

These instructions contain operating information and should be left with the unit.

# Vapac®

## **Gas fired Steam Humidifier Units type B and C**

### **Installation & Design Performance Manual (Edition 3)**

# VapaNet



#### **Installation in U.S.A. and Canada**

This product will meet the standards of IAS U.S. Requirement for Gas Fired Humidifiers  
No. 12 – 94

Draft No. 2  
CSA International

Failure to comply with these instructions may invalidate the manufacturers warranty or any  
certificate/declaration of conformance requested to be supplied with the unit

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## Contents

1.1	Positioning the Vapac .....	4
1.2	Technical information .....	4
1.2.1	Gas pressure testing .....	4
1.3	Technical information .....	5
1.4	Humidifier dimensions .....	7
1.5	Flue arrangement .....	8
1.5.1	Standard flue Vapac supply type "B" parts .....	9
1.5.1.1	TYPE "B" category I Open flue system .....	9
1.5.2	Standard flue Vapac supply type "C" parts .....	10
1.5.2.1	Gas Fired Humidifier general flue requirement for open and sealed systems. ....	11
1.5.2.2	TYPE "C" Category IV Room sealed Concentric flue system. ....	11
1.5.2.2	TYPE "C" Category IV Room sealed Concentric flue system. ....	12
1.5.2.3	TYPE "C" Room sealed Twin pipe flue system. ....	13
1.6	Steam Pipe Positioning .....	14
1.7	Positioning the steam pipes .....	15
1.8	Plumbing Considerations .....	16
1.9	Electrical Connections .....	17
1.9.1	Power Supply Connection .....	18
1.9.2	Remote indication .....	18
1.9.3	Cable Entry Provision .....	18
1.9.4	Vapac Control Circuit Transformer .....	18
1.9.5	RDU Connection .....	18
1.10	Control Circuit Connections .....	19
1.10.1	Control Circuit Wiring .....	19
1.10.2	Proportional Control .....	19
1.10.3	Control Signal Selection .....	19
1.10.4	On/Off Control .....	19
1.10.5	Sensing Head .....	20
1.10.6	Security Circuit / E.P.O. Shutdown .....	20
1.10.7	Load Shed Option .....	20
1.10.8	Master/Tandem System .....	21
2.0	Wiring diagrams .....	21

## Table

TABLE 1	Technical DATA .....	5
TABLE 2	Connection details .....	6
TABLE 3	Requirements for GF 88 – 187(P) .....	9
TABLE 4	Requirements for GF 13 – 66(P) .....	9
TABLE 5	Minimum air vent free area for compartments: Open flue appliances .....	9
TABLE 6	Minimum air vent free area for compartments: Open flue appliances .....	10
TABLE 7	Flue Terminal Position .....	11
TABLE 8	Steam Distribution Pipe requirement .....	14
TABLE 9	Steam Distribution 2 1/8"mm Ø Pipe Selection .....	14

## **Important Installation Points**

Read the instruction and recommendation in manual carefully to ensure proper installation, and keep this manual in a safe place.

The unit must be installed to comply with national regulations and/or codes of practice. A qualified electrician must carry this out.

Ensure at least 1000mm (39") clear front access to the electrical panel and burner of the cabinet.

Do not locate the cabinet where the ambient temperature around the unit could exceed 45 °C (113°F); or fall below 5 °C (41°F) e.g., an unventilated roof mounted enclosure – see minimum space / ventilation requirements page 4.

Do not locate the cabinet where a ladder is required for service access as this could make servicing the heat exchanger or its removal hazardous.

Make sure steam line(s) have adequate slope (min 12%) for condensate drainage and use condensate separators if the pipe is lower than the unit. (see page 13)

Provide adequate support to prevent sags developing in flexible steam lines, which can fill with water and create a "trap".

## **Important Electrical Connection Items**

Before commissioning the unit, check that all electrical (power) connections - including those at the terminals and contactor are tight.

The Vapac transformer must not be used to power other equipment.

To comply with EMC aspects see recommendations on page 16.

Use a high-limit humidistat connected to control terminals 9 & 10 to ensure positive interruption of unit operation when over-humidification is detected.

It is important that the control signal connected to terminals 5 & 6 must be referenced to ground at the control PCB – this can be done by linking either terminal 5 or 6 to terminal 7.

NB if the controller output is referenced to ground, it is important that the "leg" which is connected to ground at the controller is also connected to ground at the Vapac unit. Grounding the opposite "leg" will cause damage to the controller and/or the Vapac control PCB.

## **Important Maintenance Items**

Only a qualified electricians and registered gas engineers should work on this unit.

The Humidifier contains hot water, and must be drained before any maintenance is carried out on the steam section. This should be done prior to isolating the power, and removing the front access panel

## **Warning**

**IF YOU SMELL GAS IN THE ROOM, DO NOT TURN ON LIGHT SWITCHES OR POWER POINTS, USE THE TELEPHONE OR ANY OTHER OBJECT WHICH MIGHT CAUSE SPARK.**

Open doors and windows immediately to ventilate the room. Shut the gas main tap on the meter or the gas tank and call your Gas supplier or service immediately.

Always disconnect the appliance from the mains either by switching off at main switch and if possible, unplugging it from the mains, before cleaning the appliance or carrying out maintenance on the unit.

Never block the ventilation inlets or outlets of the of the appliance.

**The installation must conform with local building codes or, in the absence of local codes, with ANSI Z223.1, National Fuels Gas Code, and CAN/CGA B149 Installation Codes.**

## Installation.

### 1.1 Positioning the Vapac

#### Do's

- Do** Read the instructions and recommendations in the manual carefully to ensure proper installation.
- Do** keep this manual in a safe place. You may need it for your own reference or the service engineer may need to consult it during installation or servicing in the future.
- Do** mount the unit on the floor as close to the steam distribution pipe(s) as possible..
- Do** ensure adequate front access to the electrical and gas burner. 1000(min 39").
- Do** ensure adequate ventilation to unit for control panel maximum temperature of operation 45 °C (113 °F).
- Do** Check with code of practice and qualified engineer the standard of installation require for location of heat exchanger i.e. type **B** for ventilated plant room or type **C** for most other areas.
- Do** ensure if unit is a type B and take air from the space there is adequate ventilation within the space to feed unit, in accordance to building regulations codes of practice.
- Do** check the appliance data plate and technical information tables conforms to the water supply, mains electrical and the type of gas supply to your building.
- Do** locate the appliance direct on combustible floor or in the US wood flooring or class A, Class B, or Class C roof covering material only if the unit is installed outdoors.
- Do** allow adequate clearance for servicing and proper operation, to the front of unit 1000mm (39") and to each side 610mm (24").

#### Don'ts

- Don't** mount the unit close to sources of strong electro-magnetic emissions e.g. variable speed lift motor drives, kVa transformers etc.
- Don't** mount the unit in an unventilated enclosure.
- Don't** mount in a position requiring ladder access to the unit.
- Don't** mount the unit behind a false ceiling, wall or other situation where an unusual malfunction (e.g. water leak) would cause damage.
- Don't** install this appliance a damp environment or close to equipment which spray water or other liquid.
- Don't** mount the unit in an area which will be hosed down.
- Don't** install the unit where the ambient temperature can exceed 45°C (113 °F); or fall below 5°C (48 °F) and freeze the heat exchanger.
- Don't** mount the unit inside a cold-room or other place where temperature and humidity conditions can cause condensation on electrical components.
- Don't** mount the unit where the sound of a contactor opening/closing and water flow in a pipe would be unacceptable e.g. libraries, private apartments, etc.
- Don't** place objects on the appliance
- Don't** place combustible constructions closer than 915mm (36") at back and sides of unit and 1220mm (48") in front and top of unit.
- Don't** installed the appliance directly on carpeting, tile or other combustible material other than wood flooring if the unit is installed indoors.
- Don't** block or place an item 305mm (12") around air openings into the unit for combustion

### 1.2 Technical information

The gas-fired humidifier is supplied preset for USA and Canada to G20

Gas Type	CALORIFIC VALUE $\text{Mj/m}^3$ (Btu/ft <sup>3</sup> )		Category index
	GROSS $H_s$	NET $H_i$	
Natural Gas	45.28 $\text{Mj/m}^3$ 1075 Btu /ft3	40.1 $\text{Mj/m}^3$ 952 Btu/ft3	Category I or Category IV/240F maximum vent gas temperature

The unit may run within a range of inlet pressures. This said, it is not recommended that the extreme values of the envelope are used as this reduces the margin for error. The following table displays a normal (and also what would be called and ideal) inlet pressure, along with High and Low extremes of inlet pressure that can be used

Test Gas	Reduced Pressure Inches of water	Normal Pressure Inches of water	Increased Pressure Inches of water
Natural Gas	8.7 mbar (3.5"w.g.)	17.5 mbar (7.0"w.g.)	26.1mbar (10.5"w.g.)

#### 1.2.1 Gas pressure testing

The appliance and its individual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures equal to or less than 1/2 psig (3.5 kPa). The appliance must be isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig (3.5 kPa).

A 1/8 inch NPT plugged tapping, accessible for test gauge connection, must be installed immediately upstream of the gas supply connection to the appliance.

### 1.3 Technical information

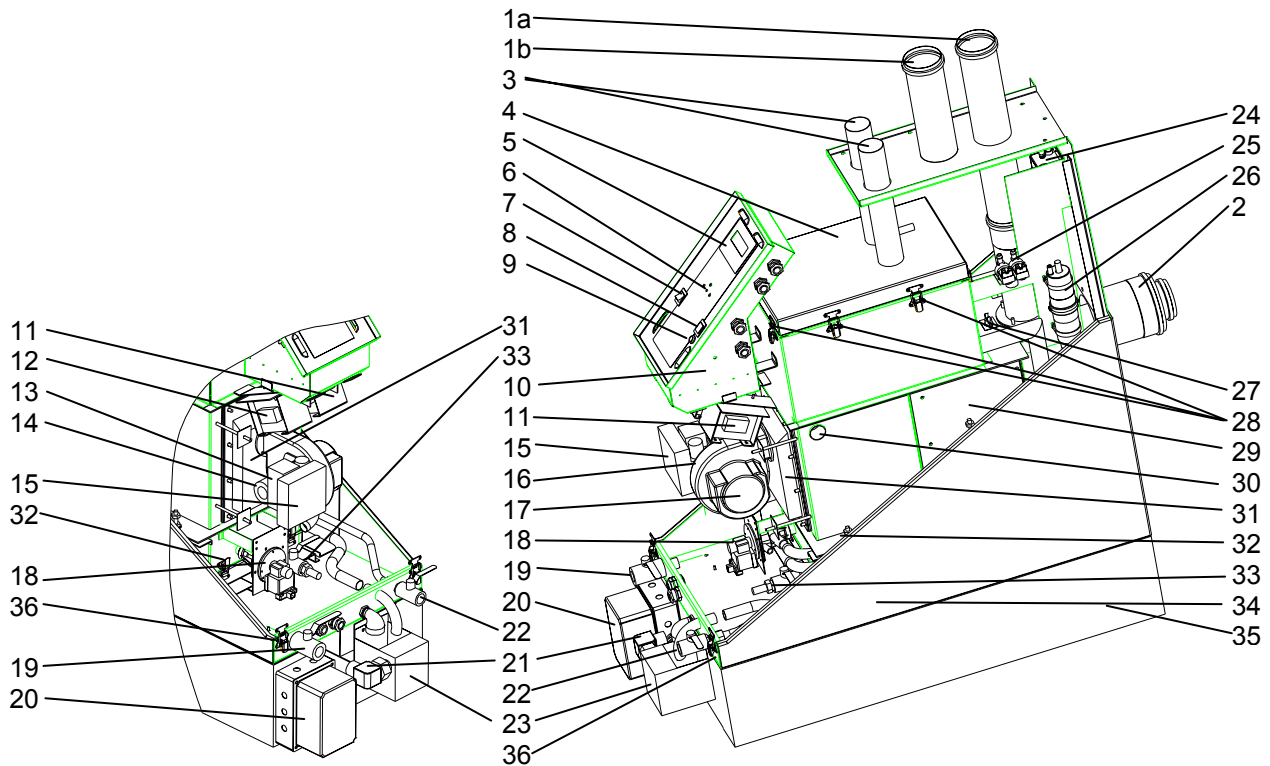
TABLE 1 Technical DATA												
Calorific value for Natural gas = 1075 Btu/ft <sup>3</sup> = 40.1 MJ/Kg												
Gas Fired Unit model	Steam output	Burner input pwr GROSS Hi	Burner input pwr NET Hs	Max GAS rate	Start fan speed RPM	Min fan speed RPM	Max fan speed RPM	CO <sub>2</sub> setting at minimum speed RPM / CO <sub>2</sub>	CO <sub>2</sub> setting at maximum speed RPM / CO <sub>2</sub>	Efficiency maximum speed GROSS	Efficiency maximum speed NET	Average water consumption
Gas type	Kg/hr (lb/hr)	kW (Btu/hr)	kW (Btu/hr)	M3/hr (ft <sup>3</sup> /hr)	A	A	A	A	A	%	%	L/min(USGal/min)
GF13	6 (13.2)	5.01 (17010)	4.51 (15393)	0.48 (16.96)	2750	1320	1496	1320 / 8.7	5430 / 9.3	86.7	95.6	0.11 (0.029)
GF22	10 (22)	8.14 (27782)	7.33 (25017)	0.78 (27.56)	2750	1320	2151	1320 / 8.7	5430 / 9.3	86.5	95.4	0.18 (0.047)
GF22P	6-10 (13.2 – 22)	8.14 (27782)	7.33 (25017)	0.78 (27.56)	2750	1320	2151	1320 / 8.7	5430 / 9.3	86.5	95.4	0.18 (0.047)
GF44	20 (44)	15.96 (54471)	14.37 (49044)	1.52 (53.71)	2750	1320	3790	1320 / 8.7	5430 / 9.3	86.5	95.4	0.37 (0.098)
GF44P	6-20 (13.2 – 44)	15.96 (54471)	14.37 (49044)	1.52 (53.71)	2750	1320	3790	1320 / 8.7	5430 / 9.3	86.5	95.4	0.37 (0.098)
GF66	30 (66)	23.78 (81195)	21.42 (73106)	2.27 (80.21)	2750	1320	5429	1320 / 8.7	5430 / 9.3	86.3	95.1	0.55 (0.145)
GF66P	6-30 (13.2 – 66)	23.78 (81195)	21.42 (73106)	2.27 (80.21)	2750	1320	5430	1320 / 8.7	5430 / 9.3	86.3	95.1	0.55 (0.145)
GF88	40(88)	32.05 (109386)	28.86 (98499)	3.05 (107.77)	2750	1485	2715	1480 / 8.7	5665 / 9.3	86	94.8	0.73 (0.193)
GF88P	17-40 (37 – 88)	32.05 (109386)	28.86 (98499)	3.05 (107.77)	2750	1485	2715	1480 / 8.7	5665 / 9.3	86	94.8	0.73 (0.193)
GF110	50 (110)	39.96 (136383)	35.98 (122797)	3.81 (134.63)	2750	1485	3371	1480 / 8.7	5665 / 9.3	85.6	94.4	0.92 (0.243)
GF110P	17-50 (37 – 110)	39.96 (136383)	35.98 (122797)	3.81 (134.63)	2750	1485	3371	1480 / 8.7	5665 / 9.3	85.6	94.4	0.92 (0.243)
GF132	60 (132)	47.86 (163345)	43.1 (147099)	4.56 (161.13)	2750	1485	4026	1480 / 8.7	5665 / 9.3	85.4	94.2	1.1 (0.29)
GF132P	17-60 (37 – 132)	47.86 (163345)	43.1 (147099)	4.56 (161.13)	2750	1485	4026	1480 / 8.7	5665 / 9.3	85.4	94.2	1.1 (0.29)
GF154	70 (154)	55.77 (190342)	50.22 (171400)	5.31 (187.63)	2750	1485	4682	1480 / 8.7	5665 / 9.3	85.3	94	1.28 (0.338)
GF154P	17-70 (37 – 154)	55.77 (190342)	50.22 (171400)	5.31 (187.63)	2750	1485	4682	1480 / 8.7	5665 / 9.3	85.3	94	1.28 (0.338)
GF187	85 (187)	67.62 (230785)	60.89 (207816)	6.44 (227.56)	2750	1485	5665	1480 / 8.7	5665 / 9.3	85.2	93.9	1.56 (0.412)
GF187P	17-85 (37 – 187)	67.62 (230785)	60.89 (207816)	6.44 (227.56)	2750	1485	5665	1480 / 8.7	5665 / 9.3	85.2	93.9	1.56 (0.412)

#### GENERAL DATA

Gas Fired Unit MODEL	Operating Gas pressure rang atm		CO at minimum speed	CO at maximum speed	NOx at minimum speed	NOx at maximum speed	Water flow rate	Minimum water pressure	Maximum water pressure	Water content	Discharge steam pressure psi		Electrical power absorbed	Weight empty (no water)	IP rating
	Minimum	Maximum	ppm	ppm	ppm	ppm	gpm				Minimum	Maximum	KW	Kg (lb)	
GF13 – GF66 & GF13P – GF66P	15 mbar 6 “w.g.	27 mbar 10.8 “w.g.	3	22	15	36	1.3	1.5 Bar 0.22 psi	10 Bar 1.45 psi	22 l 5.8 USgal	-2000Pa -0.29 psi	2000Pa 0.29 psi	70	125 (275)	20
GF88 - GF 187 & GF88 – GF187P	15 mbar 6 “w.g.	27 mbar 10.8 “w.g.	3	22	15	36	1.3	1.5 Bar 0.22 psi	10 Bar 1.45 psi	22l 9.5 USgal	-2000Pa -0.29 psi	2000Pa 0.29 psi	90	142.5 (314)	20

All units are supplied to run on 220 – 240 volts 50 – 60 Hz. single phase and Natural plus EARTH or two phase, plus EARTH Units can run on 110 – 120 volts

### 1.3 General layout of unit



#### Key:-

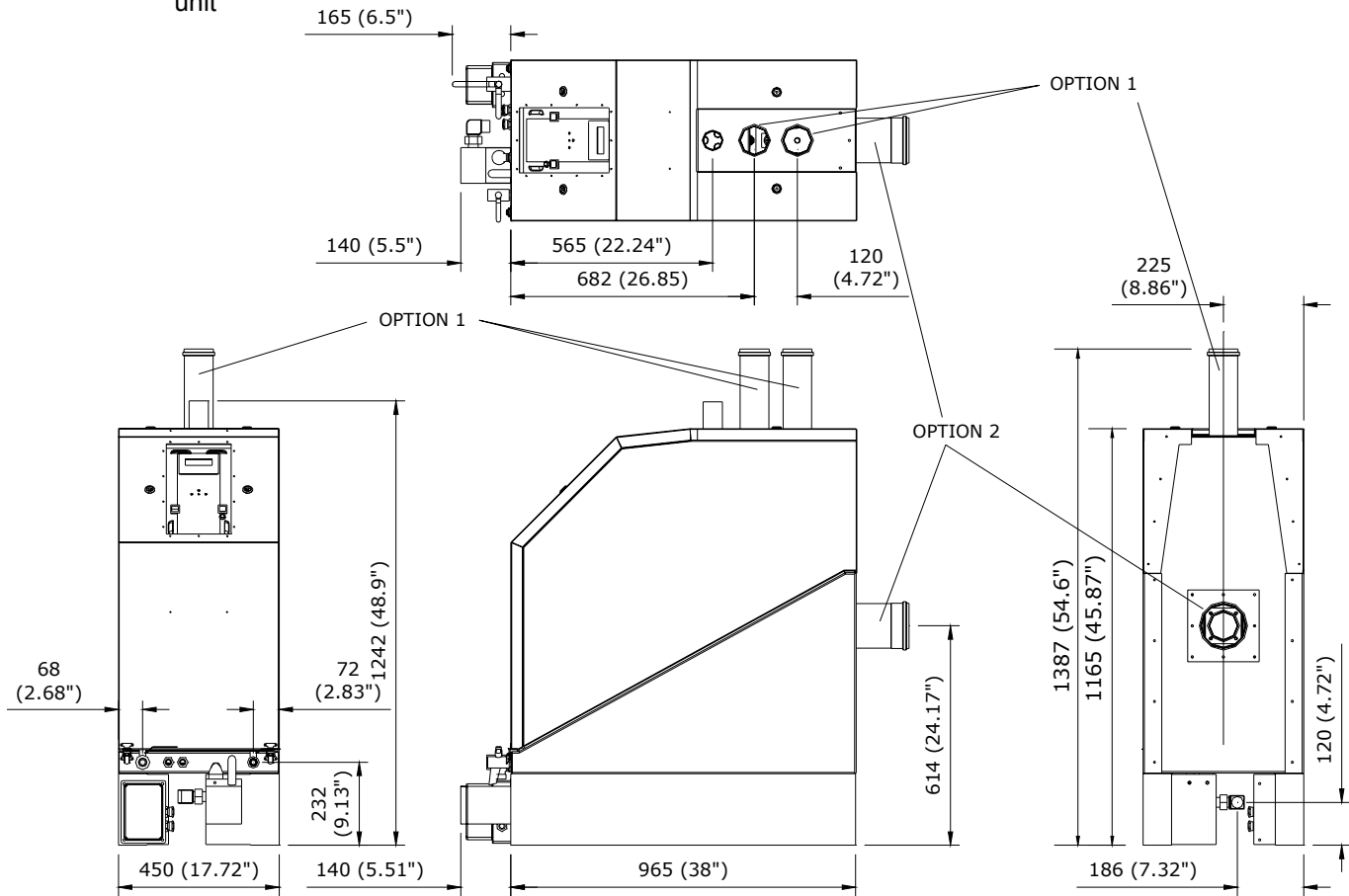
- |    |   |    |  |
|----|---|----|--|
| 1a | Flue outlet Option 1                    | 19 | Gas supply isolator valve and connection       |
| 1b | Air intake Option 1                     | 20 | Electrical connection terminal box.            |
| 2  | Coaxial flue connection Option 2        | 21 | Drain connection.                              |
| 3  | Steam outlet                            | 22 | Water feed isolation valve and connection      |
| 4  | Heat exchanger top inspection cover lid | 23 | Drain discharge tundish.                       |
| 5  | Optional display and keypad             | 24 | Water feed tundish                             |
| 6  | Microprocessor display LED              | 25 | Water feed twin solenoid valve.                |
| 7  | Auto run / off / drain rocker switch.   | 26 | Float switches chamber.                        |
| 8  | Mains on lamp.                          | 27 | Heat exchanger high temperature cutout.        |
| 9  | Lockout reset button                    | 28 | Top inspection cover lid fasteners.            |
| 10 | Electrical control panel.               | 29 | Heat exchanger chamber inspection cover        |
| 11 | Burner fan motor supply transformer.    | 30 | Burner flame inspection glass.                 |
| 12 | Control transformer                     | 31 | Burner mat assembly.                           |
| 13 | Gas valve                               | 32 | Bottom inspection and cleaning cover fasteners |
| 14 | Air intake venture                      | 33 | Heat exchanger manual drain cock.              |
| 15 | Gas valve controller                    | 34 | Heat exchanger base enclosure.                 |
| 16 | Fan                                     | 35 | Plinth side legs                               |
| 17 | Fan motor                               | 36 | Casing lid fasteners                           |
| 18 | Drain pump                              | 37 | Enclosure cover (not shown).                   |

TABLE 2 Connection details	GF 13 – 66 (P)	GF88-187 (P)
1a Flue outlet OPTION 1	1 x 3" 80mm Outside diameter pipe	1 x 3" 80mm Outside diameter pipe
1b Air intake pipe OTION 1	1 x 3" 80mm Outside diameter pipe	1 x 3" 80mm Outside diameter pipe
2 Coaxial flue system OPTION 2	1 x 3" / 5" 80/125 diameters coaxial	1 x 3" / 5" 80/125 diameters coaxial
3 Steam outlet	1 x 2 1/8" 54mm outside diameter pipe	2 x 2 1/8" 54mm outside diameter pipe
19 Gas supply	1 x 1/2" NPT female into valve	1 x 3/4" NPT female into valve
20 Electrical connections		
Mains feed	Live neutral & earth into 14 awg screw clamp terminal	
Run & fault remote indication.	6 x 1.5 spring clip terminals COM, N.O. & N.C. one for each condition	
Remote control input signal or sensor	12 x 1.5 spring clip terminal see wiring diagram and connection details	
Network link connections	3 x plug connection terminals	
Remote fan supply interlock with unit run	Live neutral & earth into 14 awg screw clamp terminal	
21 Drain connection	1 1/2" NPT for 1.5" pipe drain connection from tundish to waste gully.	

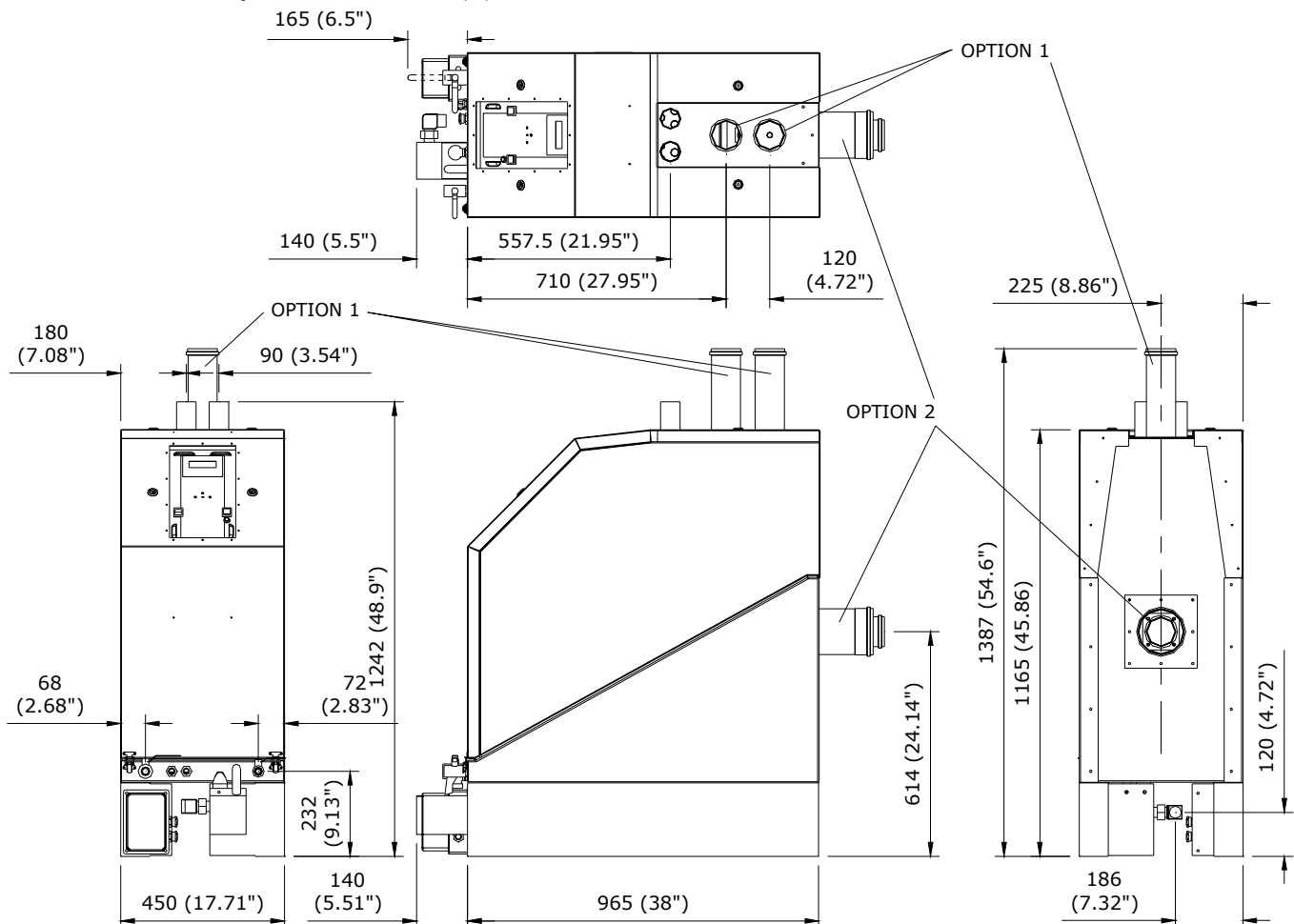
22 Water feed connection	1/2" NPT female into valve	1/2" NPT female into valve
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**1.4 Humidifier dimensions**

All dimensions are in mm (inches)

Dimension layout of GF 13 - 66(P)  
unit

Dimension layout of GF 88 - 187(P) unit



### 1.5 Flue arrangement

There are two types of flue arrangement the unit can be installed to. Type "B" which takes air from the plant room for combustion. OR type "C" which is a balanced sealed air inlet with flue discharge these can be used for specified occupied area in accordance to the relative gas suppliers regulations and country code of practice. The following information is for guidance only, and must be read in conjunction with the specific country's code of practice and gas regulations.

An appliance shall not be connected to a chimney flue serving a separate appliance designed to burn solid fuel.

Provisions for adequate combustion and ventilation air in accordance with Section 5.3, Air for Combustion and Ventilation, of the National Fuel Gas Code, ANSI Z223.1, or Sections 7.2, 7.3 or 7.4 of CAN/CGA B149 Installation Codes, or applicable provisions of the local building codes.

Excessive exposure to contaminated combustion air will result in safety and performance related problems.

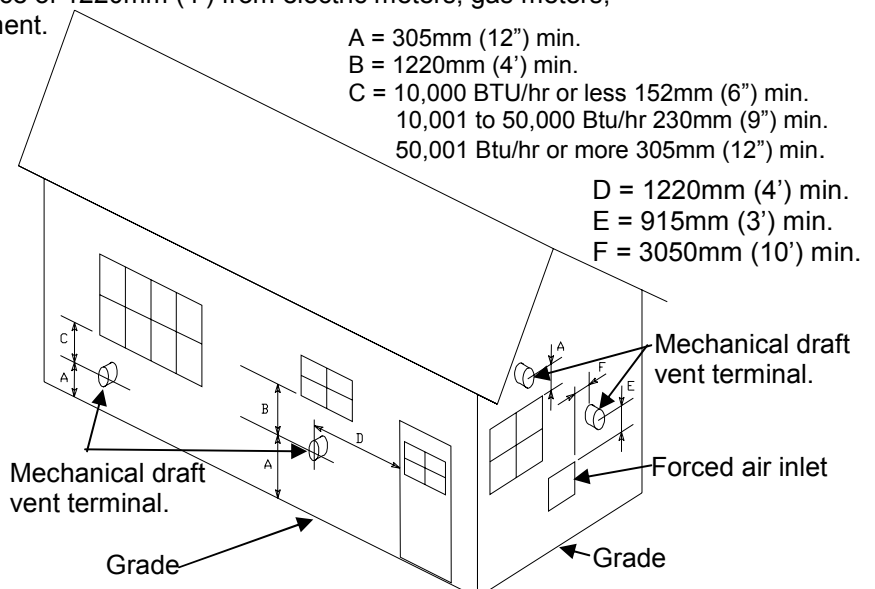
The installer must follow the information on where the vent terminal should and should not terminate:

- a. The exit terminal of the mechanical draft system shall not be less than 2133mm (7') above grade where located adjacent to public walkways or adjacent buildings, open able windows and building openings, consistent with the National Fuel Gas Code, ANSI Z223.1 and CAN/CGA B149 Installation Codes.
- b.
  1. The mechanical draft venting system shall terminate at least 915mm (3') above any forced air inlet located within 3050mm (10')
  2. The mechanical draft venting system, excluding direct-vent application shall terminate at least 1220mm (4') below, 1220mm (4') horizontally from or 305mm (1') above any door, window, or gravity air inlet into any building. The bottom of the vent terminal shall be located at least 305mm (1') above grade.
  3. The vent terminals of direct-vent appliance with an input of 3Kw (10,000 Btu/hr) or less shall be located at least 152mm (6") from any air opening into a building, and such an appliance with an input over 3Kw (10,000 Btu/hr) but not over 14.7Kw (50,000 Btu/hr)s shall have at least a 230mm (9") vent terminal clearance, over 14.7Kw (50,000 Btu/hr) 305mm (12") vent terminal clearance. The bottom of the vent terminal and the air intake shall be located at least 305mm (12") above grade.
  4. Through-the-wall vent for Category II and Category IV appliances and noncategorized condensing appliance shall not terminate over public walkways or over an area where condensate or vapor could create a nuisance or hazard or could be detrimental to the operation of regulators, relief valves, or other equipment. Where local experience indicates that condensate is a problem with Category I and Category III appliances, this provision shall also apply.

SEE DIAGRAM BELOW

- c. To prevent snow blockage the flue discharges and air inlets must be a minimum of 305mm (12") above grade and above normal snow levels.
- d. minimum horizontal clearance of 1220mm (4') from electric meters, gas meters, regulators and relief equipment.

- e. The installer must be aware that flue gases can causes degradation to building materials. To protect the building materials against degradation the use of a rust resistant sheet metal 305mm (12") or 457mm (18") or 610mm (24 ") Diameter or square backing plate behind the vent terminal can be installed.





### 1.5.1 Standard flue Vapac supply type "B" parts

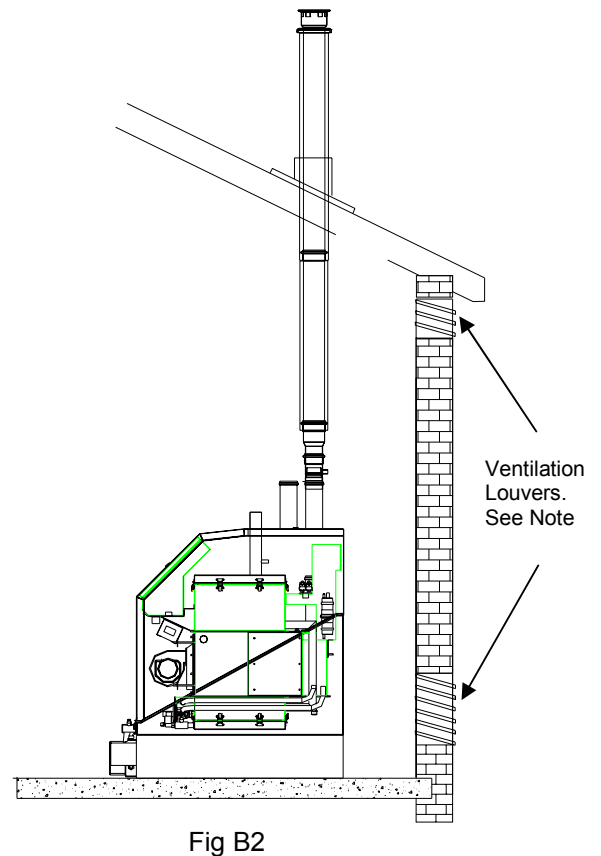
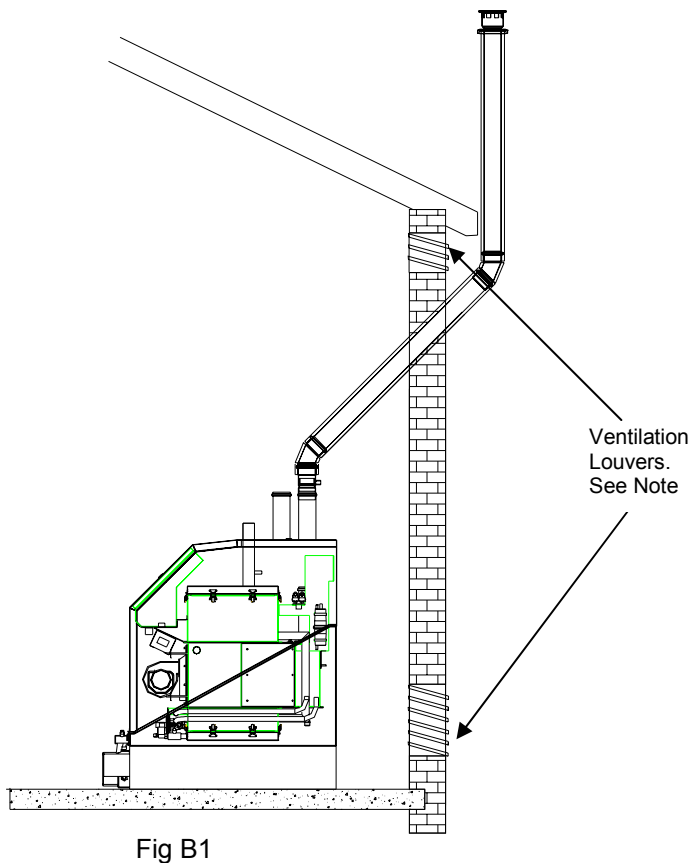
Acceptable vent flue manufacturer for Type B open flue system installation.

Acceptable Manufacturer				
Name	Simpson Dura vent	American metal product	Selkirk North America	Interactive
Product Model	Type B gas vent	Ameriflex	Type"B" Gas Vent GV-20 RV	Axioma
Website	<a href="http://www.duravent.com">www.duravent.com</a>	<a href="http://www.americanmetalproducts.com">www.americanmetalproducts.com</a>	<a href="http://www.selkirkinc.com">www.selkirkinc.com</a>	Via Vapac direct order
Phone	1-800-835-4429	1-800-423-4270	1.800.992.8368	0044 1732 863447
Material	B Vent Galvanize steel			Stainless steel or Aluminium

#### 1.5.1.1 TYPE "B" category I Open flue system

Category I appliance must be vented vertically.

Vent connection serving category I appliances shall not be connected into any portion of the mechanical draft system operating under positive pressure.



Note: Louvers must meet ventilation requirements for local authorities, national standards and local gas regulator

### 1.5.2 Standard flue Vapac supply type "C" parts

FOR TYPE "C" FLUES single pipe

Acceptable vent flue manufacturer for Type C (sealed combustion) concentric pipe system installation.

Name	Heat-Fab	Z-Flex	Interactive
Product Model	Saf-T vent SC	Z-Vent SX	Axioma
Website	<a href="http://www.heat-fab.com">www.heat-fab.com</a>	<a href="http://www.novaflex.com">www.novaflex.com</a>	Via Vapac direct order
Phone	1-800-772-0739	1-800-654-5600	0044 1732 863447
Material	BH Vent Special Gas vent		Stainless steel or Aluminium

FOR TYPE "C" FLUES concentric and double pipe

Acceptable vent flue manufacturer for Type C (sealed combustion) twin pipe system installation.

Acceptable Manufacturer					
Name	Heat-Fab	Z-Flex	Selkirk North America	Protech Systems	Interactive
Product	Saf-T vent EZ Seal	Z-Vent III Special Gas Vent	MODEL CV SINGLE WALL SPECIAL GAS VENT	FasNSEal	Axioma
Website	<a href="http://www.heat-fab.com">www.heat-fab.com</a>	<a href="http://www.novaflex.com">www.novaflex.com</a>	<a href="http://www.selkirkinc.com">www.selkirkinc.com</a>	<a href="http://www.protechinfo.com">www.protechinfo.com</a>	Via Vapac direct order
Phone	1-800-772-0739	1-800-654-5600	1.800.992.8368	1-800-766-3473	0044 1732 863447
Material	BH Vent Special Gas vent				Stainless steel or Aluminium

**For** air inlet pipe material, use any of the above or from the following specified materials:

- 1) PVC , CPVC , or ABS 4"
- 2) Galvanized steel vent pipe with joints and seams sealed.

### 1.5.2.1 Gas Fired Humidifier general flue requirement for open and sealed systems.

If flue requires 100mm (4") pipe then the flue condensation trap should be connected onto the humidifier flue outlet then the flue reducer installed into the flue condensation trap (As shown in the diagram below).

The flue condensation trap has a drain pipe which must be piped vertically down to a trap 300mm (12") below the outlet, the trap must have a minimum of 25mm (1") deep. The outlet from this trap should be piped away to a gully or drain with a fall greater than 1 : 20.

Horizontal flue runs must slop upward not less than 21mm/m (1/4" per 1') from the appliance to vent terminal. Horizontal flue must be supported every 1000mm (39") to prevent sagging of vent system.

The unit is spaced a minimum of 100mm (4") of the rear wall to allow the cover to be removed. It also allows the services to run down the back of the unit so they can be piped up under the units plinth to the front connection points.

The flue requirements must be installed to table 3 and 4 below:-

Table 3 requirements for GF 88 – 187(P)

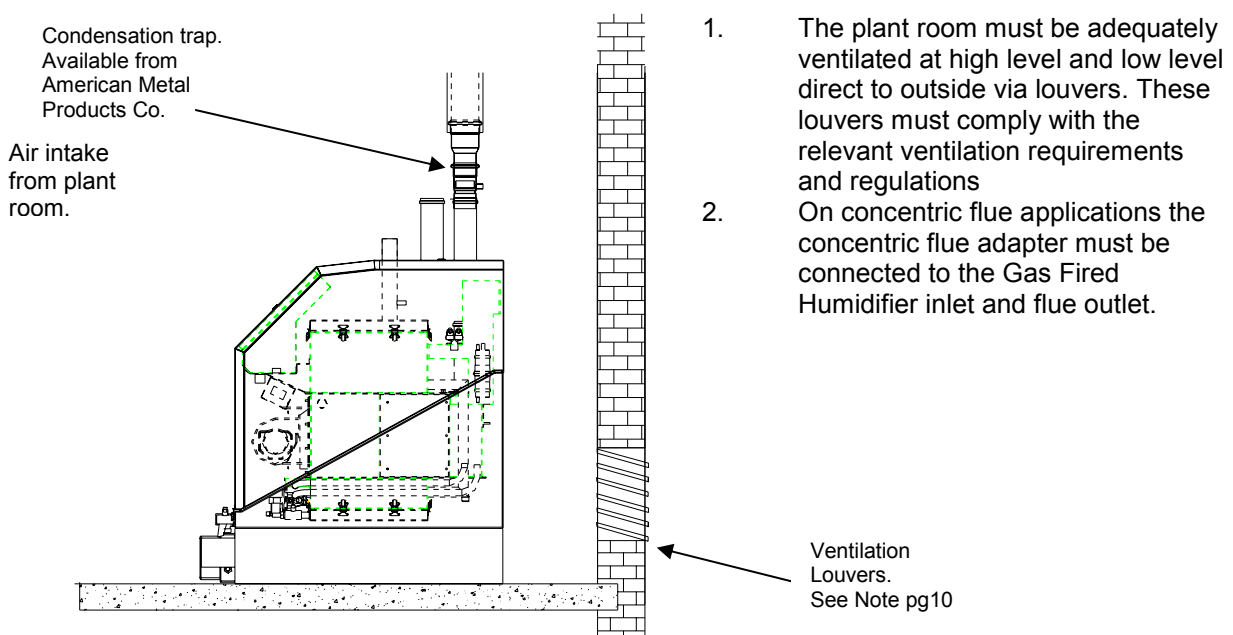
Total equivalent length of flue run	Flue pipe diameter required	Insulated flue required	Minimum length of initial vertical flue	Flue reducer required	Condensation trap required	Maximum distance condensation trap can be away from heat exchanger discharge.
> 100"	80 (3")	Yes	1m (40")	No	No	-
<100">1200"	80 (3")	Yes	1m (40")	No	Yes	4.0m (160")
<1200">2000"	100 (4")	Yes	1m (40")	Yes	Yes	2.4m (100")
< 2000"	NOT PERMITTED					

Concentric flue 125mm (5") outer with 80mm (3") inner maximum equivalent length of run is 5m (200")

Table 4 requirements for GF 13-66(P)

Total equivalent length of flue run	Flue pipe diameter required	Insulated flue required	Minimum length of initial vertical flue	Flue reducer required	Condensation trap required	Maximum distance condensation trap can be away from heat exchanger discharge.
> 100"	80 (3")	Yes	1m (40")	No	No	-
<100">1200"	80 (3")	Yes	1m (40")	No	Yes	4.0m (160")
<1200">2000"	100 (4")	Yes	1m (40")	Yes	Yes	2.4m (100")
< 2000"	NOT PERMITTED					

Concentric flue 125mm (5") outer with 80mm (3") inner maximum equivalent length of run is 5m (200")



All flue and venting system must be installed so as to prevent accumulation of condensate. where necessary, have means provided for drainage of condensate as shown above.

**1.5.2.2 TYPE "C" Category IV Room sealed Concentric flue system.**

Any horizontal portions of the venting system shall be supported every 1000mm (39") to prevent sagging, the methods and intervals for support shall be specified. The horizontal runs must sloping upwards not less than 21 mm/m (1/4 inch per foot) from the appliance to the vent terminal.

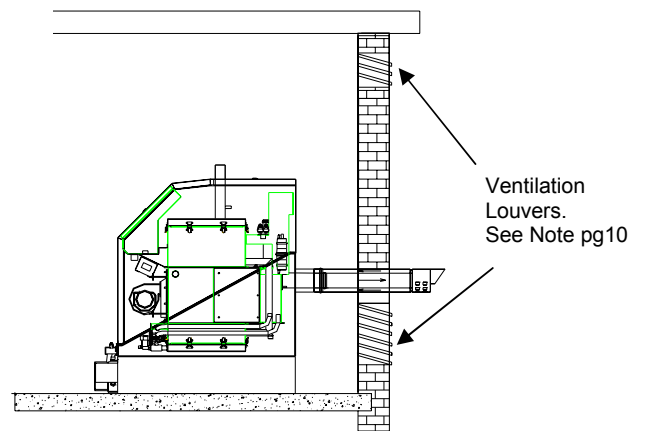
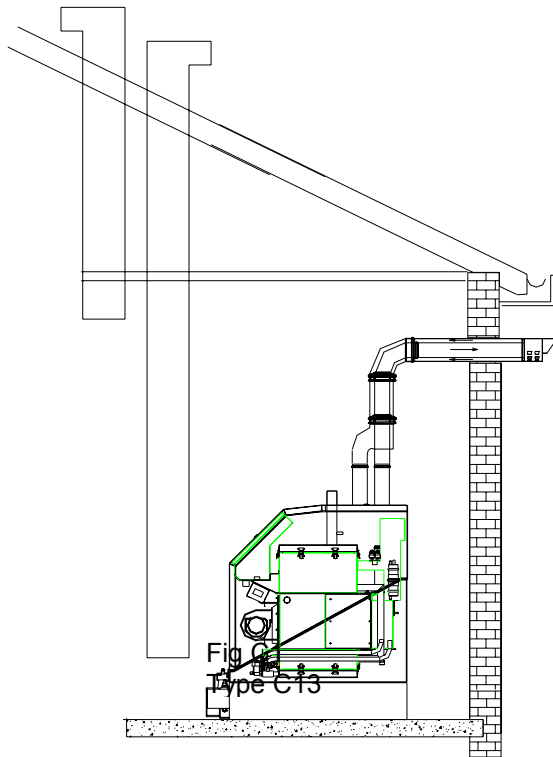


Fig C2  
Type C13

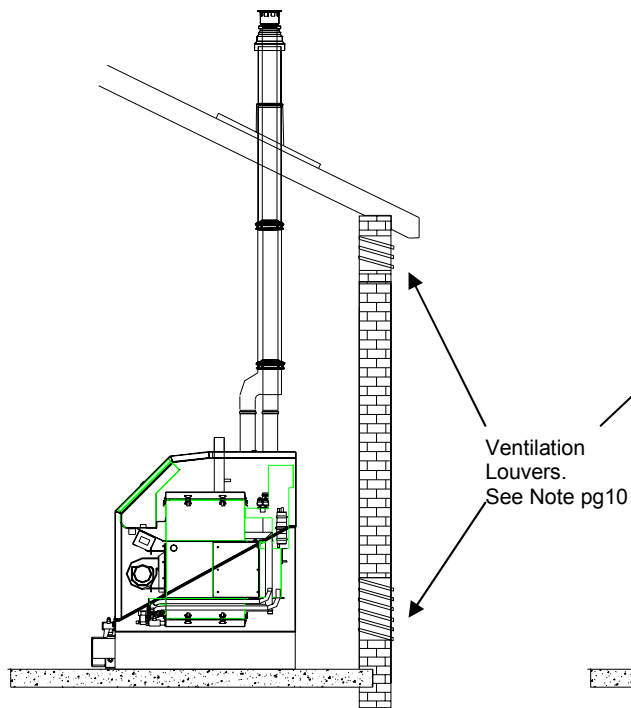


Fig C3  
Type C33

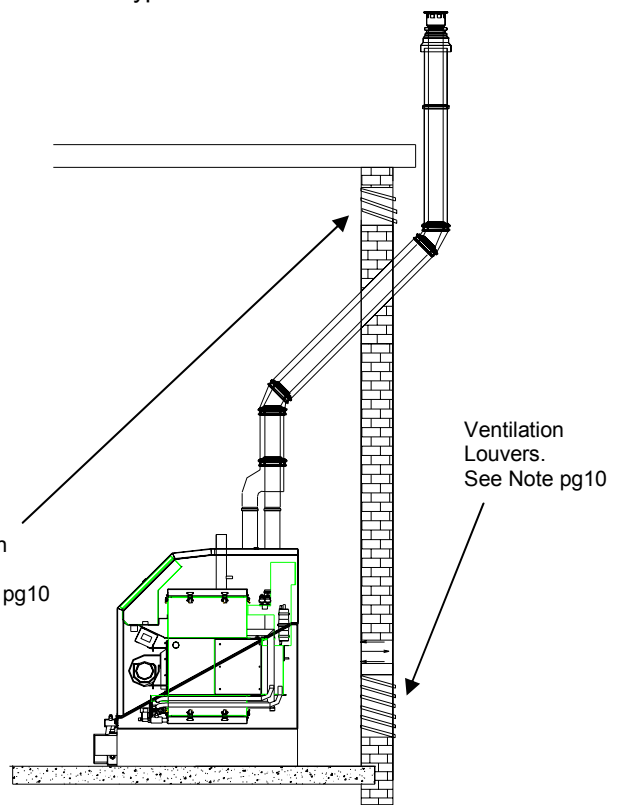
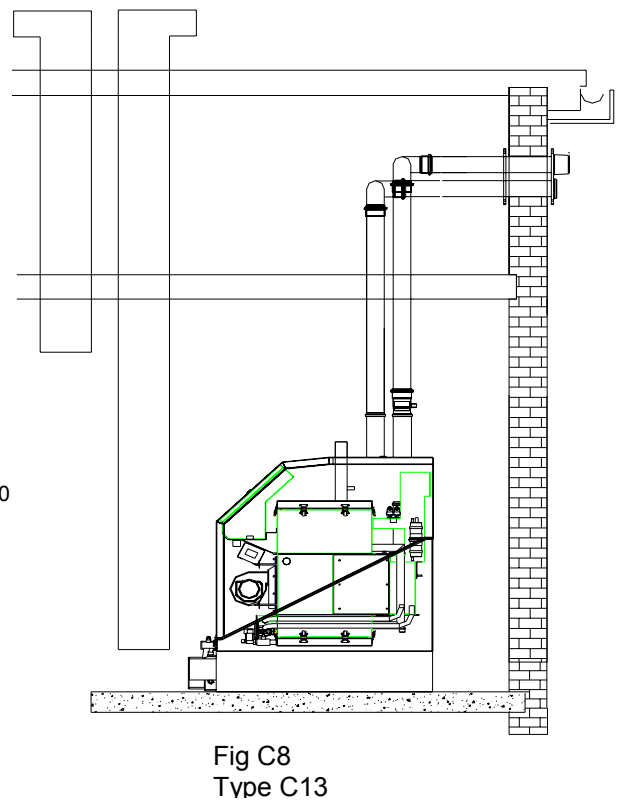
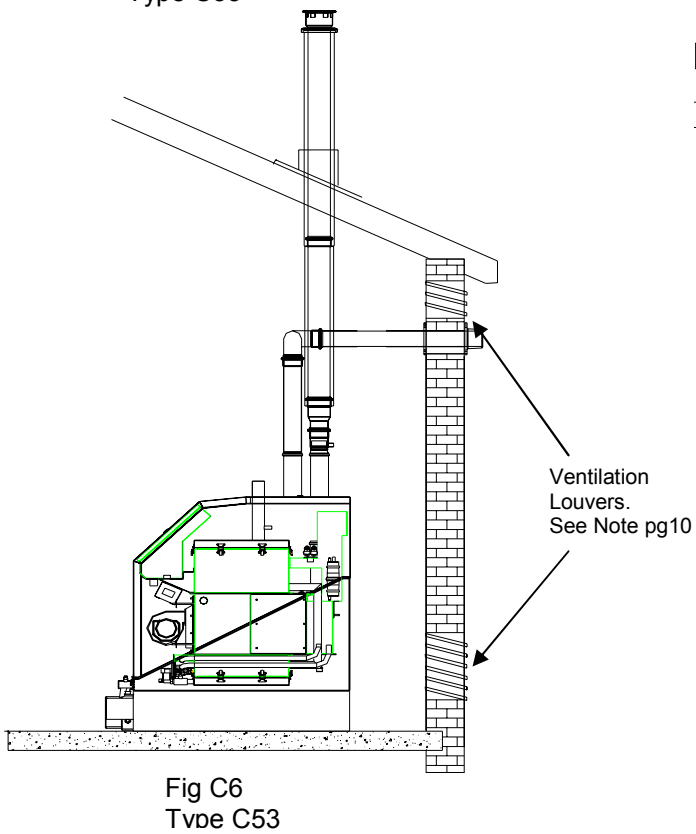
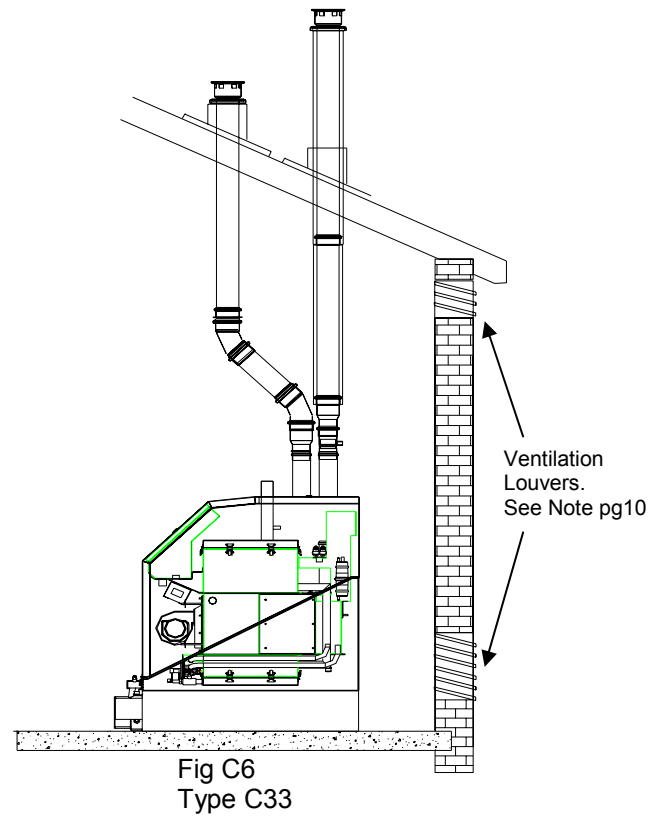
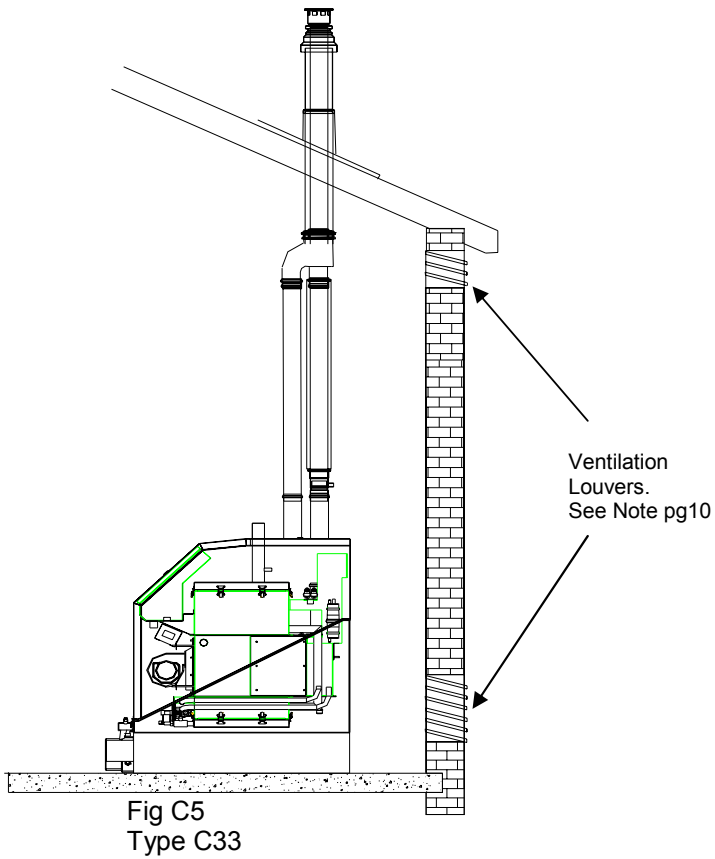


Fig C4  
Type C33

### 1.5.2.3 TYPE "C" Room sealed Twin pipe flue system.



## 1.6 Steam Pipe Positioning

Key :-

- 1 Insulated Steam Pipe
- 2 Steam Distribution Pipe
- 3 Hose clip
- 4 Condensate Separator

Z = 255mm (10") minimum Radius for 35mm (1 1/4") Ø pipe,  
510mm (20") minimum Radius for 54mm (2") Ø pipe.

Notes Con't :-

- 4 Vertical mounted steam pipe must discharge horizontally facing upstream airflow.
- 5 If the total pressure within the duct air flow exceeds 2000 Pa (0.3 psi) and the static pressure is below -2000Pa (-0.3 psi) then the probe may face horizontally at right angles to the air stream.

Notes:-

- 1 Steam pipe to have a minimum slope from the horizontal of 7° or 12% to allow the condensate to drain back to tank or trap.

**NO HORIZONTAL RUNS.  
NO 90° ELBOWS.**

- 2 Water condensate to slope at 10° or 18% from horizontal for condensate to drain back to drain point.

- 3 Steam pipes horizontal mounted must discharge vertically upward.

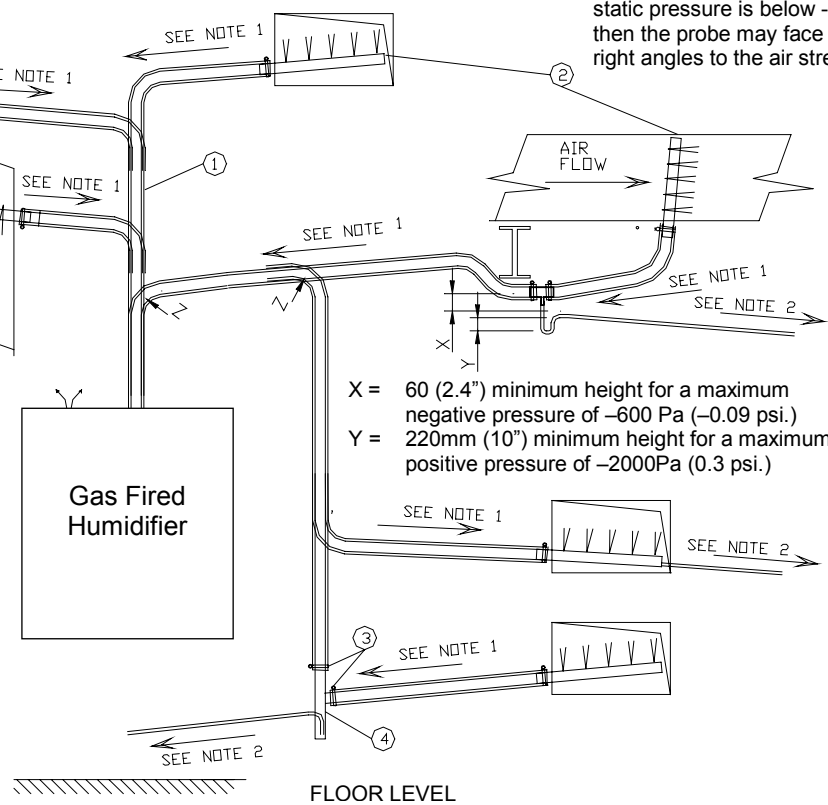


Fig 4

54 mm (2") Ø Steam Pipes.

In-duct length	Standard	Reverse slope
450 (18")	M520074	M520077
650 (26")	M520071	M520078
900 (36")	M520072	M520079
1400 (55")	M520073	M520080

NB. All reverse slope Steam Pipes are fitted with a 15mm Ø condensate drain spigot.

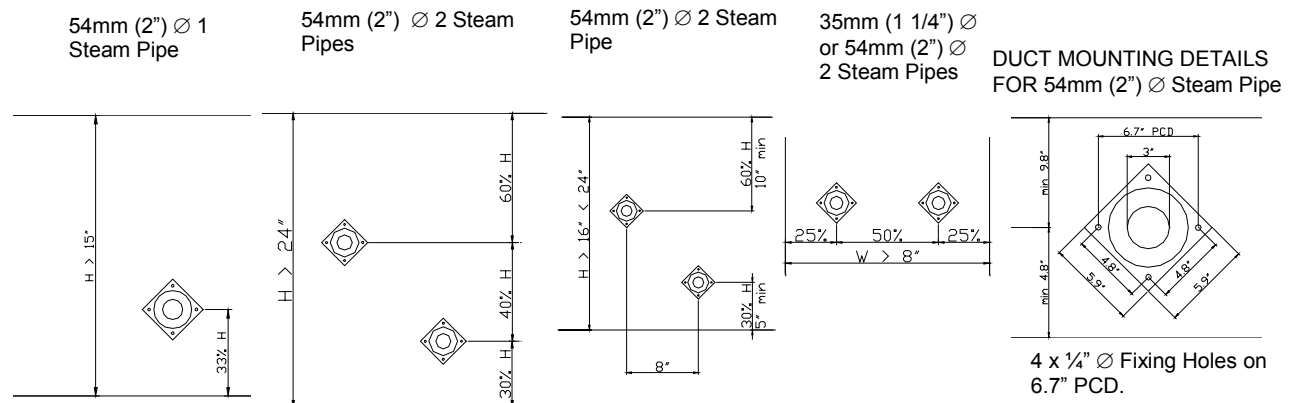


Fig 5

## 1.7 Positioning the steam pipes

### General

Steam pipes should be positioned as shown below, allowing a minimum rate of fall back to the unit of 12% to allow the free flow of condensate back to the unit. If the above fall is not possible, then condensate separators must be fitted as shown in figure 1.

The position of the steam pipe or multipipe in a air-conditioning system relative to other items such as bends, filters, heat exchangers, etc. is critical. The steam pipe must not be located closer to such item, than the entrainment distance, and must be decided by the design engineer responsible for the project.

### Do's

- Do** obtain project engineer's instruction/drawing for chosen location of pipe
- Do** obtain project engineer's instruction/drawing for pipe position relative to the top & bottom of the duct (or sides if airflow is vertical).
- Do** use bracket/lug on the end of 54mm (2") Ø pipes for extra support.

### Steam Hose Connection

### Do's

- Do** use Vapac steam hose or well insulated stainless steel or copper pipe.
- Do** keep steam hose as short as possible (under 2032mm (80") for max efficiency).
- Do** arrange to have a vertical rise immediately over the unit of 305mm (12").
- Do** use the full height available between the unit and steam pipe to provide maximum slope (min 12-20% for condensate to drain back to the steam tank (or down to a condensate separator). Always provide a continuous slope.
- Do** provide adequate support to prevent sagging
  - a) fit pipe clips every 305 – 510mm 12"-20"
  - or b) support straight lengths on cable trays or in heat resistant plastic pipe.
- Do** ensure radius hose bends are fully supported to prevent kinks developing when in service.
- Do** add extra insulation to steam hose for longer runs 1000 – 5000mm (39"-197") and in cold ambient conditions to avoid excess condensate and reduction in delivered output.

### Don'ts

- Don't** allow steam hose to develop kinks or sags.
- Don't** include horizontal runs or 90° elbows in the steam line.

TABLE 8 Steam Distribution Pipe requirement			
Gas Fired Unit Model	GF13 GF22 GF22P GF44 GF44P GF66 GF66P	GF88 GF88P GF110 GF110P GF132 GF132P	GF154 GF154P GF187 GF187P
54" mm (2") Ø. Pipe No.	1	2	
* Duct Pressure Pa (in.w.g.)	+2000 (+8) -2000 (-8)	+2000 (+8) -2000 (-8)	

\*For systems with a duct pressure over 1000Pa(+0.15 psi). It may be necessary to fit a suitably sized trap in the water feed line between the Vapac tundish and the feed drain manifold to ensure water can enter the tank when it is empty.

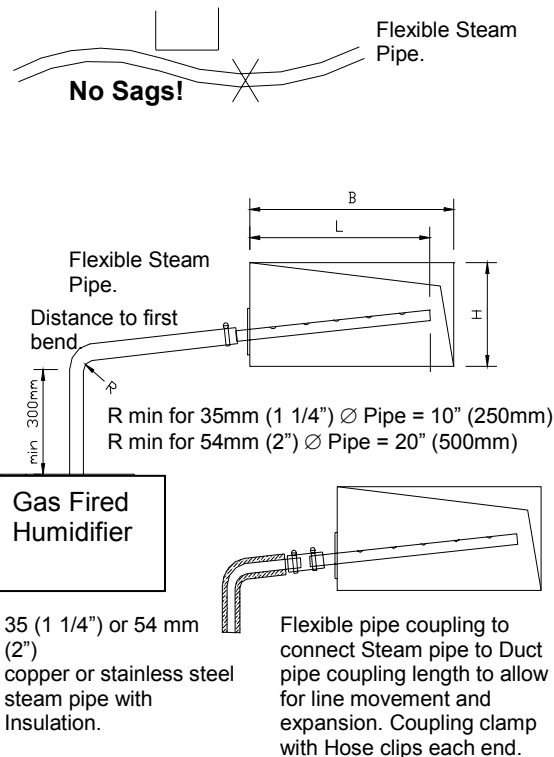


Fig 6

TABLE 9 54mm (2") Ø Pipe Selection			
Duct width B mm (in)	In-duct Length L mm (in)	Maximum Steam output per pipe Kg/hr (lb/hr)	Weight kg (lb.)
500 – 700 (20 – 27 1/2)	450 (17 1/2)	26 (57)	1.0 (2.2)
700 – 940 (27 1/2 – 37)	650 (25 1/2)	40 (88)	1.2 (2.6)
940 – 1450 (37 – 57)	900 (35 1/2)	45 (99)	1.8 (4.0)
1450 + (57+)	1400 (55)	45 (99)	2.2 (4.9)

For all accessories refer to Vapac's accessory list literature for guidance

## 1.8 Plumbing Considerations.

### Cold water supply.

#### General

The Gas fired Humidifier range of units is capable of operating with a range of water quality raw mains or de-mineralised/de-ionised. The water supply should be within the following limits:-

**Conductivity** 0 – 1000µS  
**PH** 7.3 – 8.0  
**Silica** 0  
**Pressure of between** 1.5 – 8 Bar  
**22 – 116 psi.**  
**Maximum chlorine level** 170 ppm

If the chlorine level within the supply water to the humidifier is above 70 ppm then set periodic drain so as the water within the tank i.e. measured from drain water out of tank is below 250 ppm.

**For water flow rates and consumption, please refer to section 1.2 technical information.**

Water connection to the unit should be via the ½" NPT female isolation valve provided with the unit at the front, the valve has a blue handle.

#### Do's

**Do** provide a water supply with sufficient pressure and pipe size to ensure an adequate flow rate to all units connected to the system.

**Do** use the water connection with nylon nut provided.

#### Don'ts

**Don't** use a wrench or other tool to tighten the water supply connection - the nylon nut and rubber washer provided, should only require tightening by hand to effect a seal. If water seepage occurs, undo the nut to wipe the washer clean and re-seat it.

### Drain connection.

#### General

Condensate connection to the unit should be via the 1 1/2" NPT male elbow connected to the Tundish provided with the unit at the front.

#### Do's

**Do** ensure metal drain and supply water pipework is grounded electrically close to the unit (a ground/earth stud is positioned on the underside of the cabinet).

Drain capacity per tank	l/min	(US gal/min)	HZ
pump discharge max. flow rate	16.8	(4.4)	at 50
at the Power supply frequency	17.2	(4.5)	at 60

#### Do's

**Do** use copper or plastic pipe rated for 100°C (212°F).

**Do** arrange to discharge drain water from the unit into a trapped and vented drain at a position where flash steam rising from the drain line vent will not pose a problem for the Vapac or other equipment.

**Do** provide adequate fall for the drain pipework to allow free flow of water drained from each unit.

**Do** ensure drain line pipe size will accommodate water being drained at the same time from all the Vapac units which are connected to it.

#### Don'ts

**Don't** Trap the condensate line or run up hill

**Don't** Under size pipe run at any point along the condensate pipe run, this includes points after other condensate water has teed into run

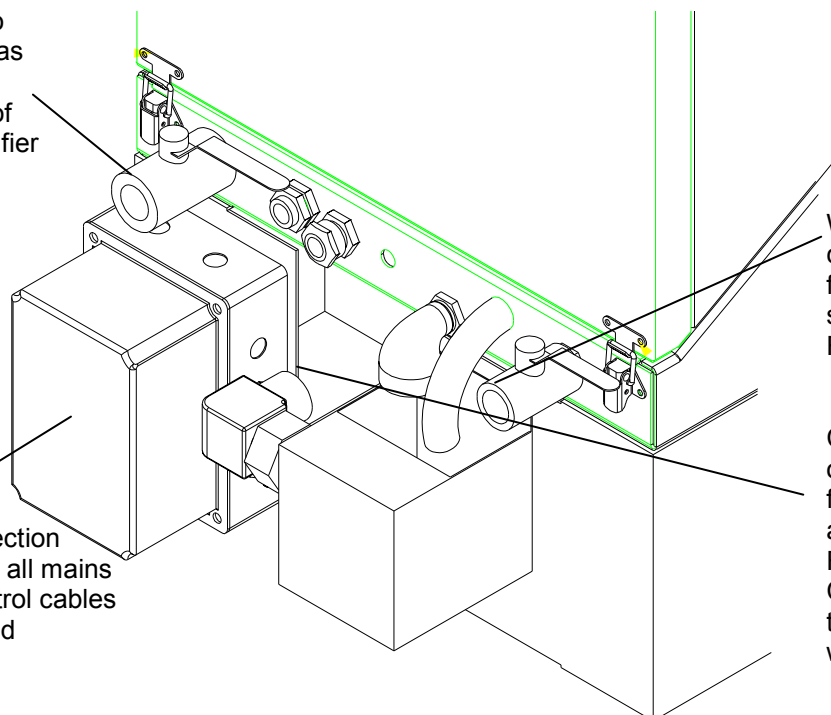
**Gas pipe work must be installed, connected and tested in accordance with Local gas regulators code of practice and by a qualified engineer.**

Gas supply pipe to be connected into ¾" NPT female gas isolation valve supplied as part of Gas Fired Humidifier

Electrical connection terminal box for all mains supply and control cables for the Gas Fired Humidifier unit.

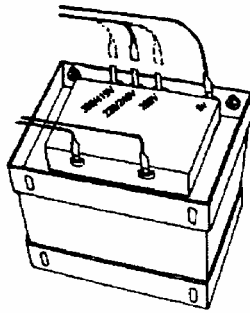
Water supply pipe to be connected into ½" NPT female water isolation valve supplied as part of the Gas Fired Humidifier.

Condensate drain connection onto 1 1/2" NPT male elbow from external tundish. Elbow and tundish supplied with Gas Fired Humidifier.  
 Condensate pipe from tundish to run to gully or drain point with a fall greater than 7%.





## 1.9 Electrical Connections



### Important Power Connection Information

Vapac 24V and 9 V secondary Transformer Primary supply connections:

Vapac units standard are wired for 110 – 120 volts Unit can be wired to allow connection on to 220 – 240 volts alternative power supply Voltage.

Make the following simple checks before connecting the power supply:-

Move the RED connection on the VAPANET transformer primary winding circuit to the position marked with the 230 Voltage that is to be connected between VAPANET power terminals A1 and the neutral N. The transformer primary circuit terminal positions are clearly marked:- 120V, 208V, 230, 480 & 600V.

If voltage other than 110 – 120 are used Then the primary tapings of the fan 150 VA transformer must be re connected for 230 volts i.e. the two primary coils wired in series not parallel as factory set.

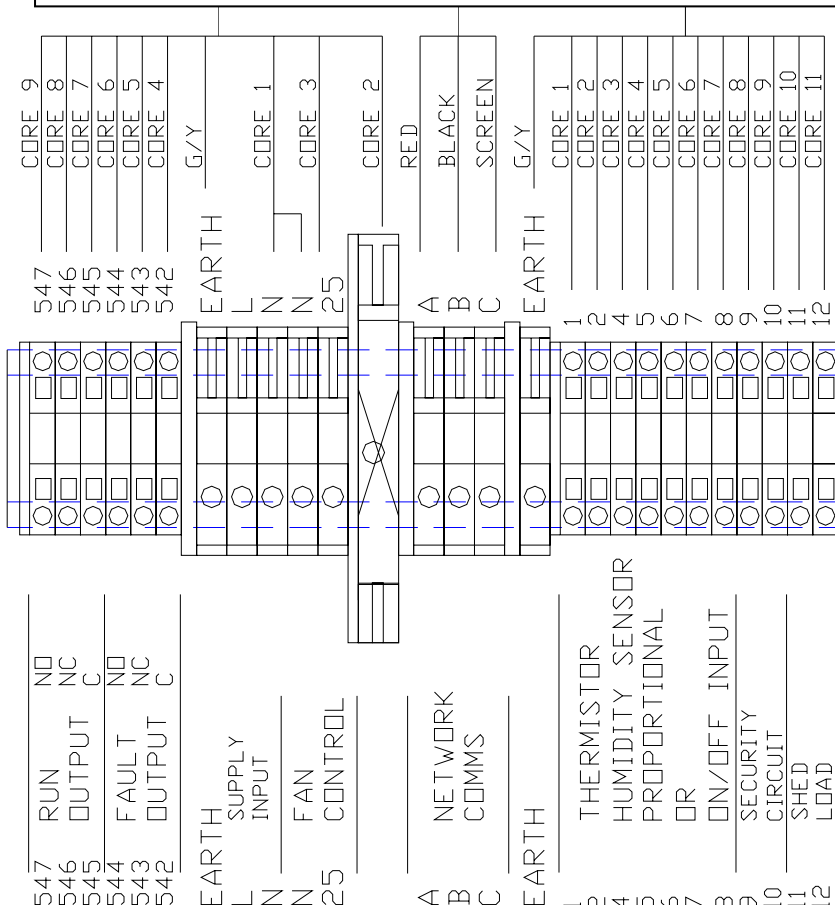
#### Note:

- |                                      |   |  |
|--------------------------------------|---|--|
| 24 V a.c. Control circuit            | - | 3.15 A 20 mm (F - Quick blow) fuse (Pt.No. 1080096) mounted on VAPANET Echelon PCB (Pt.No.1150630).  |
| 9 V a.c. PCB Circuit                 | - | 2 A 20 mm (F - Quick blow) fuse (Pt No. 1080054) mounted on the VAPANET Echelon PCB (Pt, No. 1150630).   |
| Transformer Primary Circuit And RDU. | - | Two fuses protect the control circuit on Single tank units F1 3.15 A 20 mm (F - Quick blow) fuse (Pt.No. 1080096) mounted in fuse-terminal holder protects Primary transformer and RDU unit if fitted. |
| 120V ac Drain Pump                   | - | The pump is fed from the main transformer via a 110 volt auto winding. The pumps are protected by fuse F1 main fuse at 3.15 A 20 mm (F - Quick blow) fuse (Pt.No. 1080096)                             |

#### TERMINATION ONTO UNIT

The Gas Fired Humidifier unit has an external terminal box for site connection. **No cables should be drilled through the casing as this will cause air leaks to the sealed unit**

**CAUTION: Label all wire prior to disconnection when installing or servicing controls. Wiring errors can cause improper and dangerous operation.**



F1 main 3.15 amp fuse

#### Note :-

11 and 12 are interlock control for time clock and airflow when used with frost protection or with no frost protection can be configured as load shed option.

### Important E.M.C. Considerations

The control load shed and security circuit connections should be run in screened cable with the screen grounded at the VAPANET end (onto the EARTH terminal) If long runs or large EMF are present. The screen should be maintained as close as possible to the cable ends and any tail between the screen and the earth point must be kept short (2" maximum).

If short runs in electrically clean areas then two core cables can be used.

If the network COM's is required for master tandem or site BMS. Then network cable should be screened cable and connected to the terminals provide and only screened connection made on end of the cable the other end screen cut back.

**Power must be disconnected before servicing**

**Verify proper operation after servicing or any component or wiring disconnection and then reconnected.**

### 1.9.1 Power Supply Connection

The wiring to the Vapac should be done by a qualified electrician. The external overcurrent protection and wiring should comply with the appropriate Regulations and Codes of Practice.

**Important:** Make sure the connection to the primary Voltage winding of the Vapac transformer matches the supply Voltage which is to be connected between Vapac terminals L & N.

A switched fuse isolator or switch fused spur outlet must be sized to suit the total maximum phase/line current of the unit and should be located adjacent to the Vapac cabinet or within easy reach and readily accessible.

In Vapac VAPANET units terminals 1, 2 and 3 are for the power supply connections as indicated in the diagrams below.

### 1.9.2 Remote indication

Remote indication of "unit-on" or on line signal and a fault warning are available as standard. Both the "unit-on" indication and the fault warning can be wired for either normally-open or normally-closed Volt-free contacts (Max. Rating 240 Volts 3 Amperes). On healthy or fault condition.

If the run signal is wired across 545 and 547 the contacts will be open circuit when on stand by and closed circuit when running on line.

If the fault signal is wired across 542 and 544 the contacts will be open circuit on no fault and close on fault condition.

The VAPANET provides the fault warning as either:

- a) a continuous signal
- b) an immediate "flashing" signal for "Stop" condition.

#### Notes:-

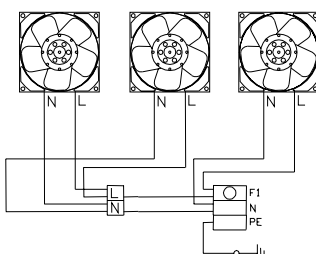
1. All units must have a PE earth connection connected to the units terminal.
2. **When installed, the appliance must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70, and the CSA C22.1 Electrical Code, if an external electrical source is utilized.**
3. The appliance shall be installed so the electrical components are protected from water.
4. Unit with N.A. in the following tables means NOT AVAILABLE there is not a unit available to run at the voltage and phases shown. Please check that the correct model reference is ordered and installed, for the low or high voltage required, and at the desired steam output.
5. Standard design is for 60 Hz. Supplies. Design for 50 Hz. Also available - 50 Hz. Supply must be specified with order as the standard pump is only 60Hz.

**FOR FULL ELECTRO-MAGNETIC COMPATIBILITY A NEUTRAL CONNECTION IS REQUIRED FOR ALL PROPORTIONAL UNITS AS INDICATED IN THE CONNECTION DIAGRAMS ON THE FOLLOWING PAGES.**

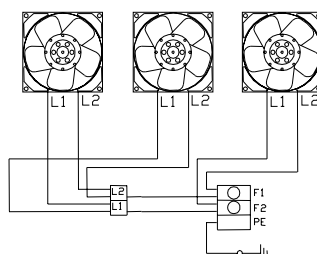
#### RDU Connection

The two type's of RDU are for various voltages and phase without neutrals connections that can be made to the VAPANET unit.

200 – 250 V 1Ph. N + earth



200 – 250 V 2Ph. + earth



Note: for computerized building management systems, using the keypad, the "flashing" signal can be changed to continuous to avoid unwarranted print-outs.

### 1.9.3 Cable Entry Provision

Cable glands must be used to ensure cables are held securely at the entry position. Gas fired units are supplied with terminal connection box that has knock out for cable entry, for cable gland.

### 1.9.4 Vapac Control Circuit Transformer

The internal control circuit of the Vapac unit operates at 24Vac - the transformer secondary is set at 24V.

As standard the Vapac VAPANET includes a transformer with alternative primary winding options 120V, 208, 230, 440, and 600V and requires on site adjustment to match it to the Voltage connected to Vapac terminals A1 and N if 220 – 240 volts is used. The transformer also has a 9V secondary tapping which provides power to the VAPANET 1150630 PCB.

The burner fan has its own control 150 VA transformer and can only be connected to 220 – 240 Volts or 110 – 120 volt supply

**Important:** The Vapac transformer must **NOT** be used to power other equipment or the warranty will be invalidated.

### 1.9.5 RDU Connection

Units up to 66 lb/h can be connected to a remote mounted Room Distribution Unit. Terminals 25 & N provide a supply voltage for the fan motors in the R.D.U.

## 1.10 Control Circuit Connections

### 1.10.1 Control Circuit Wiring

Use a dedicated, earthed metal conduit for both the control signal cable and the security circuit cables, sharing the same conduit if practicable.

Use screened cable for all control and security circuit connections to minimise risk of electrical interference. The screen should be grounded at the VAPANET end only. See detail on page 7. NB. The control signal should be connected to ground at the PCB by connecting either terminal 5 or 6 to terminal 7 – **Important note if the controller output is referenced to ground, then the “leg” which is ground must be the one linked to terminal 7.**

### 1.10.2 Proportional Control

The VAPANET Gas-fired (GFxxP) models can all be operated by either a potentiometric signal, a Lonworks network signal or by one of 6 standard proprietary DC analogue signals.

Input signal:

- Potentiometric control
- 0-5V
- 0-10V
- 0-20V (*Actually 0-18V – not phase cut*)
- 2-10V
- 1-18V
- 4-20mA (*Ensure jumper J1 is in place*)
- Network (*Slave unit – demand generated by Master*)

Response:

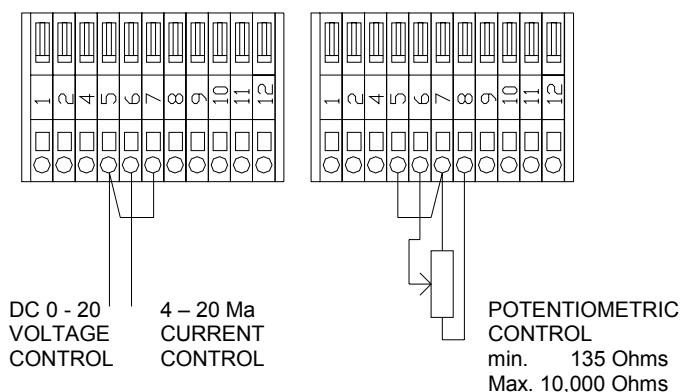
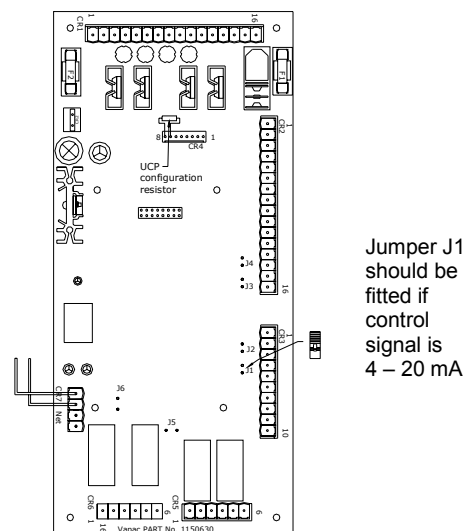
8-100%

### 1.10.3 Control Signal Selection

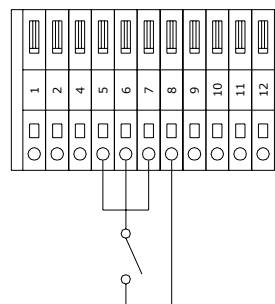
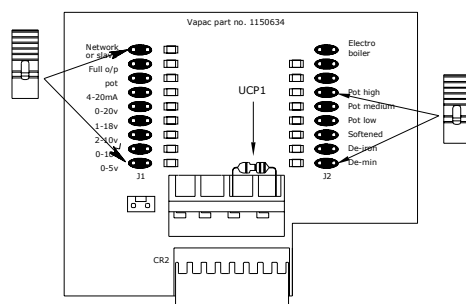
Selection of the control signals is done a part of the initial set-up procedure using the keypad display. For confirmation that the signal has been selected, view the information window. If the unit has not got a keypad then this is done on the configuration board 1150634 mounted on the main control board 1150630 using the jumpers provided. The appropriate right hand link should be made to select the site feed water type and the appropriate left hand link representing the actual site control signal should be linked using the jumper plugs provided.

### 1.10.4 On/Off Control

Vapanet models can be operated by a single step humidistat which has Volt-free contacts – select control option Pot.



**NOTE :- FOR CURRENT INPUT ONLY JUMPER J1 ON THE 1150630 CONTROL BOARD MUST BE LINKED.**



**HYGROSTAT WITH VOLT FREE CONTACTS (max. RESISTANCE OF EXTERNAL CONNECTION 100 Ohms.**

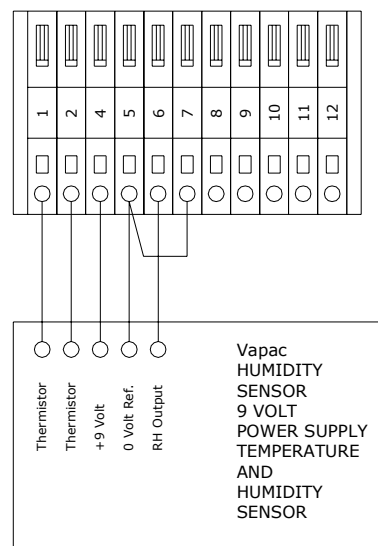
### 1.10.5 Sensing Head

The units are designed to operate using a sensing head, supplied by Vapac Humidity Control Ltd. which should be connected as shown below. **Other propriety sensing heads which give a DC signal may also be used, providing the control signal is connected to control terminals 5 & 6, and the sensing head is powered externally from the unit.**

If “Frost Protection” is required do not connect the thermistor input from the sensing head to control terminals 1 & 2, which should be used to connect the “frost protection thermistor” (part number 1220275) instead. Frost protection is selected via the display – Set the frost demand above the minimum tank demand (GF units >20%; GF(P) units >8%)

**Note:**

**Use of the 24V supply of the VAPANET unit to power other items of equipment will invalidate the Vapac warranty.**



Vapac's accessory kit part numbers for sensors are  
Remote Room mounted sensing head FVKIT-107  
And  
Remote Duct mounted sensing head FVKIT-108

### 1.10.6 Security Circuit / E.P.O. Shutdown

As standard units are shipped such that terminals 9 & 10 are provided for connection of an E.P.O. (Emergency Power Off) switch or fire shutdown facility. Other control interlocks, such as high limit humidistat, airflow switch and/or fan interlock and time switches etc. should be connected to terminals 11 & 12. **Please note that if a display is connected to the unit “DI1 Control Option” must be set to “Shutdown”.**

**NB breaking terminals 9 & 10 will prevent any unit operation including frost protection.**

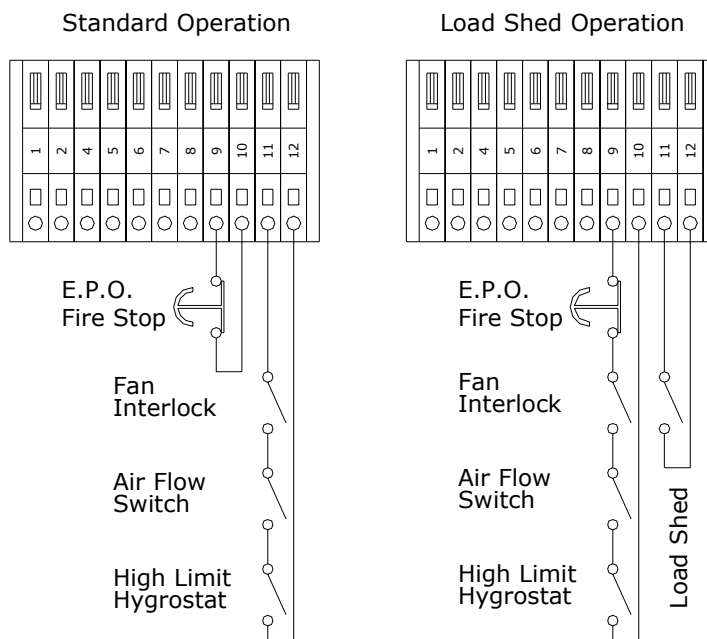
### 1.10.7 Load Shed Option

This can only be evoked via a display, either “hard wired” or hand held. When this option is selected, making the connection between terminals 11 & 12 will activate the “load shed” software routine, which will inhibit the operation of either the unit or in the case of twin tank units unit or just the 2<sup>nd</sup> tank. This will limit the power used during peak supply periods. If this option is selected, the fan interlock, airflow switch and/or high limit hygrostat should be wired into terminals 9 & 10 with the EPO switch if fitted (as per the drawing on the far right). It should be noted that selection of this option will mean that frost protection cannot be utilized.

**Please note that if a display is connected to the unit “DI1 Control Option” must be set to the following:**

**Single tank units: “Load shed”.**

**Twin tank units: either “Load Shed Cyl 2” or “Load Shed Both”.**

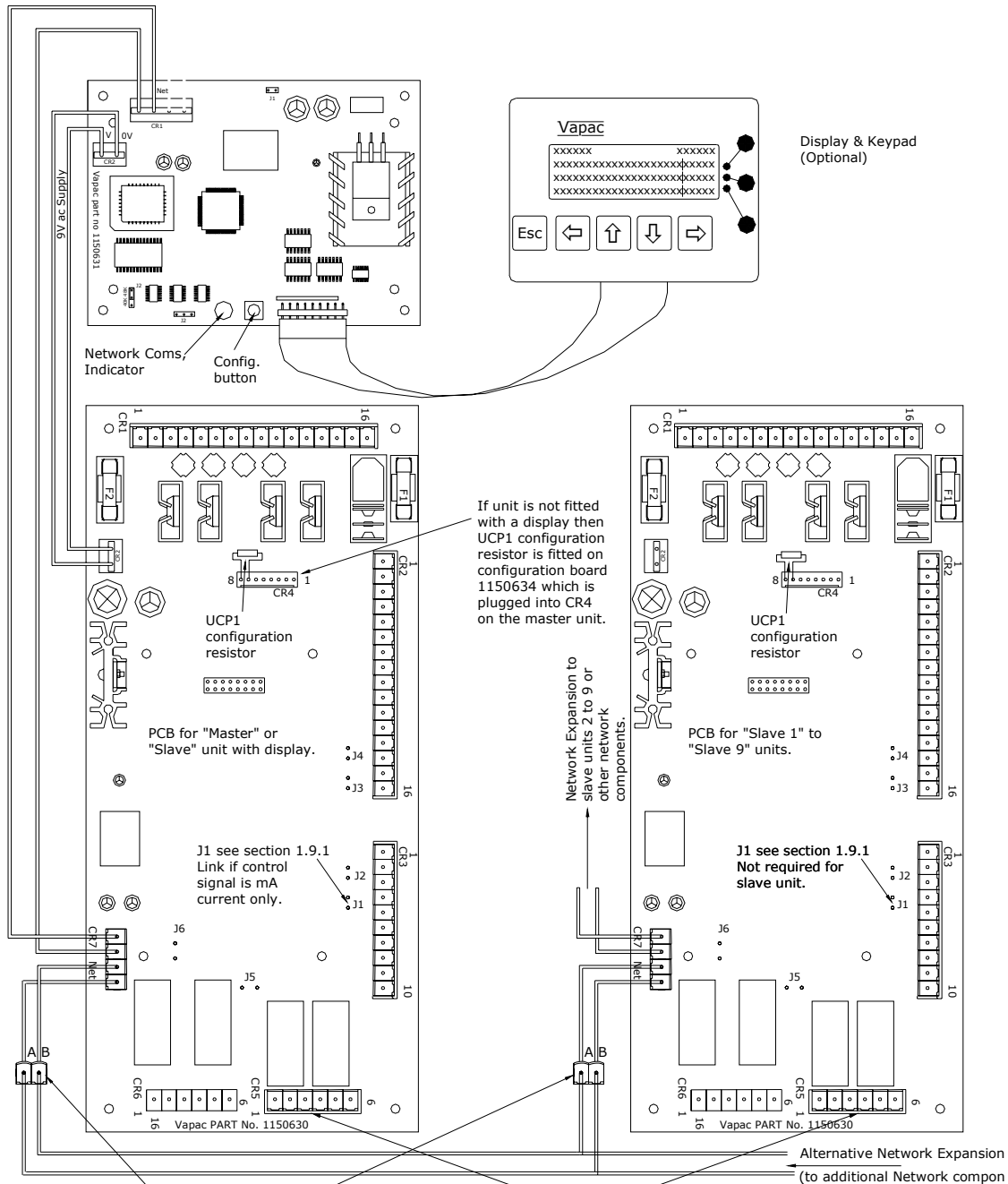


### 1.10.8 Master/Tandem

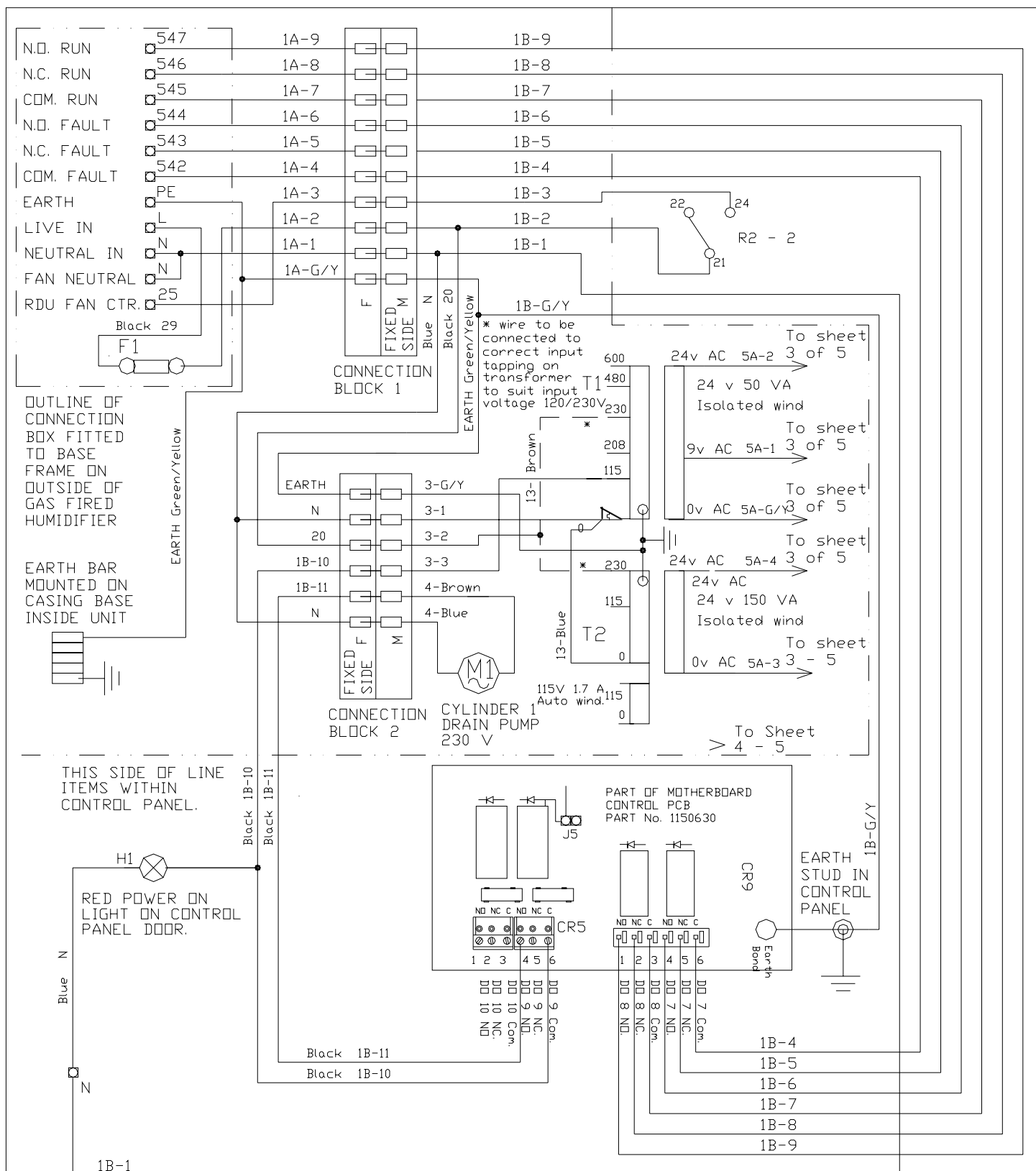
For larger duties, VAPANET "Gas fired" units can be interconnected and arranged to operate from one proportional signal as a Master/tandem system. The system allows up to 10 tanks to be linked in this way. The tandem units will all be "on / off" units. The master unit, to which the proportional signal is connected, can be "on / off" but will preferably be a "proportional" unit.

To "configure" a system, ensure that the control signal is zero [disconnect the control signal, or switch the units off at the front panel switch]. Press and hold the service pin on the master control PCB, until the user LED's flash amber, release and check that the LEDs flash red/amber/green, if not repeat the procedure. Then press the service pin on each of the tandem control PCB's in the order that they are required to operate, the tandem user LED1 will flash Green/amber until it is configured, once the light goes out [or flashes red/off], proceed to the next tandem. If units of different capacity are used, ensure that the master is equal to or greater than the capacity of the tandems, and that the largest capacity tandems come on before the smaller capacity units]. Once this process is complete, confirm the fact by pressing the service pin on the master PCB until user LED2 goes green [this step is not necessary if all nine tandem tanks are configured].

### 2.0 WII NB. The total cable length of the network (using the cable recommended by V.H.C.L. – Our part number 8040251) is 500 m and it should be assumed that there is 1 m of cable in each unit of the "system" (including the "master").



## 5.0 Wiring Diagrams



FOR CABLE REFERENCE SEE TABLE  
ON SHEET 5 of 5

IF IN DOUBT ASK

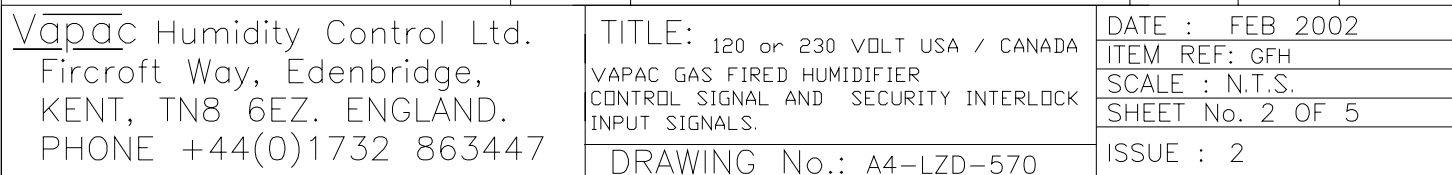
Rev.No.	Revision note	Date	Dr'n	Ckd.

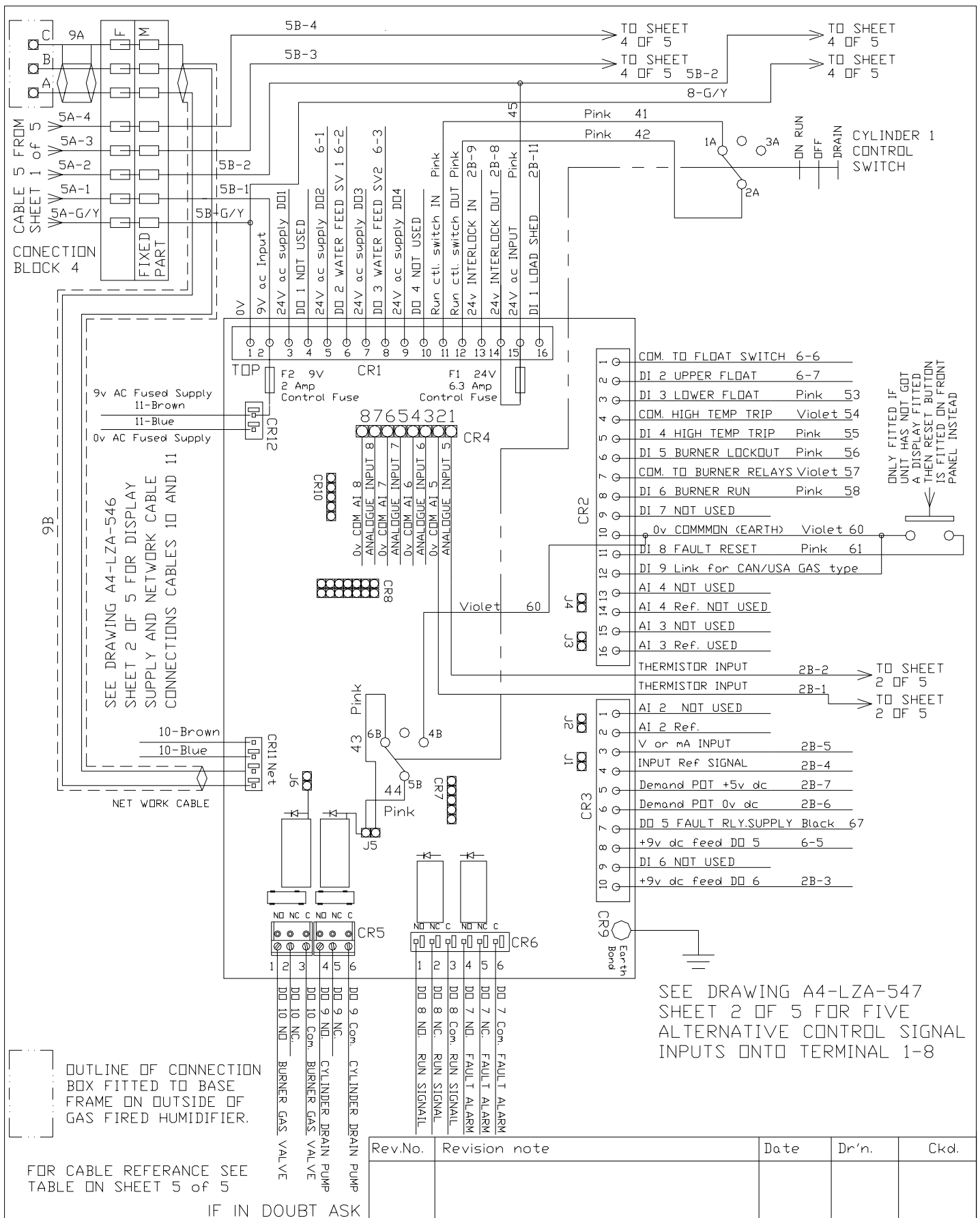
Vapac Humidity Control Ltd.  
 Fircroft Way, Edenbridge,  
 KENT, TN8 6EZ. ENGLAND.  
 PHONE +44(0)1732 863447

TITLE: 120 or 230 VOLT USA / CANADA  
 VAPAC MAIN POWER SUPPLY TO GAS FIRED  
 HUMIDIFIER SHOWING CONTROL TRANSFORMER  
 AND DRAIN PUMP CONNECTIONS.

DRAWING No.: A4-LZD-570

DATE : FEB 2002  
 ITEM REF: AHU  
 SCALE : GFH  
 SHEET No. 1 OF 5  
 ISSUE : 2



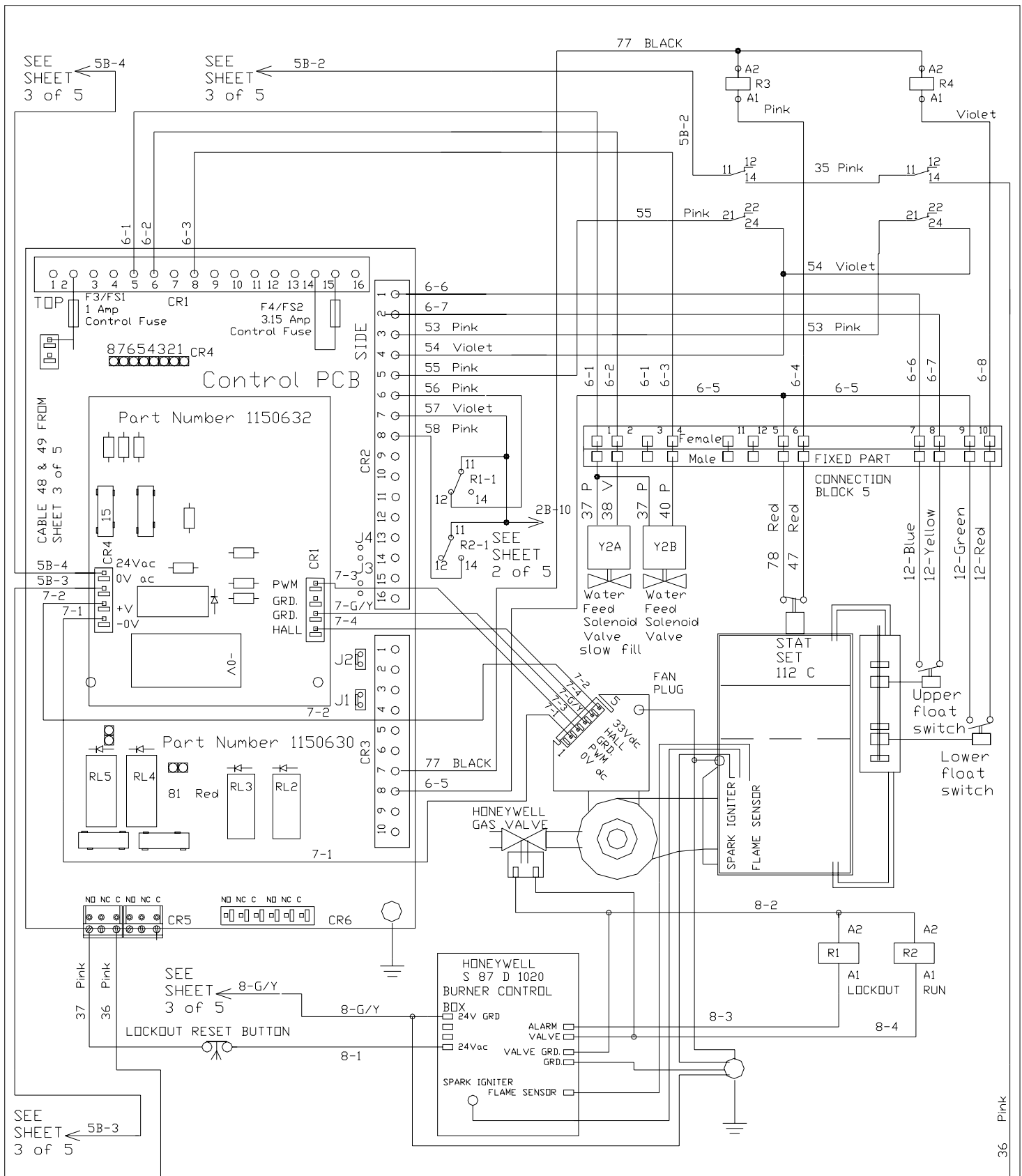


Vapac Humidity Control Ltd.  
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TITLE: 120 or 230 VOLT USA / CANADA  
 VAPAC GAS FIRED HUMIDIFIER  
 MOTHERBOARD INPUT AND OUTPUT  
 CONFIGURATION.  
 DRAWING No.: A4-LZA 570

DATE : FEB 2002  
 ITEM REF: GFH  
 SCALE : N.T.S.  
 SHEET No. 3 OF 5  
 ISSUE : 2





FOR CABLE REFERENCE SEE TABLE  
ON SHEET 5 of 5

IF IN DOUBT ASK

Rev. No	Revision note	Date	Dr'n.	Ckd.

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TITLE: 120 OR 230 VOLT USA / CANADA  
VAPAC GAS FIRED HUMIDIFIER  
CASING WIRING TO FLOAT SWITCH, BURNER  
FEED VALVES AND HIGH TEMP STATS

DRAWING No.: A4-LZA 570

DATE : FEB 2002  
ITEM REF: GFH  
SCALE : N.T.S.  
SHEET No. 4 OF 5  
ISSUE : 2

CABLE REF.	CONDUCTOR SIZE	CORE No. &/or COLOUR	MULTI-CORE No. OF CORES AND OUTER SHEATH DETAILS	CONNECTION DETAILS
1A & 1B	0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2	Green Yellow 1 Black 2 Black 3 Black 4 Black 5 Black 6 Black 7 Black 8 Black 9 Black 10 Black 11 Black	12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC	EARTH Neutral Live Supply REMOTE FAN START UNIT FAULT RELAY COMMON UNIT FAULT RELAY N.C. UNIT FAULT RELAY N.O. UNIT RUN RELAY COMMON UNIT RUN RELAY N.C. UNIT RUN RELAY N.O. NOT USED NOT USED
2A & 2B	0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2	Green Yellow 1 Black 2 Black 3 Black 4 Black 5 Black 6 Black 7 Black 8 Black 9 Black 10 Black 11 Black	12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC	EARTH THERMISTOR INPUT THERMISTOR INPUT +9V DC SUPPLY AI 1 Ref. SIGNAL AI 1 VOLT OR mA INPUT 0V EARTH SUPPLY +5V DC SUPPLY 24V INTERLOCK OUT 24V INTERLOCK IN LOAD SHED IN LOAD SHED OUT SIGNAL
3	0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2	Green Yellow 1 Black 2 Black 3 Black 3 Black	5 CORE Grey PVC 5 CORE Grey PVC 5 CORE Grey PVC 5 CORE Grey PVC 5 CORE Grey PVC	EARTH TRANSFORMER NEUTRAL TRANSFORMER POWER ON TRANSFORMER LIVE SUPPLY NOT USED
4	0.5 mm2 0.5 mm2	BROWN BLUE	2 CORE Black PVC 2 CORE Black PVC	DRAIN PUMP LIVE FEED DRAIN PUMP NEUTRAL
5A & 5B	0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2	Green Yellow 1 Black 2 Black 3 Black 3 Black	5 CORE Grey PVC 5 CORE Grey PVC 5 CORE Grey PVC 5 CORE Grey PVC 5 CORE Grey PVC	0V EARTH CONTROL SUPPLY 9V AC CONTROL SUPPLY 24V AC CONTROL SUPPLY 0V BURNER FAN SUPPLY 24V BURNER FAN SUPPLY
6	0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2	Green Yellow 1 Black 2 Black 3 Black 4 Black 5 Black 6 Black 7 Black 8 Black 9 Black 10 Black 11 Black	12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC 12 CORE Grey PVC	Not Used WATER FEED VALVE 24V WATER FEED VALVE 1 0V WATER FEED VALVE 2 0V HIGH TEMP. STAT 9V STAT AND FLOAT SWITCH UPPER FLOAT SWITCH IN UPPER FLOAT SWITCH OUT LOWER FLOAT SWITCH OUT NOT USED NOT USED NOT USED
7	0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2	Green Yellow 1 Black 2 Black 3 Black 3 Black	5 CORE Grey PVC 5 CORE Grey PVC 5 CORE Grey PVC 5 CORE Grey PVC 5 CORE Grey PVC	FAN CONTROL GROUND 0V EARTH FAN SUPPLY 24V AC FAN SUPPLY FAN CONTROL PWM FAN CONTROL HALL SIGNAL
8	0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2 0.75 mm2	Green Yellow 1 Black 2 Black 3 Black 4 Black 5 Black 6 Black 7 Black	8 CORE Grey PVC 8 CORE Grey PVC 8 CORE Grey PVC 8 CORE Grey PVC 8 CORE Grey PVC 8 CORE Grey PVC 8 CORE Grey PVC 8 CORE Grey PVC	EARTH GAS CONTROL BOX NEUTRAL CONTROL BOX CONTROL LIVE CONTROL BOX LIVE SUPPLY GAS CONTROL BOX LOCKOUT GAS LOCKOUT RESET GAS CONTROL VALVE RUN GAS CONTROL BOX NEUTRAL
9A & 9B	0.5 mm2 0.5 mm2	RED BLUE	2 CORE SCREENED Grey PVC 2 CORE SCREENED Grey PVC	NETWORK OUTPUT CABLE NETWORK OUTPUT CABLE
10	0.5 mm2 0.5 mm2	BROWN BLUE	2 CORE Black PVC 2 CORE Black PVC	NETWORK CONTROL TO DISPLAY NETWORK CONTROL TO DISPLAY
11	0.5 mm2 0.5 mm2	BROWN BLUE	2 CORE Black PVC 2 CORE Black PVC	9V SUPPLY CONTROL TO DISPLAY 0V SUPPLY CONTROL TO DISPLAY
12	0.5 mm2 0.5 mm2 0.5 mm2 0.5 mm2	Blue Yellow Green Red	4 CORE Black PVC 4 CORE Black PVC 4 CORE Black PVC 4 CORE Black PVC	Top float switch N.O. Top float switch common Bottom float switch N.O. Bottom float switch common
13	0.5 mm2 0.5 mm2	BROWN BLUE	2 CORE Black PVC 2 CORE Black PVC	220-240 VOLTS TO TRANSFORMER NEUTRAL TO TRANSFORMER
N 20 - 29 30 - 79 30 - 79 30 - 79 4 - 79 30 - 79	0.5 mm2 0.5 mm2 0.5 mm2 0.5 mm2 0.5 mm2 0.5 mm2	BLUE Black Pink Violet White Red Black	SINGLE CORE SINGLE CORE SINGLE CORE SINGLE CORE SINGLE CORE SINGLE CORE SINGLE CORE	220 - 240V Neutral 220 - 240 VOLTS AC 24V AC CONTROL 0V EARTH FOR 9/24 AC CTL. 9 V DC CONTROL +9V DC SUPPLY 0V DC SUPPLY

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TITLE:  
VAPAC MAIN POWER SUPPLY TO GAS FIRED  
HUMIDIFIER SHOWING MULTI CORE CABLE  
DETAILS

DRAWING No.: A4-LZD-570

DATE : FEB 2002

ITEM REF: AHU

SCALE : N.T.S.

SHEET No. 5 OF 5

ISSUE : 1



Vapac Humidification reserve the right to change the design or  
specification of the equipment described in this manual without prior notice.

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