.E. and local codes of practice.



2.3.1 MAINS SUPPLY TERMINAL BLOCK LAYOUT



2.3.2 NOTES ON TERMINAL BLOCK CONNECTIONS

NOTE 1 - Remote occupied/unoccupied

These contacts (from terminals 10 & 11) are to enable the air temperature set back facility to be remotely overridden.

There is a 12 V AC output from these terminals and closing a remote switch will enable the unit to regain the normal operating air temperature for when the pool is in use.

This can be done via a voltage free pool cover switch or some other form of voltage free switch.

If this facility is used then the time clock (if fitted) on the control panel of the unit should be set to the 'unoccupied' (O) position. (See note on time clock and switch settings, section 1.3).

NOTE 2 - Boiler demand -AA+LPHW machines only

These are voltage free contacts (from terminals 6 & 7) rated at 3(1) Amp at 230 Volts.

If the low pressure hot water supply to the unit is to be governed by the Calorex unit then these contacts should be utilised to bring water to the unit via the boiler, motorised valve, boiler pump etc. Remember the maximum inductive load is one amp.

This is dependant on how the low pressure hot water supply to the unit has been designed.

If the supply of low pressure hot water to the unit is not dependant on a signal from the unit then these contacts can be ignored.

CONTROL PANEL 25 WAY CABLE CONNECTION

Data signal between the console and the heat pump is via a 25 way cable with 'D' connection (plug & socket) both ends. The cable provided with the heat pump is 1.8m in length. An optional 10m cable is available, part number SD434052. A recommended maximum distance between the console and the heat pump is 20 metres, 2 cables being used.

2.4 COMMISSIONING CHECKLIST

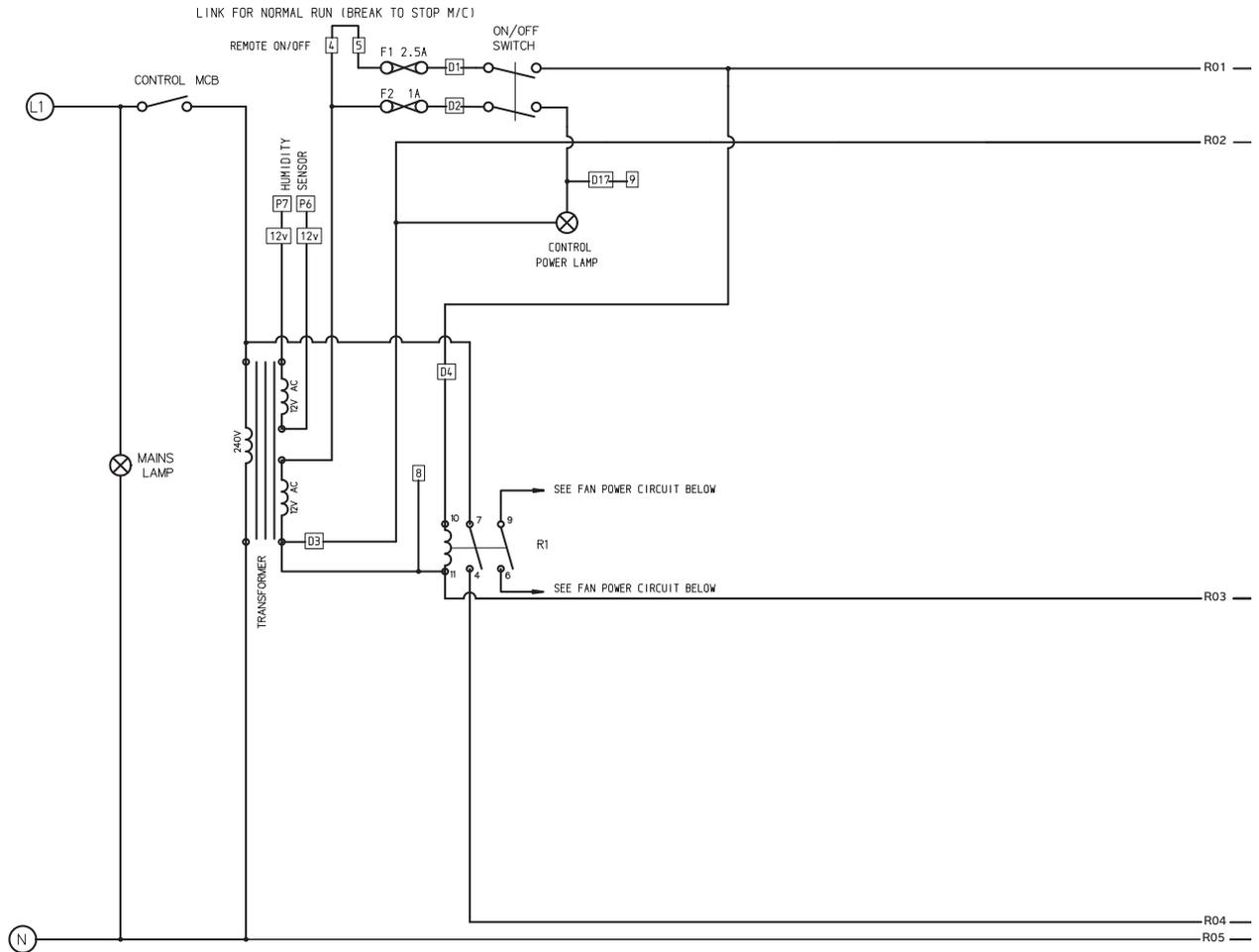
- a) Is the building finished in accordance with the original plans and specification.
- b) Is the plenum chamber and all ductwork insulated, special attention should be made to the insulation of the fresh air inlet ducting to prevent condensation problems.
- c) Are there any significant draughts in the pool hall or plant room (plenum installation) through poorly fitting doors, windows, pipe ducts, etc. This will let in unwanted ambient air raising the heating duty required.
- d) Is fresh air ducting (if fitted) perfectly sealed from plant room.

NOTE: (c) and (d) above should be checked by measuring plant room and pool hall air temperatures. If the plant room is acting as a plenum chamber both temperatures should correspond. If the plant room temperature is lower than ambient air is leaking in, this leak should be located and rectified.

- e) Are the fresh air inlets free from obstructions ie, undersize grilles, objects in the path of exhaust air deflecting it back to the fresh air inlet, etc.
- f) Is 'occupied / unoccupied' set correctly, (set with air thermostat) see section 3.2.2.
- g) Is the time clock set correctly.
- h) Has the fan speed been set to match the sensors fitted.
- j) Any sign of abnormal operation such as water dripping should be reported immediately to an installer or Dantherm Ltd.
- k) Has fan run amps been recorded against datasheet.
- l) Has the unit been installed to allow service personnel access to all areas.

2.5 CIRCUIT DIAGRAMS

ELECTRICAL CONTROL & POWER CIRCUIT 'AA' VERSION



MODEL	FAN MCB	COMP MCB
	DEVICE VALUE	DEVICE VALUE
AA300AVH/AA500AVH	16A	16A

NOTES

'R' LETTER RELAY'S ARE 12v

'RE' LETTER RELAY'S ARE 230v

'P' LETTERS ARE CONNECTOR BLOCK PIN NUMBERS

[15] = DIN RAIL MOUNTED TERMINAL BLOCK NUMBERS

[D25] = 25 WAY 'D' PLUG PIN NUMBERS

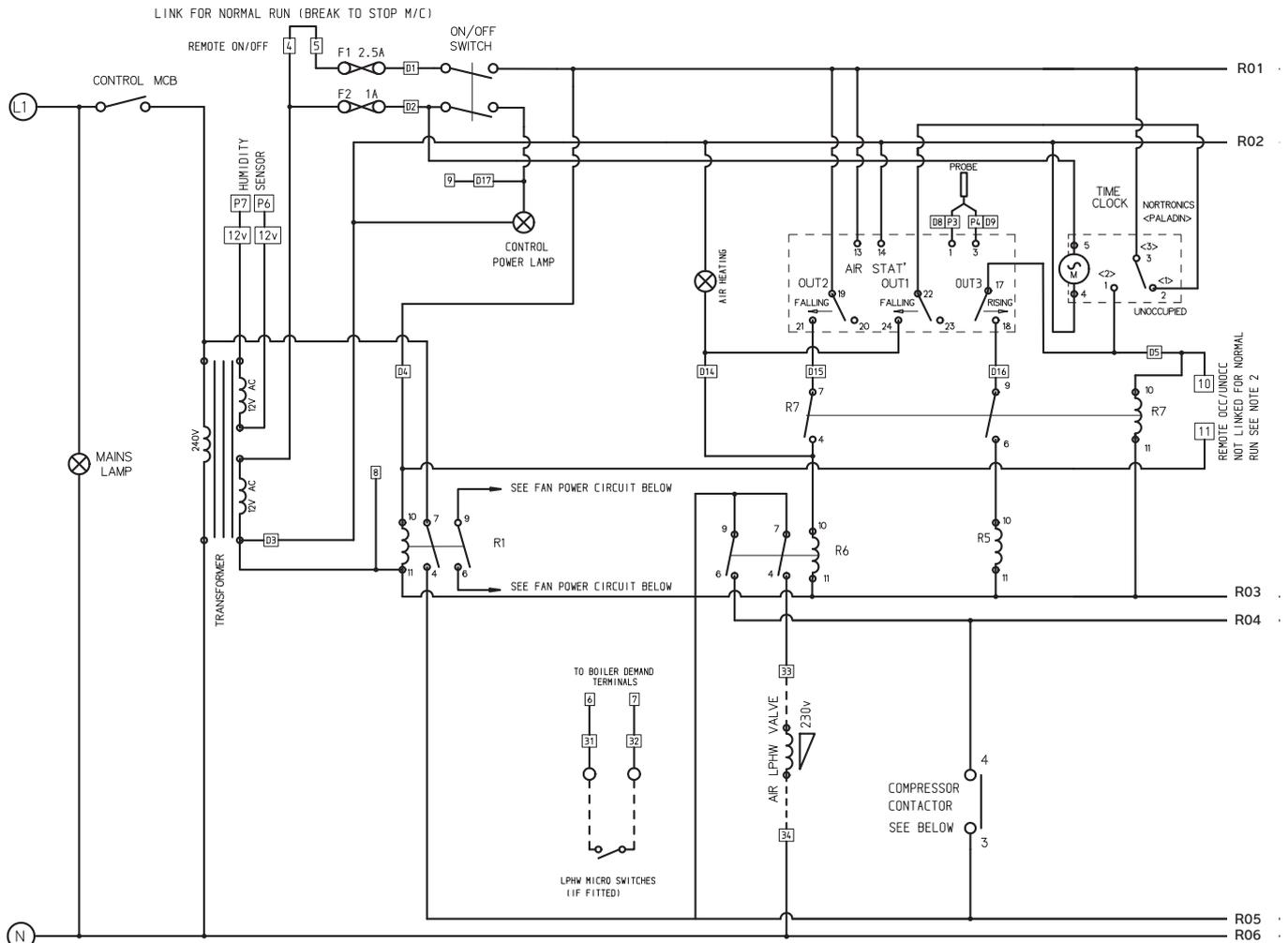
[D] = DELAY TIMER

CIRCUIT DIAGRAM

AA300/500AVH

D604450

ELECTRICAL CONTROL & POWER CIRCUIT 'AA+AIR LPHW' VERSION



MODEL	FAN MCB	COMP MCB
AA300AVH/AA500AVH LPHW	16A	16A

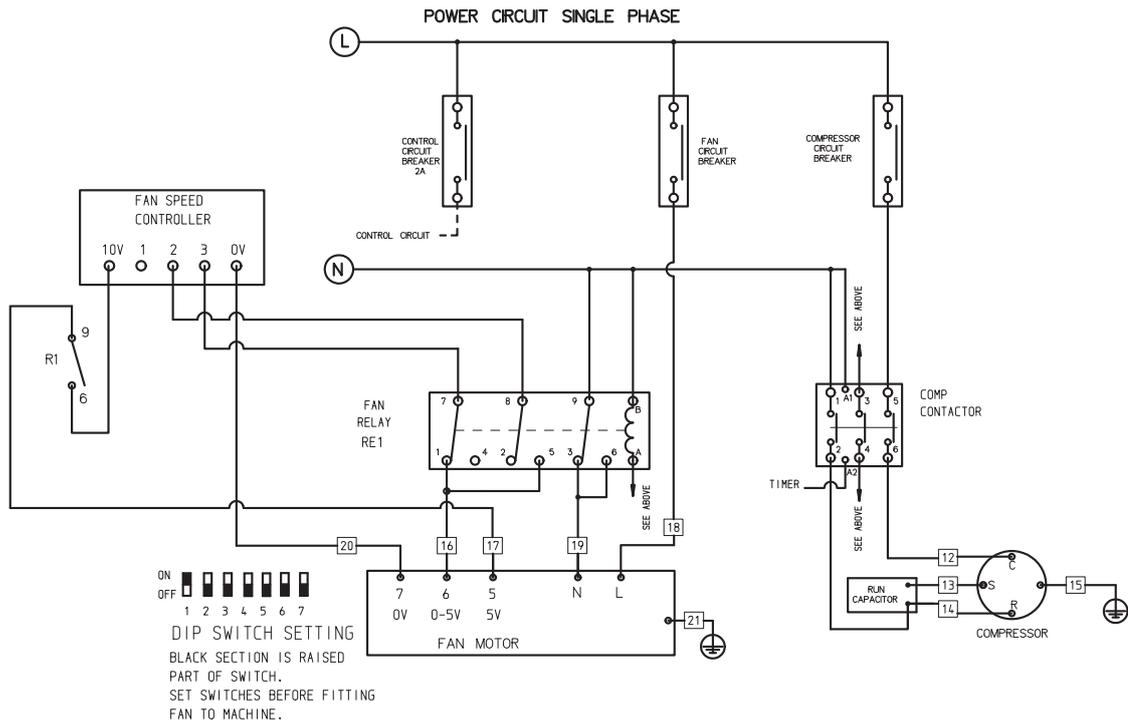
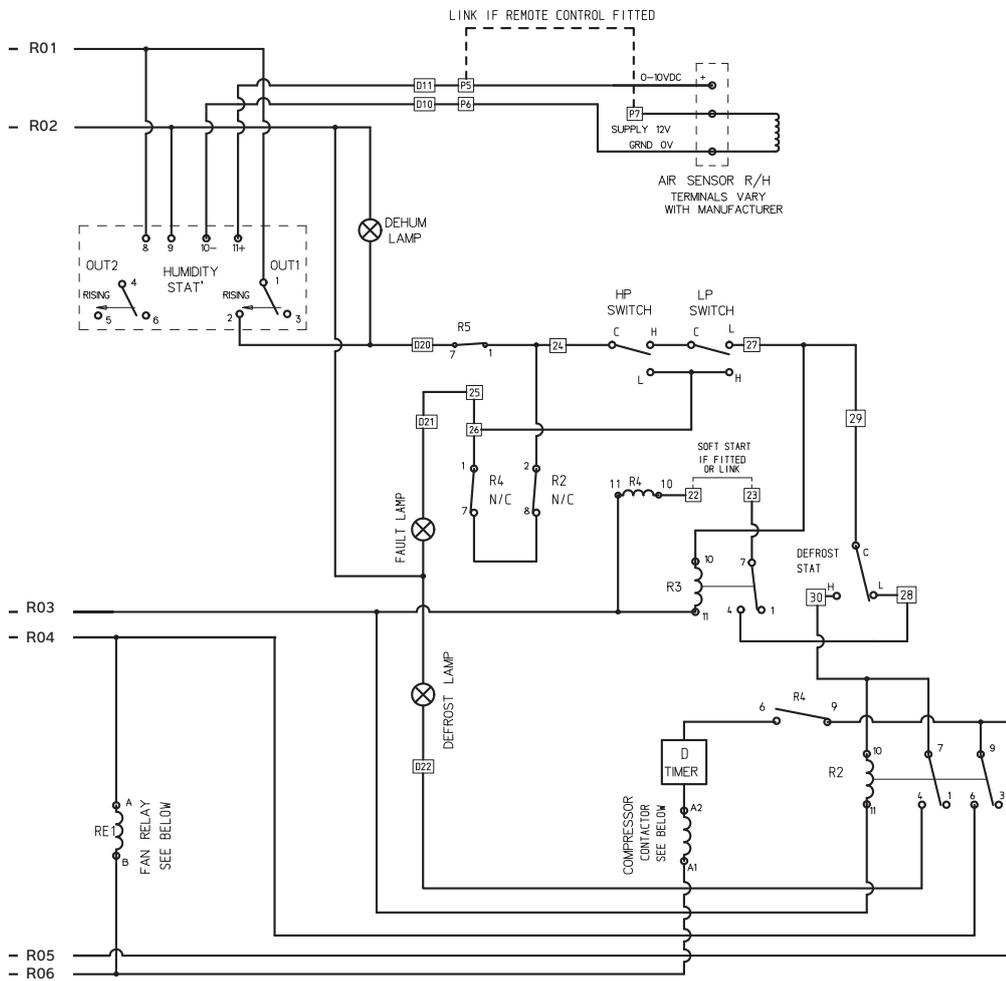
NOTES

- 'R' LETTER RELAY'S ARE 12v
- 'RE' LETTER RELAY'S ARE 230v
- 'P' LETTERS ARE CONNECTOR BLOCK PIN NUMBERS
- [15] = DIN RAIL MOUNTED TERMINAL BLOCK NUMBERS
- [D25] = 25 WAY 'D' PLUG PIN NUMBERS
- [D] = DELAY TIMER

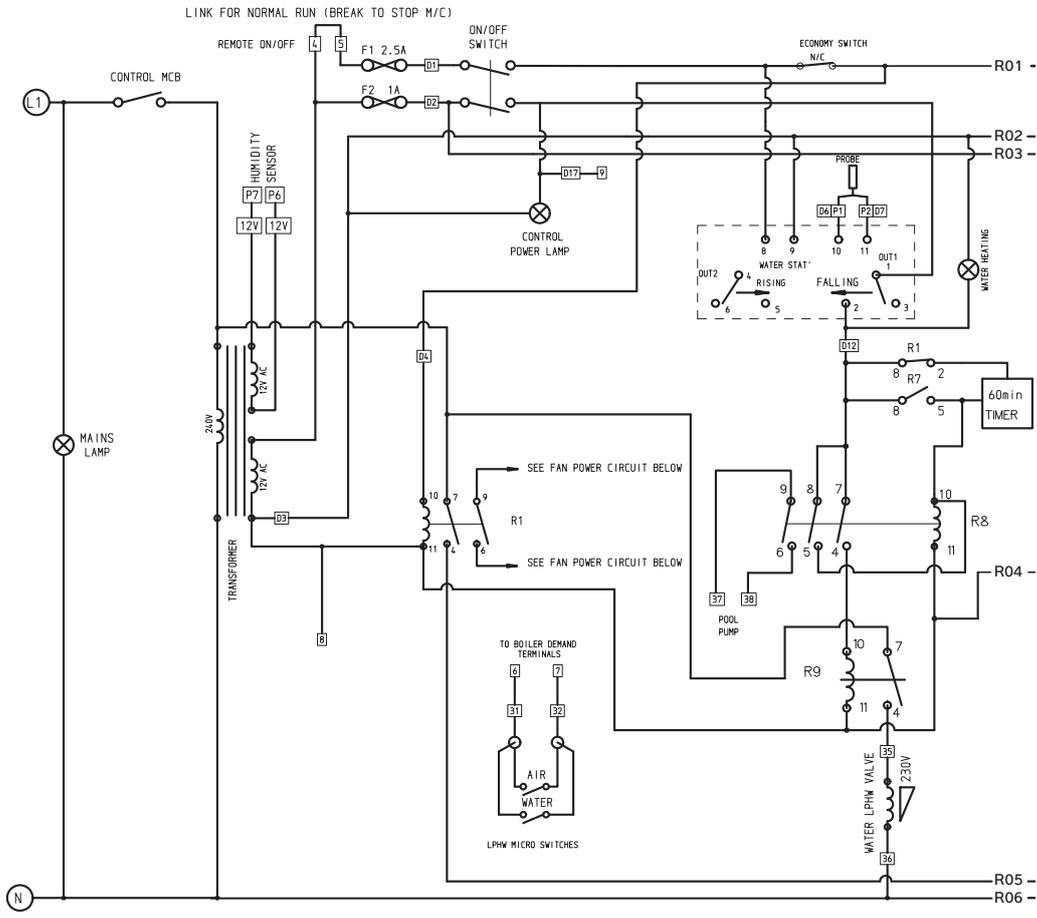
- 2 IF REMOTE OCC/UNOCC FEATURE USED
 - a) FORCE TIME CLOCK TO 'UNOCCUPIED'
 - b) 10/11 N/O = 'UNOCCUPIED'
 - c) 10/11 N/C = 'OCCUPIED'

CIRCUIT DIAGRAM
AA300/500AVH + LPHW

ELEC CONTROL & POWER CIRCUIT 'AA+AIR LPHW' CONTINUED



ELECTRICAL CONTROL & POWER CIRCUIT 'AA+AIR AND WATER LPHW' VERSION



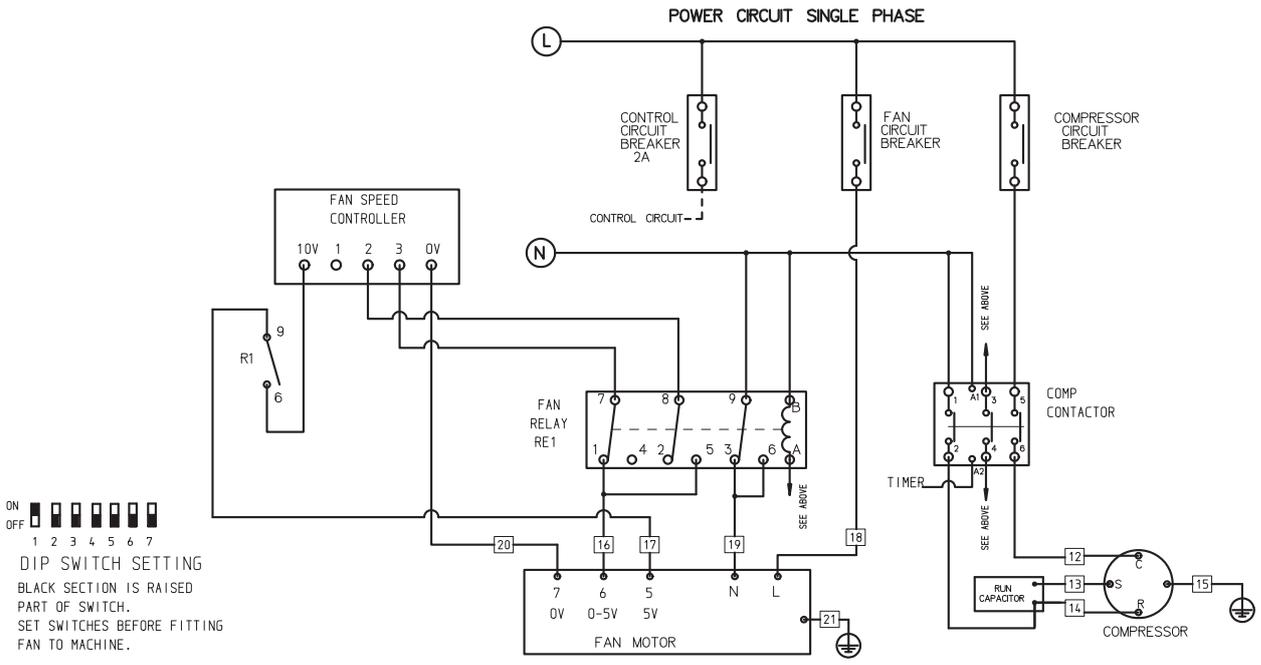
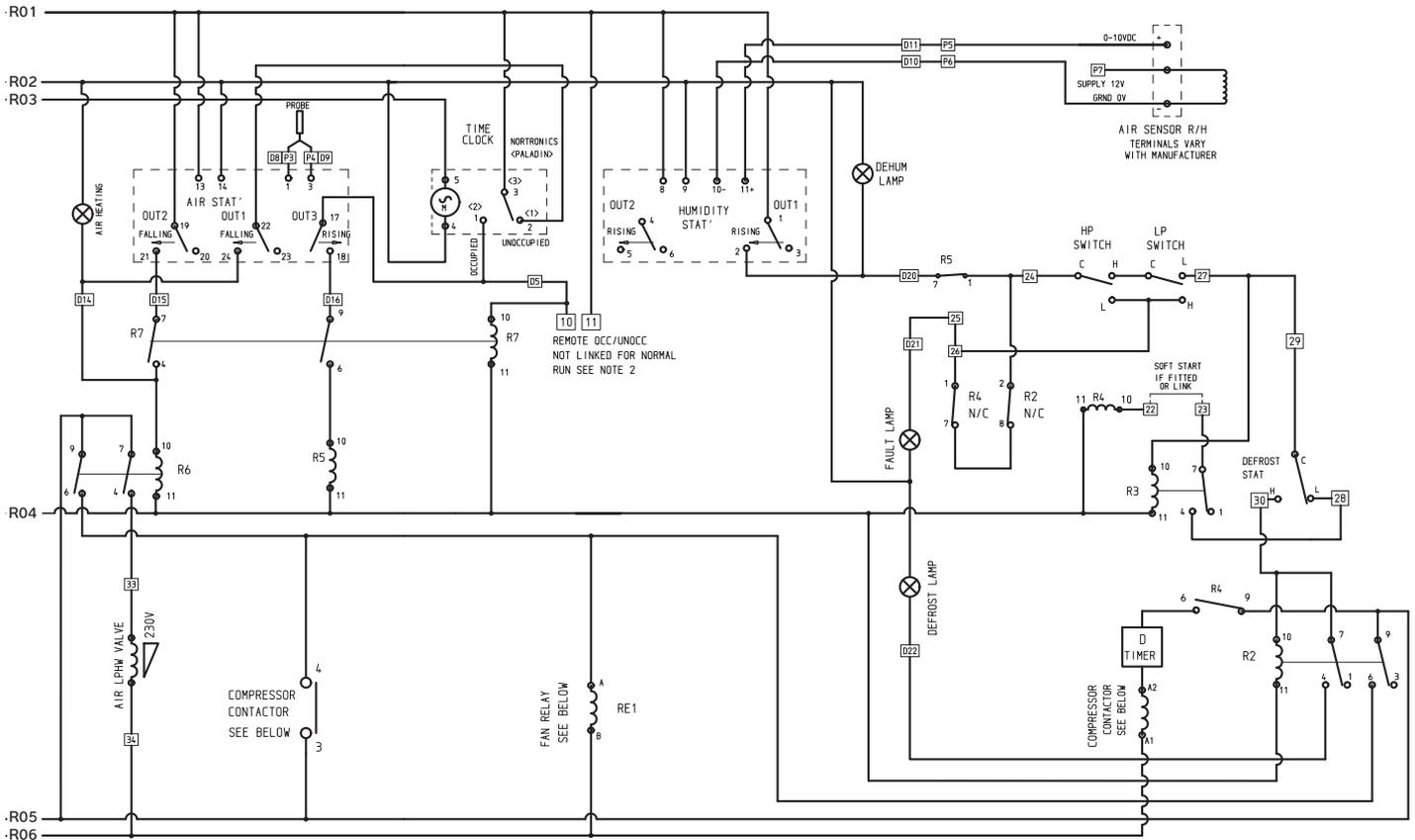
MODEL	FAN MCB	COMP MCB
		DEVICE VALUE
AA300AVH/AA500AVH LPHW	16A	16A

NOTES

- 'R' LETTER RELAY'S ARE 12v
 - 'RE' LETTER RELAY'S ARE 230v
 - 'P' LETTERS ARE CONNECTOR BLOCK PIN NUMBERS
 - [15] = DIN RAIL MOUNTED TERMINAL BLOCK NUMBERS
 - [D25] = 25 WAY 'D' PLUG PIN NUMBERS
 - [D] = DELAY TIMER
- 2 IF REMOTE OCC/UNOCC FEATURE USED
- a) FORCE TIME CLOCK TO 'UNOCCUPIED'
 - b) 10/11 N/O = 'UNOCCUPIED'
 - c) 10/11 N/C = 'OCCUPIED'

CIRCUIT DIAGRAM
 AA300/AA500AVH +
 AIR AND WATER LPHW
 D604456

ELECTRICAL CONTROL & POWER CIRCUIT 'AA+AIR AND WATER LPHW' VERSION CONTINUED



2.6 REGULAR PLANNED MAINTENANCE

Operations to be carried out during a regular planned maintenance visit are as follows:

- 1) Clean or replace filters as applicable. (This action may be required more frequently than regular servicing.
- 2) Check operation and condition of all fans and compressors.
- 3) Check capacitor tolerances (where fitted).
- 4) Check condition of all heat exchangers/evaporators.
- 5) Check refrigeration system parameters.
- 6) Check operation of control valves.
- 7) Check for water leaks.
- 8) Check drip trays and internal drain lines for blockages and clear.
- 9) Check operation of controls and calibrate as necessary.
- 10) Check operation of interlocks in use.
- 11) Final check on overall operation of unit.
- 12) Indicate on report any faults found or causes for concern.

Frequency recommended	Light to medium use	1 visit per year
	Heavy use	2 visits per year

3.0 CONTROLS

STANDARD CONTROL PANEL MODULE (12V)

Humidity display and
6. Dehumidification
lamp



1. Power On/Off switch
2. Power lamp
3. Fault Lamp
4. Defrost Lamp

Console for Dehumidification option

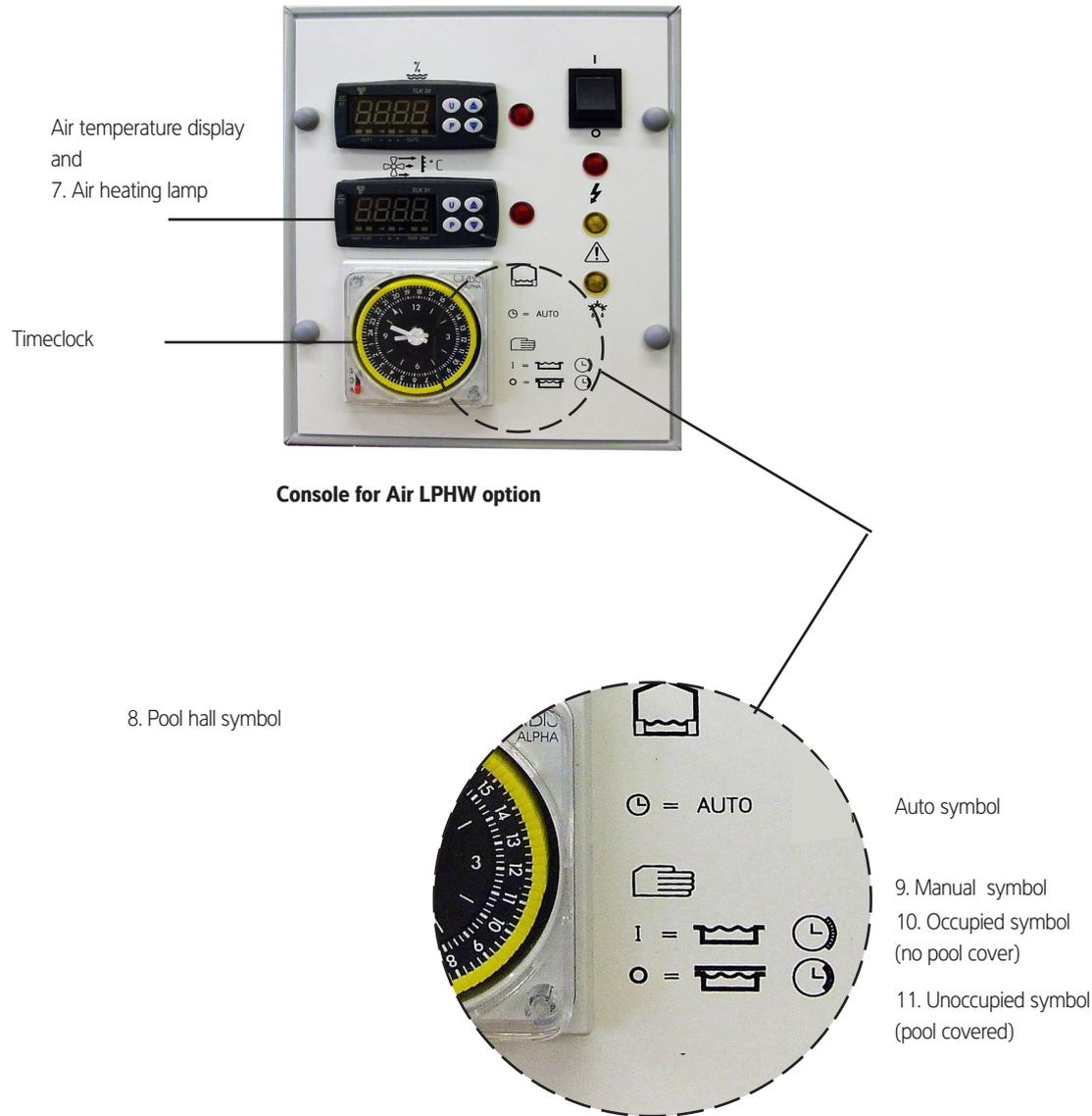
1		Power on	
2		Power off	
3		Power symbol	
		Power lamp	Indicates presence of 12V electricity supply to the console.
4		Fault lamp	Check that the pool hall air and water flow through the unit are within specified limits. Check M.C.B.'s & pressure switches see note a (also soft start overload if fitted) and push all to reset. Call for a service check if fault lamp stays on.
5		Defrost lamp	Unit is temporarily defrosting evaporator machine will automatically reset.
6		Dehumidification lamp	Indicates that there is a demand for the unit to dehumidify.

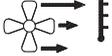
NOTE A

High and low pressure switches are mounted on a cross bracket fitted inside the fridge box assemblies. Push red button on each switch to reset.

MODEL WITH AIR LPHW FITTED (12V)

The AA 300/500 with AIR LPHW console has the same basic controls as the standard machine with the following additional controls:



7  Air heating lamp Indicates that there is a demand for the unit to heat the pool hall air.

8  Pool hall symbol

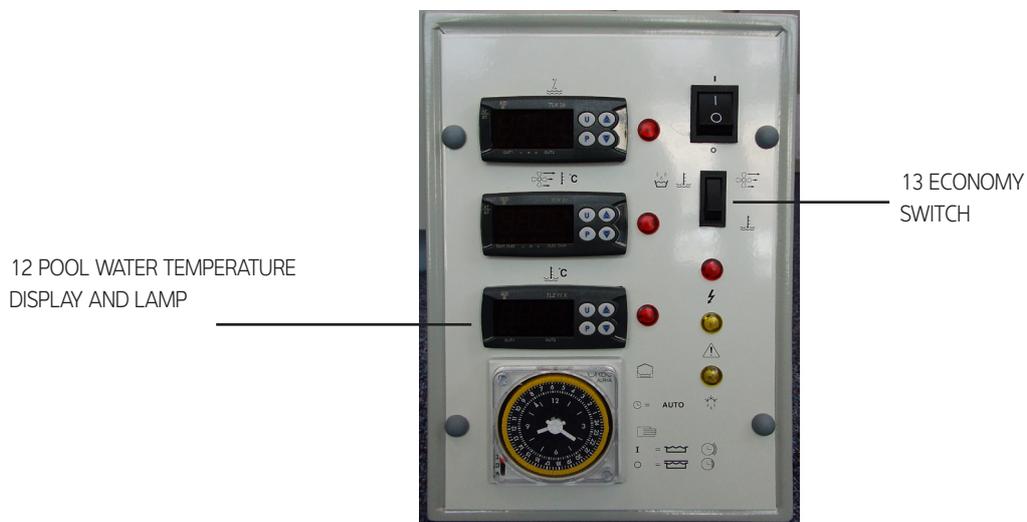
9  Manual override symbol

10 I =  Pool water occupied (no pool cover)

11 O =  Pool water unoccupied symbol (pool covered)

MODEL WITH AIR AND WATER LPHW FITTED (12V)

The AA300/AA500 with Air and Water LPHW console has the same basic controls as the console with Air LPHW with the following additional controls:



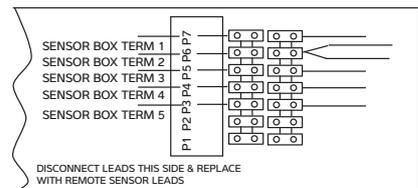
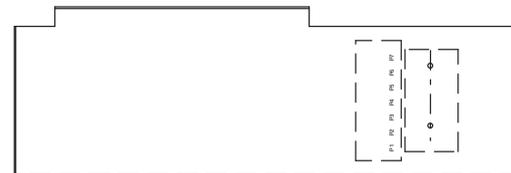
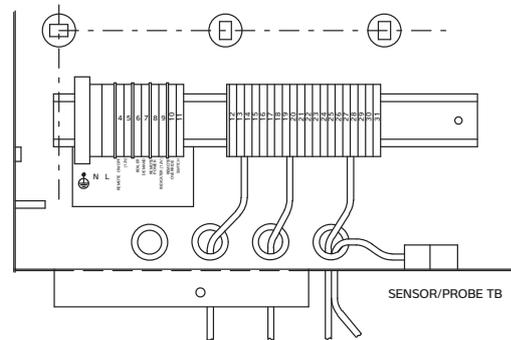
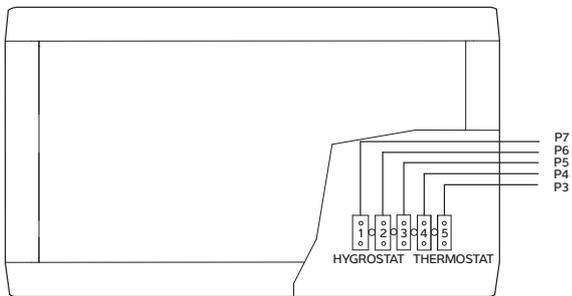
Console for Air and Water LPHW option

12. Water Heating Lamp Indicates that there is a demand for pool water heating.

13. Economy Switch Switches between full function, i.e. dehumidification, air/water heating to water heating only. Note that in this mode there is a 60 minute delay before water heating commences.

OPTIONAL REMOTE SENSOR BOX

SENSOR PLUG AND TERMINAL BLOCK



4.0 DATA SHEET

AA300/AA500AVH

MODEL		Units	AA300	AA500
Air temperature limits	Minimum	°C	15	15
	Maximum	°C	36	36
Dehumidification duty	Via heat pump (30C/60% RH)	L/hr	3.6	4.5
Heat to air (all models)	Via heat pump	kW	4.4	6.1
	Via LPHW @ 80°C	kW	7.3	7.5
	Heat pump + LPHW	kW	9.8	11.7
Recommended boiler capacity (AA+ Air LPHW models only)	Recommended boiler capacity	kW	7.3	7.5
	LPHW flow rate	L/min	10	10
	LPHW Pressure drop at rated flow	mhd	2.9	2.9
	Maximum system working pressure	bar	6	6
Heat to pool water (AA+ air and water LPHW models only)	Via heat pump	kW	n/a	n/a
	Via LPHW @ 80°C	kW	18	18
	Pool water flow rate	L/min	15	15
	Pool water pressure drop at rated flow	mhd	2.8	2.8
Recommended boiler capacity (AA+ Air and water LPHW models only)	Recommended boiler capacity	kW	25.3	25.5
	LPHW flow rate	L/min	21	21
	LPHW Pressure drop at rated flow	mhd	4.2	4.2
	Maximum system working pressure	bar	6	6
Electrical	Total power Consumed (nominal)	V/ph/Hz kW	230V/ -1N/50Hz 2.1 2.3	
	Minimum supply capacity (Max F.L.A.)	A	13	13
	Maximum supply fuse 1 ph N	A	20	20
Main fan	Air flow (anemometer at air on filter, wet evaporator)	m ³ /hr	1300 ±10%	1800 ±10%
	Design condition external static pressure	Pa	95	110
	Maximum external static pressure	Pa	300	250
	Design condition Amps 1 ph N	A	1.6	2.8
	FLA:- 1 ph N	A	5.2	5.2
Compressor	Nominal power consumed	kW	1.9	1.9
	LRA:- 1 ph N	A	42	42
	RLA:- 1 ph N	A	9	9
	Soft start Amps 1 ph N	A	23	23
General data	Hermetic system			
	Gas charge (R407c)	kg	2.6	2.6
	Carbon dioxide equivalent	tonnes	4.6	4.6
	LPHW battery volume	litres	1.15	1.15
	IP rating	IP	22	22
Physical dimensions	Width (Unpacked)	mm	730	730
	Depth (Unpacked)	mm	1025	1025
	Height (Unpacked)	mm	850	850
	Weight approx. (AA un-packed no options)	kg	111	111
	noise level at 1m	dB(A)	61	61

For accurate application sizing consult Dantherm Ltd.
Boiler not required for AA versions without LPHW.

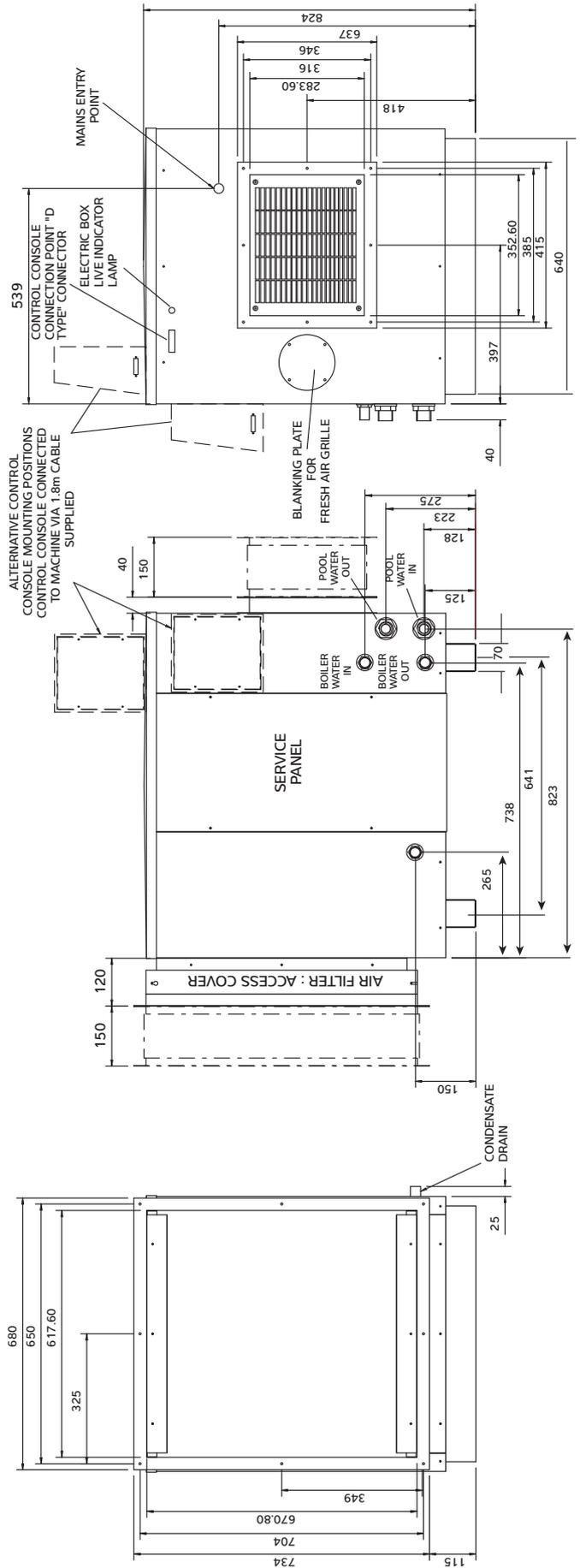
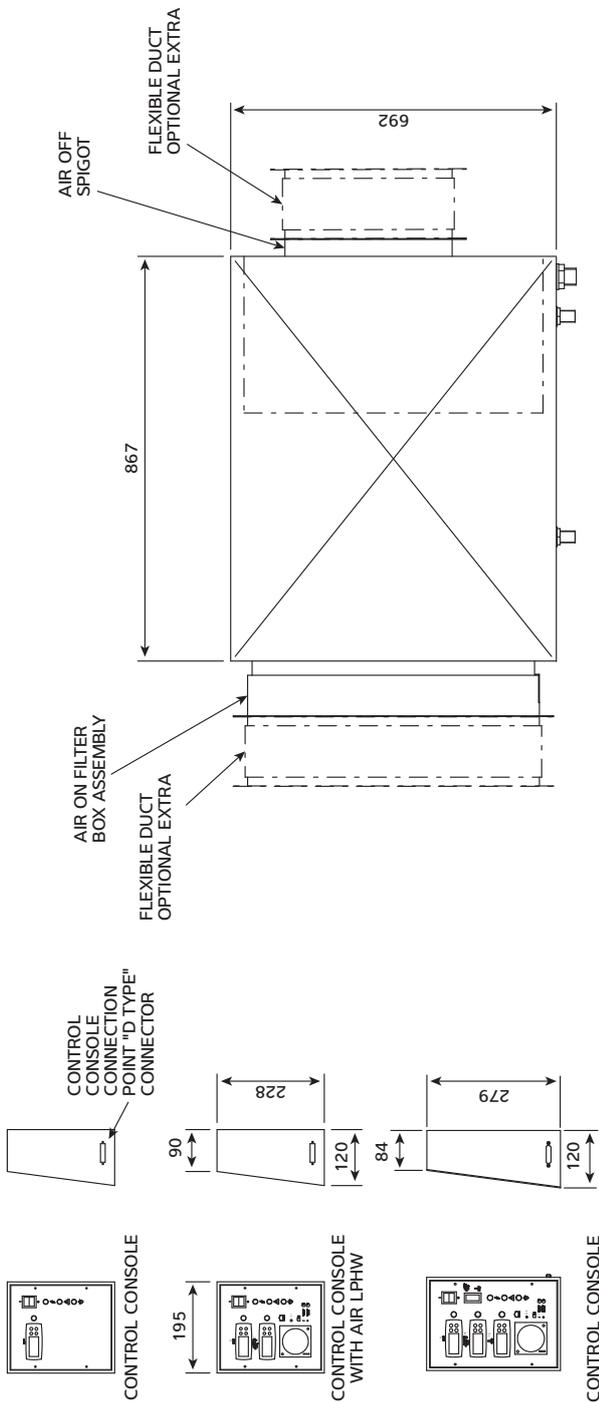
1 mm WG = 9.8pa
1 mhd = 1.4psi
1 L/min = 0.22 gall/min

R407c Global warming potential (GWP) 1774.

5.0 DIMENSION DRAWING

AA300/AA500

PIPE CONNECTION SIZES
 CONDENSATE DRAIN 3/4" BSPM
 (BRASS FITTING)
 BOILER WATER IN/OUT 3/4"
 BSPM (BRASS FITTING)
 POOL WATER IN/OUT 1" BSPM
 PVC-U FITTING



6.0 WARRANTY CONDITIONS

One year manufacturer's warranty is valid from the date of commissioning or 18 months from delivery, whichever is sooner.

Where commissioning is provided in the UK and Ireland, this must be carried out by factory trained and approved personnel.

The following exclusions apply to the Warranty given by Dantherm Ltd. No claims will be accepted if :

1. The heat pump is installed in any way that is not in accordance with the current procedures as defined by Dantherm Ltd.
2. The heat pump has not been maintained in accordance with service requirements in section 4.1 Regular Planned Maintenance.
3. The heat pump has been worked upon or is adjusted by anyone other than a person authorised to do so by Dantherm Ltd.
4. The heat pump is incorrectly sized for the application.
5. The water flow through the machine is outside the specified limits.
6. The water pH level and/or chemical balance is outside the following limits:

Acidity pH	pH	7.8 - 7.2
Total Alkalinity, as CaCO ₃	ppm	120 - 80
Total Hardness, as CaCO ₃	ppm	250 - 150
Total Dissolved Solids	ppm	1000
Maximum Salt Content	ppm	8000
Free Chlorine Range	ppm	Domestic 2 - 1
Free Chlorine Range	ppm	Commercial 6 - 3
Superchlorination	max	30ppm for 24 hrs
Bromine	ppm	5 - 2
Baquacil	ppm	50 - 25
Ozone	ppm	Max 0.9
Maximum Copper Content	ppm	1
Aquamatic Ionic Purifier	ppm	Max 2

7. The heat pump has suffered frost damage.
8. The electrical supply is insufficient or in any way incorrect.
9. The fan amps and duct pressure are outside the specified limits.
10. The air flow to and from the machine is outside the specified limits.
11. Corrosion is present due to poor air quality that has not been attended to.

If in doubt or if advice is required please contact the Dantherm Group UK Service Department by calling 01621 856611 (option 4) or emailing service.department@dantherm.com

Note: The Reply Paid Warranty Registration Card must be returned, to ensure that the correct warranty is given. If you do not find a Registration Card with your heat pump please contact the Dantherm Group UK Service Department giving your name, address and serial number of your heat pump. A card will be sent to you for completion.

Please give **MODEL NUMBER** and **SERIAL NUMBER** of your heat pump when making technical or service enquiries. This will assist in correct diagnosis and ensure service can be provided with the minimum delay.

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Calorex is a brand of
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