



iVECTOR (TYPES BC, BN, FC, FN)

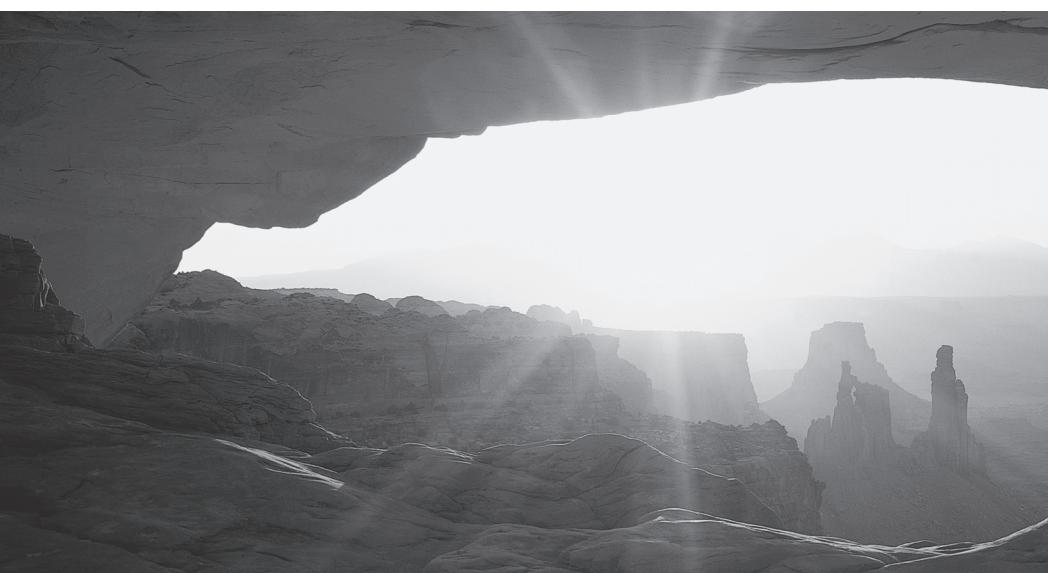
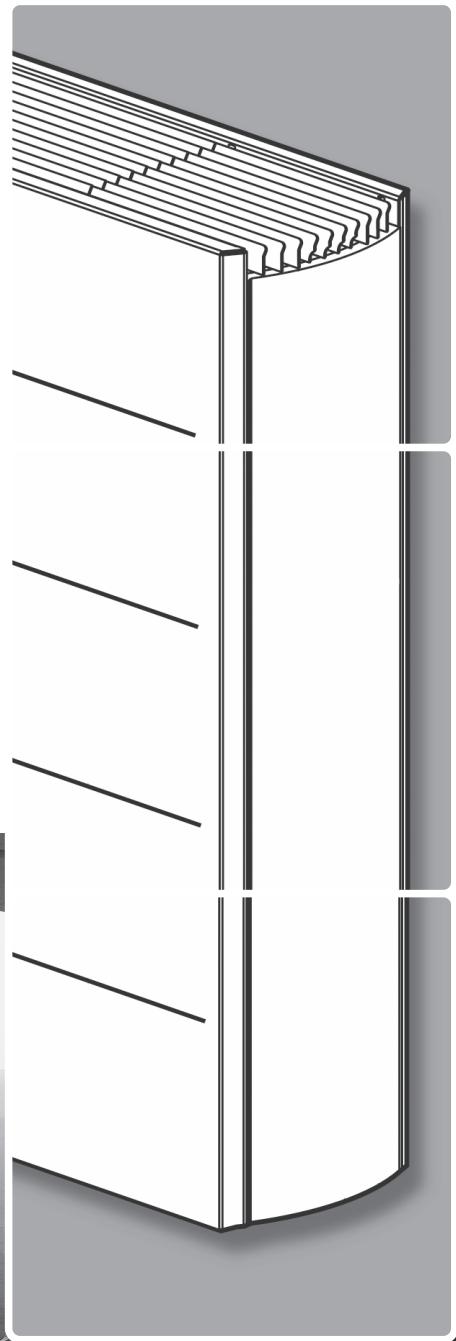
INSTALLATION & OPERATING MANUAL

Product Serial Number:

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Please leave this manual with the end user

Part Number: P25M1387



heatingthroughinnovation.



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1.0 Safety Information

iVECTOR MUST NOT be installed in a bathroom.

WARNING: All iVECTOR models must be earthed.

DO NOT cover or obstruct the air inlet or outlet grille.

This appliance can be used by children aged from 8 years and above and persons with reduced physical or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning the use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children unless they are older than 8 years and supervised.

Keep the appliance and its cord out of reach of children aged less than 8 years.

Children of less than 3 years should be kept away from the unit unless continuously supervised.

Children aged from 3 years and less than 8 years shall only switch on/off the appliance provided that it has been placed or installed in its normal operating position and they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children aged from 3 years and less than 8 years shall not plug in, clean the appliance or perform user maintenance.

This fan convector must be installed by qualified engineers.

This fan convector must not be installed immediately below a socket outlet.

Do not install this fan convector in areas where excessive dust exists.

2.0 Installation

For the correct installation of this unit it is essential that fixing is carried out in such a way that it is suitable for intended use and predictable misuse. A number of elements need to be taken into consideration including the fixing method used to secure it to the wall, the type and condition of the wall itself, and any additional potential forces or weights that may happen to be applied to the unit, prior to finalising installation.

Before proceeding with the installation, remove the carton lid, unpack the content and check against the items shown in FIG 1. Also check contents for concealed shipping damage.

- | | |
|-----------------------|-------------------|
| 1. Chassis | 5. Fixing kit |
| 2. Outer casing | 6. Filter |
| 3. Warranty card | 7. Grille* |
| 4. Instruction manual | 8. Remote sensor† |

*Type FN/FC only

†4 pipe only

Check the location where the product is to be installed, the wall surface must be flat and clearances shown in FIG 2 must be available. If iVECTOR is fitted to a stud wall, there may be an adverse effect on the sound levels especially with the higher fan speeds. If the iVECTOR is to be used for cooling applications then the disposal of the condensate must be considered.

For types BC and BN follow stages a-f from FIG 5 and for types FC and FN follow stages a-c then g-i to show how to fit product to the wall.

Note: Do not fit outer casing until water (Section 3) and electrical connections (Section 4) have been completed.

- | |
|---|
| Type BN - Bottom inlet/no controls |
| Type BC - Bottom inlet/intergrated controls |
| Type FN - Front inlet/no controls |
| Type FC - Front inlet/intergrated controls |

3.0 Water Connection

Note: Before making the pipe-work connections ensure pipes have been sized correctly in line with the flow rate and pressure loss requirements .

- Pipes should be sized based on flow rates and pressure loss requirements.
- Connect to heat exchanger - G 3/4 inch fittings.
- Care should be taken when connecting the flow and return pipes to the iVECTOR, see FIG 3 for information also a range of routing options can be found in FIG 4.
- Isolation valves are not supplied with this unit however it is advised they are fitted in case of future service requirements.

- If the iVECTOR is to be used for cooling applications with chilled water then the pipe-work supplying the chilled water should be insulated. Condensate will form at the coil and fall into the condensate collector, see FIG 6. Provision must be made for condensate disposal in accordance with any local regulations.
- Fill and vent the system, open all valves fully and vent from the heat exchanger, see FIG 7 then check for leaks.
- Heating and cooling pipework under the iVECTOR must be insulated.

4.0 Electrical Connection

WARNING: All iVECTOR models must be earthed.

- The electrical installation must comply with local or national wiring regulations and should be carried out by a qualified electrician.
- This unit is supplied with factory fitted test leads. Remove these and discard.
- A fused electrical spur with a maximum 3A fuse and a switch having 3mm separation on all poles must be provided in an easily accessible position adjacent to the unit.
- Electrical cable entry to the unit should be made through the underside of the unit, into the control box on the right hand side using the cable gland provided. The supply cord must be 0.75mm² only.
- Connect the live and neutral and earth to the wiring block terminal connections.
- Follow stages a-c shown in FIG 8 to access the control panel. Product wiring diagrams are shown in FIG 10.
- When using a valve kit with an actuator, it is possible to remove the terminals from the power board for easy installation, this is shown in FIG 8d. The cable should also be routed via the diagram in FIG 8e.

- When using an external air sensor for cooling applications the existing sensor must be removed and the new sensor installed in its place as shown in FIG 8f-8g, the external sensor should be positioned as shown in FIG 8h-8i.
- Units with controls (type BC/FC) can be used to control units with no controls (type BN/FN) by taking the 0-10V output from the type BC/FC to the type BN/FN in accordance with wiring diagram 10c. Interconnecting wires should be 22AWG, 60°C in rating.
- An external room thermostat can be used to control No Control (type BN/FN) units. The thermostat must have a 0-10V output.
- It is possible to control up to 5 no controls units (type BN/FN) from a unit with controls (type BC/FC) or up to 6 no control units (type BN/FN) from an external controller (supplied by others). See wiring diagram 10a 'B' for the output signal from the controls unit and 10b 'D' for the input signal from the controls unit to the no controls unit, this is also the same input signal for the external controller as shown in 10b 'D'.
- Multiple valves (up to 6) can be controlled from a type BC/FC as shown in FIG 10e.

For cooling applications an external sensor is required, see FIG 8f - 8i

5.0 Controls

Note: When increasing the heating set-point beyond the cooling set point, the cooling set point will increase in line with the heating set-point. Additionally, if the heating set-point is increased further until it reaches the cooling set-back temperature, the set-back temperature will also increase with the heating set-point.

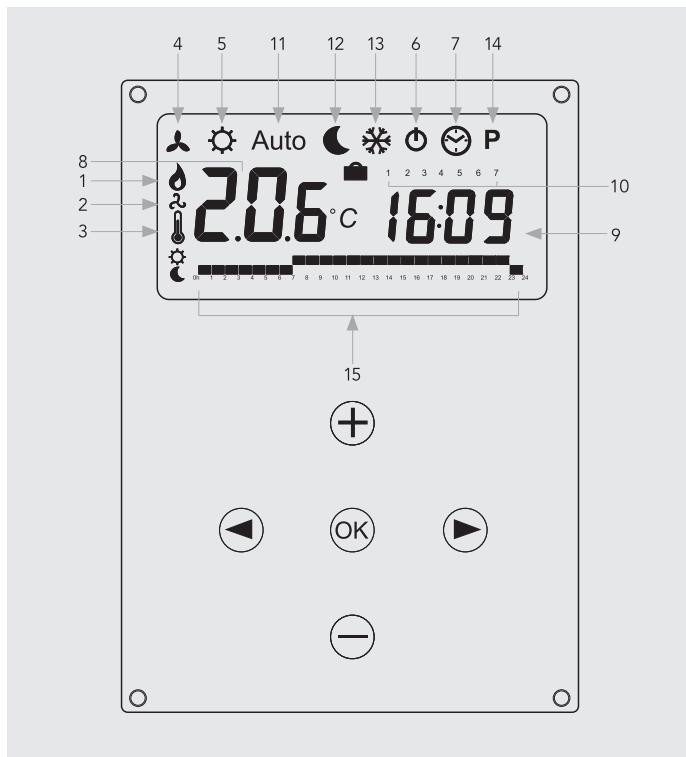
Display

1. Heating indicator
2. Cooling indicator
3. Temperature symbol – when this is displayed the current room temperature is displayed
4. Fan speed symbol (fan blades will rotate when active)
5. Comfort setting
6. Power (on/off)
7. Clock setting
8. Room temperature
9. Time
10. Day of the week
11. Auto setting (to follow set programme) - Full mode only
12. Night set-back setting - Full mode only
13. Holiday setting - Full mode only
14. Program menu - Full mode only
15. Program schedule - Full mode only

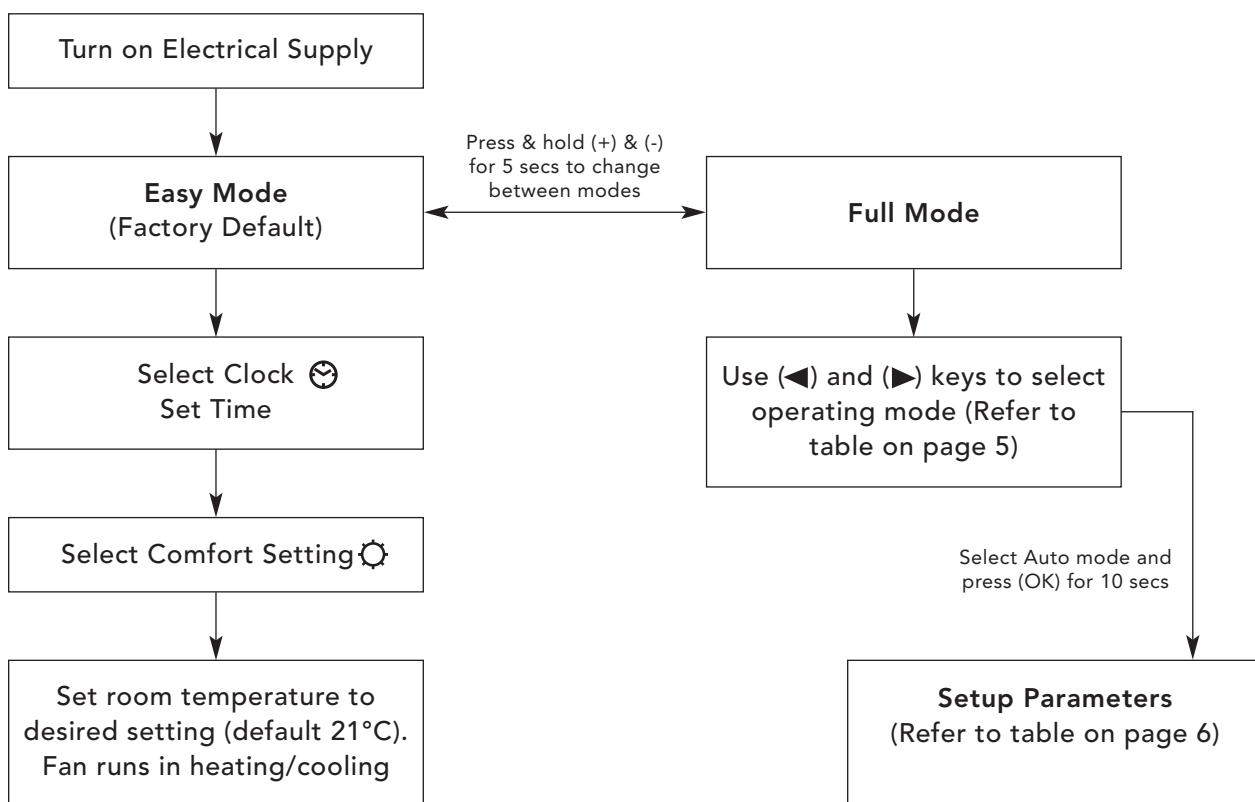
Keys:

- OK Validation key (OK)
- + Plus key (up)
- Minus key (down)
- ◀ Navigation left
- ▶ Navigation right

Similarly, when decreasing the cooling set point below the heating set-point, the heating set point will decrease in line with the cooling set-point, and if the cooling set-point is decreased further until it reaches the heating set-back temperature, the heating set-back temperature will also decrease with the cooling set-point.



Unit Operation



5.0 Controls (continued...)

Operating Modes

Use (◀) and (▶) keys to choose from the following parameters. A function is selected when the icon is surrounded by □.

Function	Description	Adjustment	Availability	
			Easy	Full
	Control Operation Setup The unit must be programmed for operation in heating only, cooling only or heating and cooling.	Control Operation Setup Scroll to the Fixed Fan mode  , and then press on the (◀) key. Use (+) or (-) keys to choose from the following: Nod (Mode) HOrt for heating. Nod (Mode) COLd for cooling. Nod (Mode) AUtO for heating and cooling. Press (OK) to confirm.	No	Yes
	Fixed Fan Setting F1, F2, F3 gives fan speed 1,2 or 3 respectively with no temperature control.	Use (+) or (-) to select and press (OK) to confirm. (Note the fan speed symbol will only appear when the fan is running).	Yes	Yes
	Comfort Setting Provides room temperature control with automatic fan speed adjustment according to difference between actual and set temperature. The fan operates when water $\geq 32^{\circ}\text{C}$ in heating or $\leq 15^{\circ}\text{C}$ cooling or selected set points.	Press (OK) to view the set temperature. Use (+) or (-) to adjust the required room temperature. Default setting is 21°C in Heating and 22°C in cooling.	Yes	Yes
Auto	Automatic Setting The unit will run according to one of the 9 preset timed programs, or one of the 4 user defined programs.	See page 6 for program options and setup. Press (OK) to view the actual set temperature (Comfort or Set-back).	No	Yes
	Night Set-back Setting Provides room temperature control with automatic fan speed adjustment according to difference between actual and night set-back temperature.	Press (OK) to view the set temperature. Use (+) or (-) to adjust the required room temperature. Default setting is 19°C in Heating and 24°C in cooling.	No	Yes
	Holiday Function Provides frost protection or overheat protection during periods of absence (holiday). The control will count down the time to "00" after which control is resumed in Auto setting. For frost protection the set temperature is 7°C . For overheat the set temperature is 30°C .	Select  and  displayed. Use the (+) and (-) to adjust the duration. (In hours "H" if below 24H and then in days "d"). Use the (-) key to interrupt this period and adjust the duration on "no".	No	Yes
	Power On/Off Turns unit on/off.	Press (OK) to turn the power on or off.	Yes	Yes
	Set Clock Menu Displays time in 12h or 24h format.	Press (OK) Use the (+) and (-) keys to set the minutes. Press (OK) Use the (+) and (-) keys to set the hours. Press (OK) Use the (+) and (-) to set the days. Press (OK).	Yes	Yes
P	Program Menu Provides choice from 9 pre-programmed and 4 user defined timed programs.	See page 6, program mode.	No	Yes

5.0 Controls (continued...)

Installer's Set-up Parameters

To access the installation parameters menu, scroll to **AUTO** (while in full mode), then press **(OK)** for 10s. Use (**<**) and (**>**) keys to highlight the parameter to be adjusted. Press **(OK)** to toggle the parameter setting, when the value starts to blink, use

the (+) and (-) keys to adjust the value. Then, press **(OK)** to confirm. Once parameters are set, go to **<End>** parameter and press **(OK)** to go back to the main menu.

Parameter Name	Description	Default Setting	Alternative Setting
dEG	Select temperature scale.	°C	°F
00:00	Select the hour format.	12H	24H
Air (Air)	Calibration of the internal air sensor against the actual room temperature. (The calibration must be done after 12 hours working at the same set temperature).	To adjust the air sensor temperature, enter the measured temperature using the (-) or (+) keys. To confirm the calibration, press (ok) Press (+) and (-) keys at the same time to reset the offset value.	
CSP	Cooling set point.	The default water switching temperature for cooling is 15°C, this can be altered by pressing (+) or (-) keys then pressing (ok) to confirm.	
HSP	Heating set point.	The default water switching temperature for heating is 32°C, this can be altered by pressing (+) or (-) keys then pressing (ok) to confirm.	
Nb vAL (2 Pipe models only)	Selection of the number of valves to be driven. This parameter depends on the system design.	0 valve	1 valve
FAS SPEE	Allows the maximum fan speed to be switched off - the unit will only run in Low and Medium speeds.	FA5 For Fast	NEd For Medium
NIGt	Select option for fan speeds when the unit reverts to night set back in cooling operation.	NO (For Normal regulation)	AL1 (Fan speed 1 only)
CLr ALL	Reverts the control back to factory settings.	Press (OK) for 5 seconds	
End	Exit the installation menu.	Press (OK)	

Program Mode

Built-in Program Selection

A quantity of 9 built-in (P1-P9) and 4 user defined (U1-U4) timed program options are available to choose from. Each day is divided into 24 one hour periods operating in either Comfort setting (21°C default heating and 22°C default cooling) or Night

set-back setting (19°C default heating and 24°C default cooling). Scroll to the preferred program number P1-P9 (FIG 9, A) using the (+) and (-) keys. The controls will then automatically go back to **AUTO** mode.

Comfort Periods			
P1	Morning, Evening & Weekend	Weekday	07:00 - 09:00 & 17:00 - 23:00
		Weekend	08:00 - 23:00
P2	Morning, Afternoon, Evening & Weekend	Weekday	07:00 - 09:00, 12:00 - 14:00 & 17:00 - 23:00
		Weekend	08:00 - 23:00
P3	Day & weekend	Weekday	06:00 - 23:00
		Weekend	08:00 - 24:00
P4	Evening & Weekend	Weekday	15:00 - 23:00
		Weekend	08:00 - 24:00
P5	Morning & Evening	Weekday	06:00 - 08:00 & 21:00 - 23:00
		Weekend	06:00 - 08:00 & 18:00 - 24:00
P6	Morning, Afternoon & Weekend	Weekday	06:00 - 08:00 & 14:00 - 21:00
		Weekend	07:00 - 21:00
P7	7h - 19h (Office)	Weekday	07:00 - 19:00
		Weekend	n/a
P8	8h - 19h Saturday	Weekday	08:00 - 19:00
		Weekend	09:00 - 18:00
P9	Weekend only	Weekday	13:00 - 24:00
		Weekend	00:00 - 24:00

5.0 Controls (continued...)

User Program Menu

Select U1-U4 (FIG 9, B) using the (+) and (-) keys and press (OK) to enter a user defined program.

FIG 9, C shows what day the program is setting (with 1 representing Monday), while FIG 9, D indicates what hours are being programmed.

Pressing (+) will set the hour as a Comfort Mode temperature, while pressing (-) will set the hour as a Night Set-back temperature.

Use the (◀) or (▶) keys to move the flashing cursor position to the required hour and modify the program. When the display day is correct press (OK) to copy the program to the following day. Press OK on day "7" to finish and validate the program.

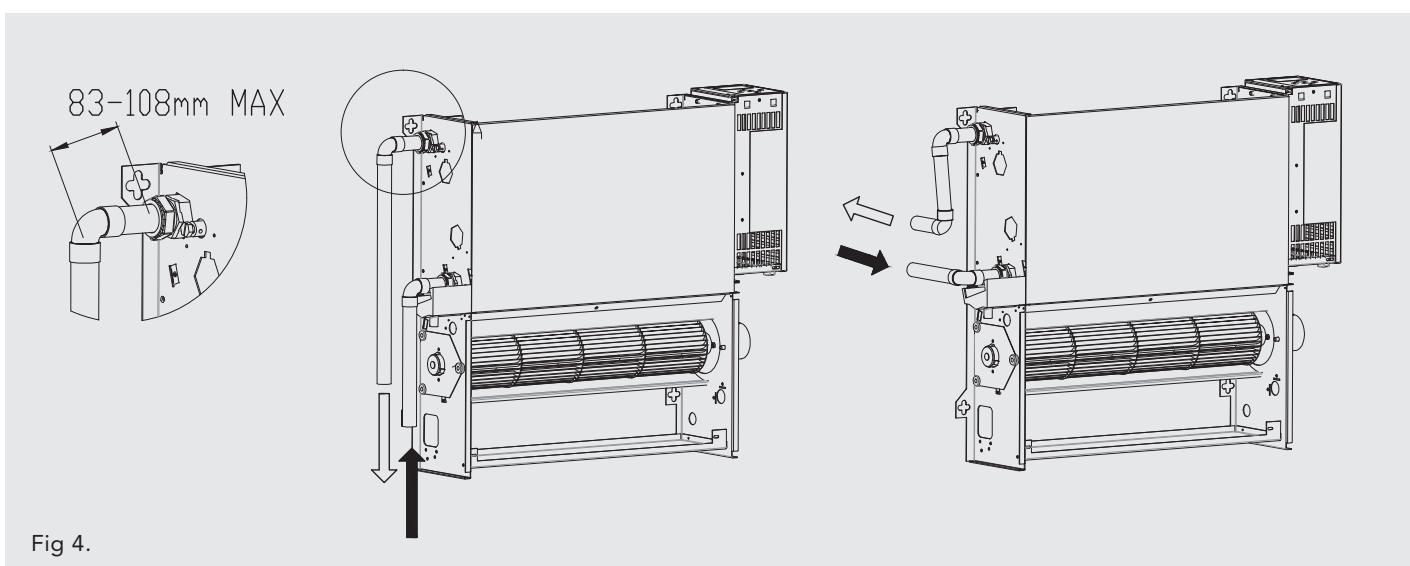
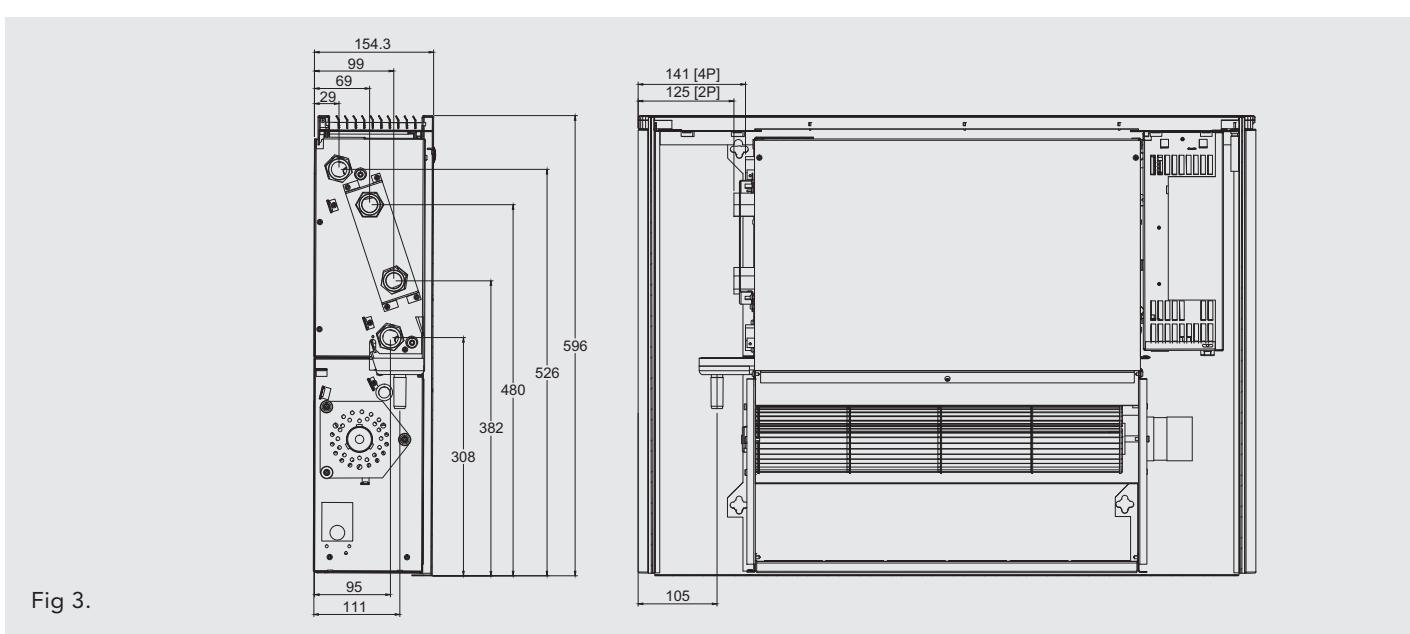
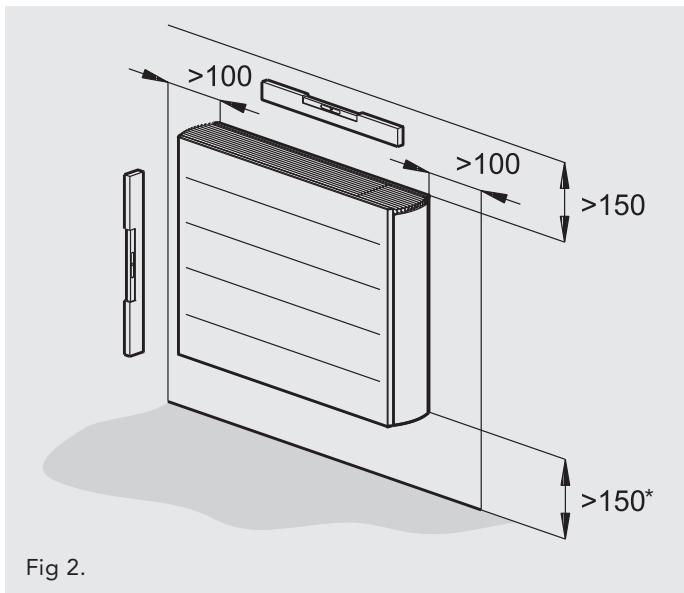
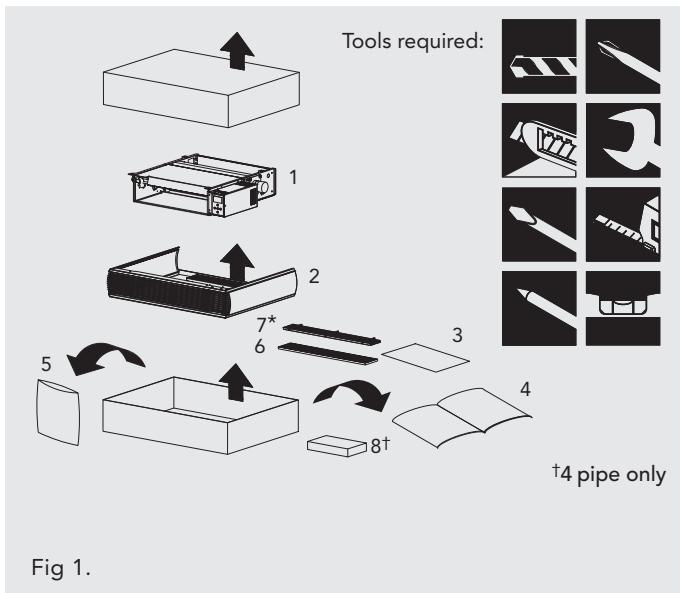
6.0 Troubleshooting

Problem	Possible Causes	Remedy
Display is not working	Electrical supply switched off	Switch on supply
	Fuse blown	Replace fuse
	Unit switched off	Switch unit on at LCD display*
Display showing ERROR	Disconnected sensor	Reconnect sensor*
Display showing FILT	Reminder to clean filter	Press (+) for 5 seconds*
Fan not working	Electrical supply switched off	Switch on supply
	Fuse blown	Replace fuse
	Unit switched off	Switch unit on at LCD display*
	Temperature set point reached	Fan will stop working when set point has been achieved. Increasing set point will reactivate the fan
	Water temperature too low (heating)/too high (cooling) Minimum 32°C - Heating (default) Maximum 15°C - Cooling (default)	Fan will activate when min/max water temperature is reached, and will stop when water temperatures drop/raise min/max values Possible to check using F1/F2/F3 settings on display*
Poor heating performance	Impellor obstructed	Ensure impellor is free to spin
	Motor obstructed	Ensure motor is free to spin
	Faulty motor	Contact customer services
Poor heating performance	Water temperature too low (heating)/too high (cooling) Minimum 32°C - Heating Maximum 15°C - Cooling	Fan will activate when min/max water temperature is reached, and will stop when water temperatures drop/raise min/max values Possible to check using F1/F2/F3 settings on display*
	Lack of water flow	Contact your installer Possible incorrect pipe size, valves not fully open, system not balanced or needs venting or pump set too low
	Unit incorrectly sized against heat loss	Complete heat loss and re-specify correct unit

If the fan convector is still faulty after checking the above, call your installer.

*Type FC/BC only (controls unit)

Appendix



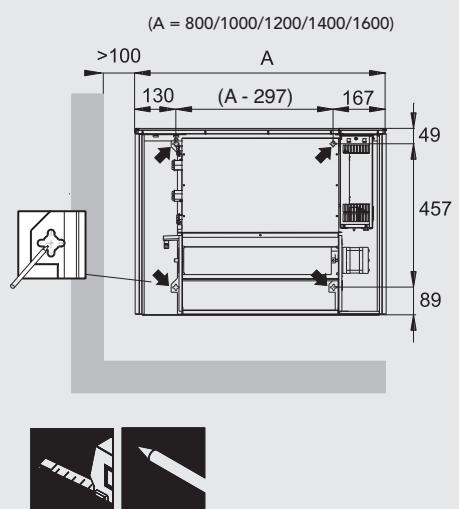
*Type FN/FC only

Dimensions (mm)

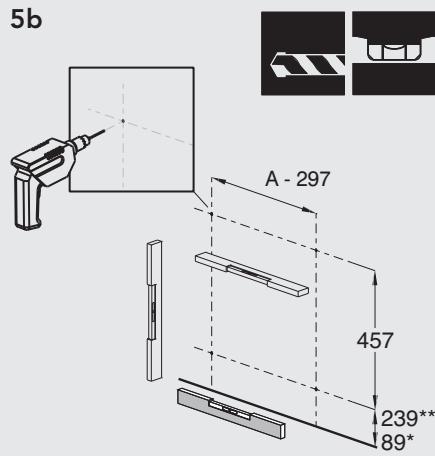
◆2P/4P †4P

Appendix (continued...)

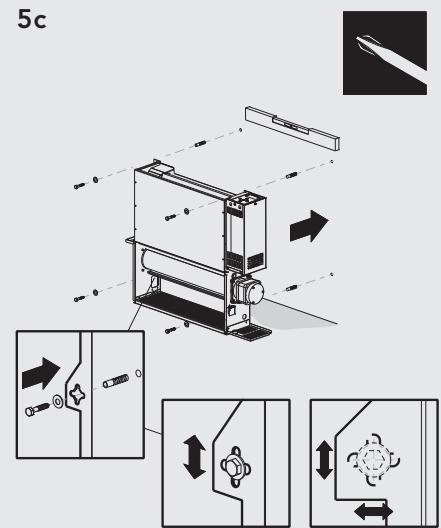
5a



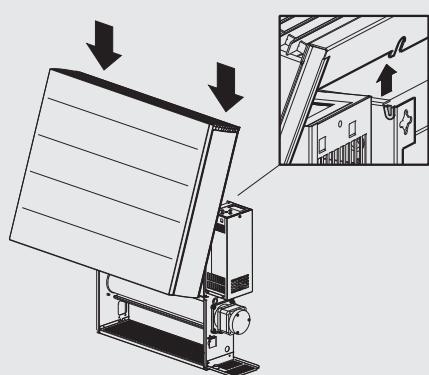
5b



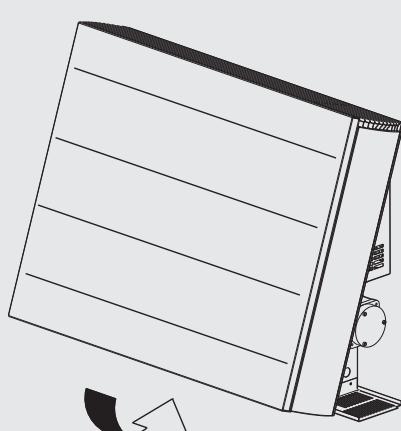
5c



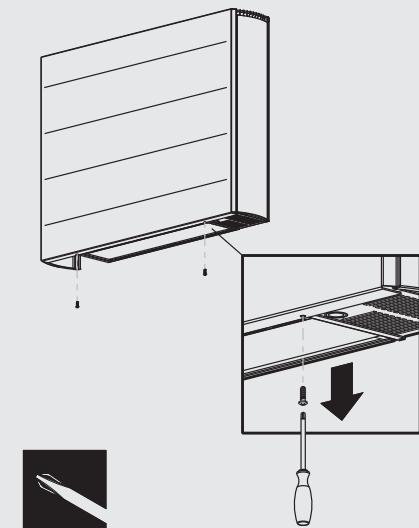
5d



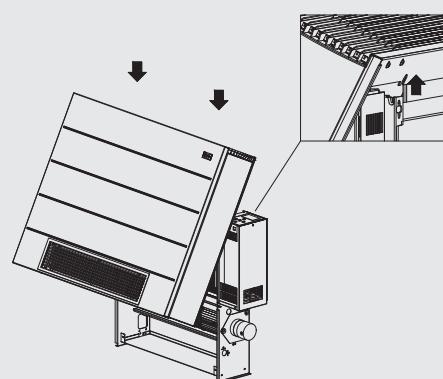
5e



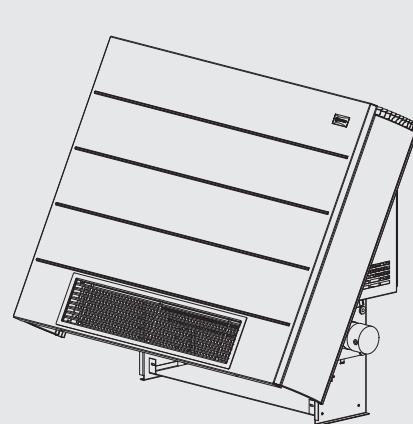
5f



5g



5h



5i

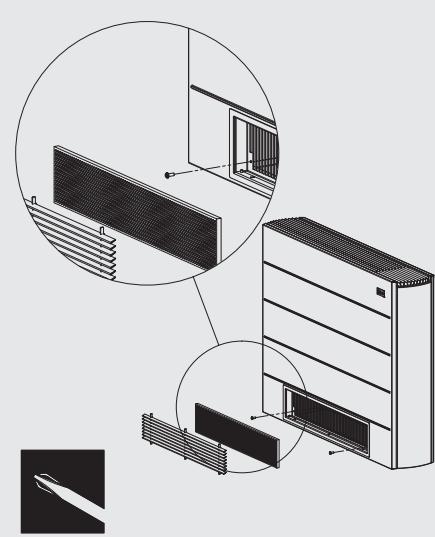


Fig 5. / Abb 5. / Rys 5.

*Type FN/FC only

**Type BN/BC only

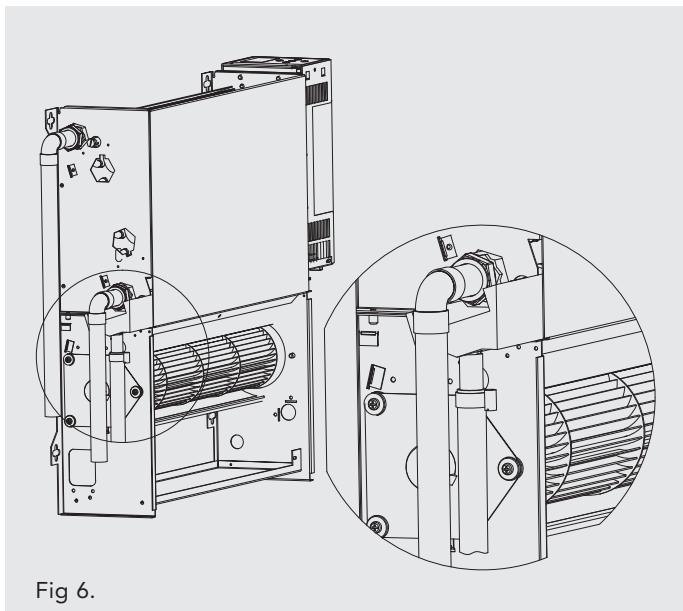
Appendix (continued...)

Fig. 6.

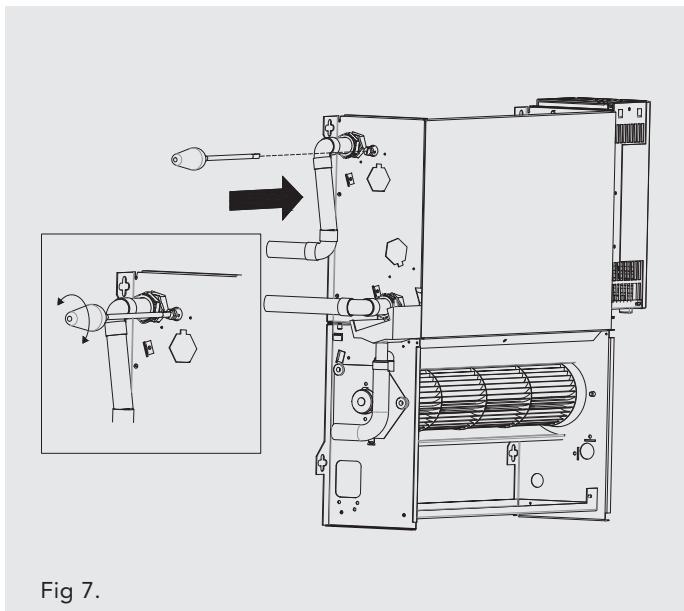
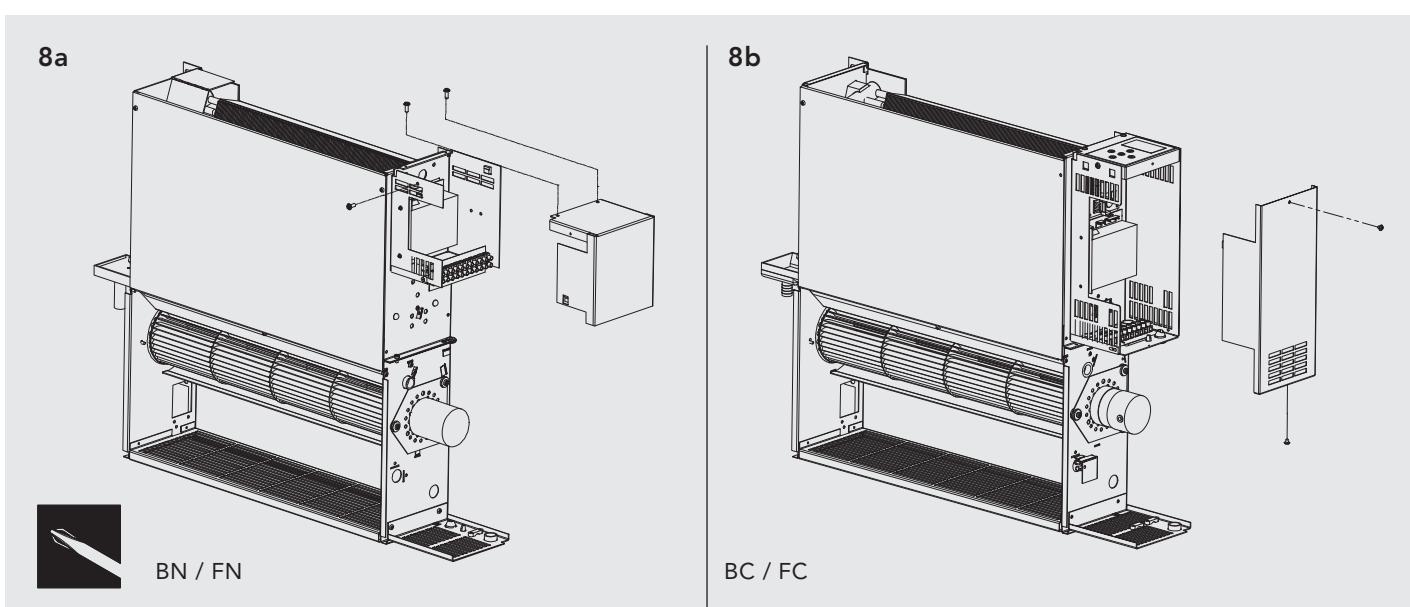


Fig. 7.



8c

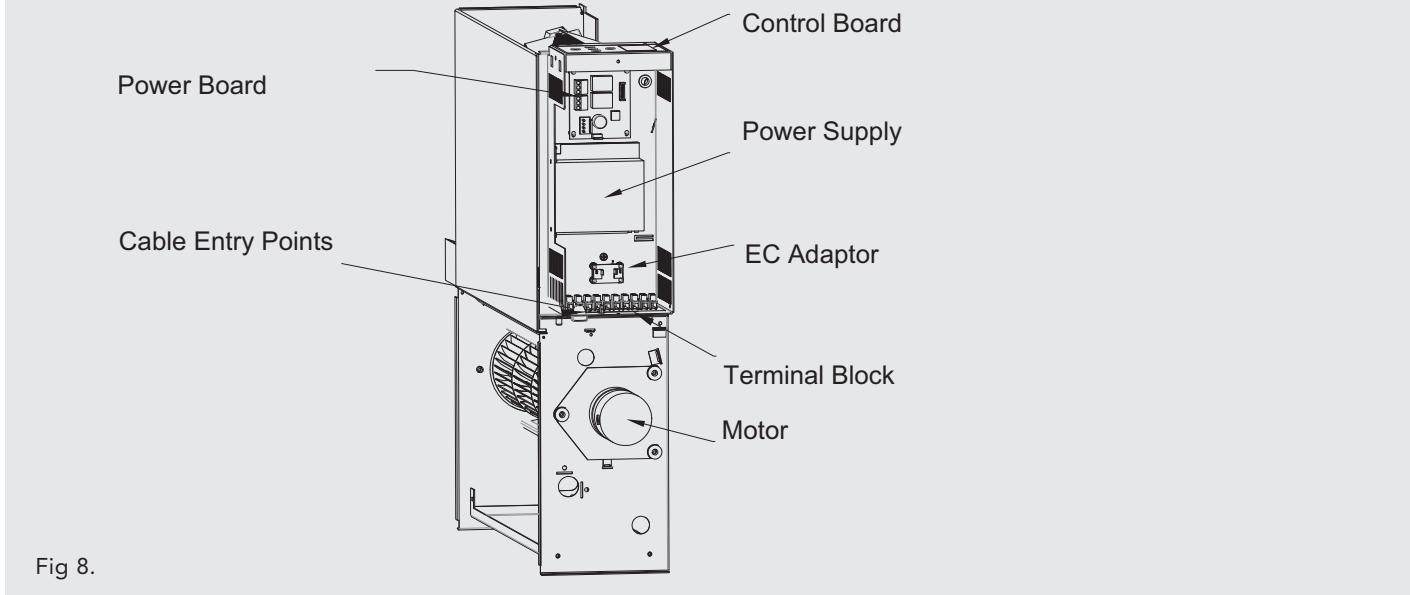
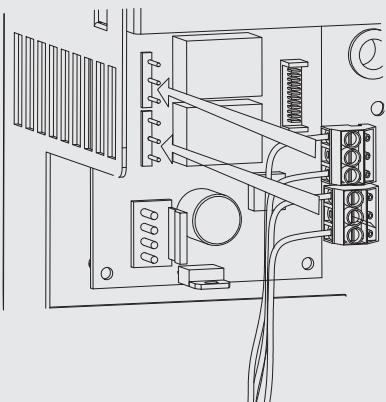


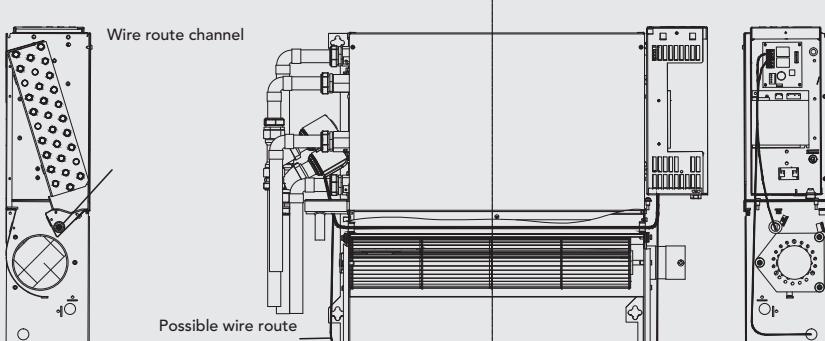
Fig. 8.

Appendix (continued...)

8d

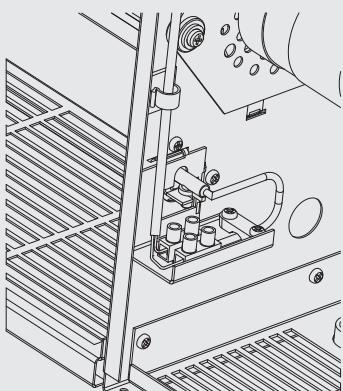


8e

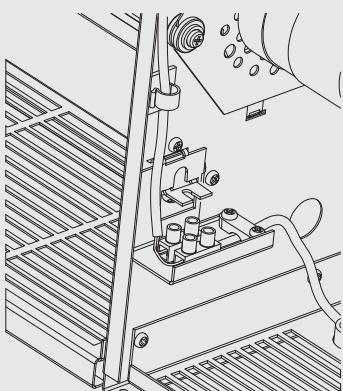


SECTION A-A

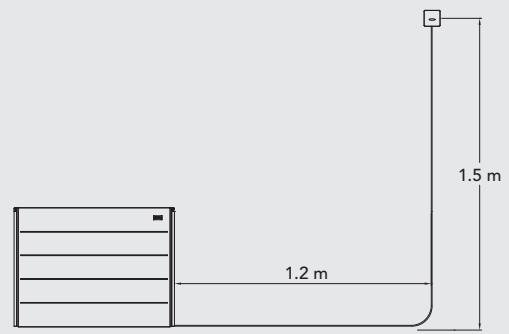
8f



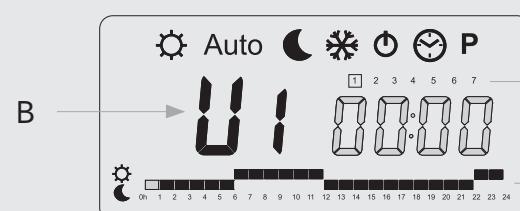
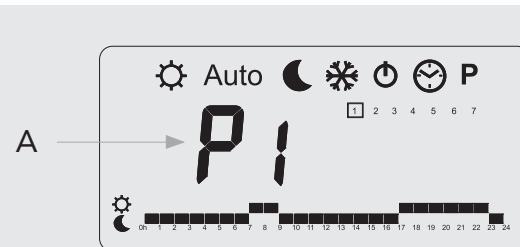
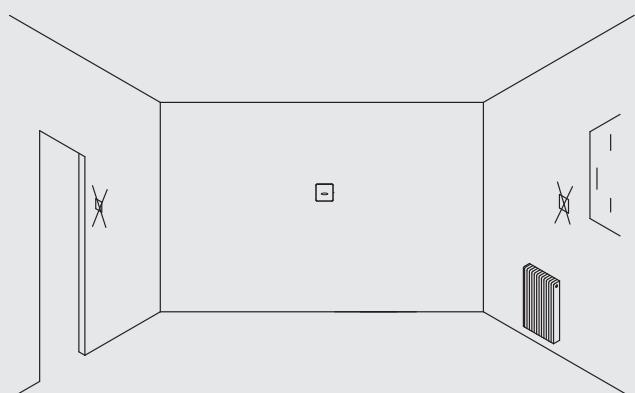
8g



8h



8i



C

D

Type BC/FC only

Fig 9.

Appendix (continued...)

1. Type BC/FC only

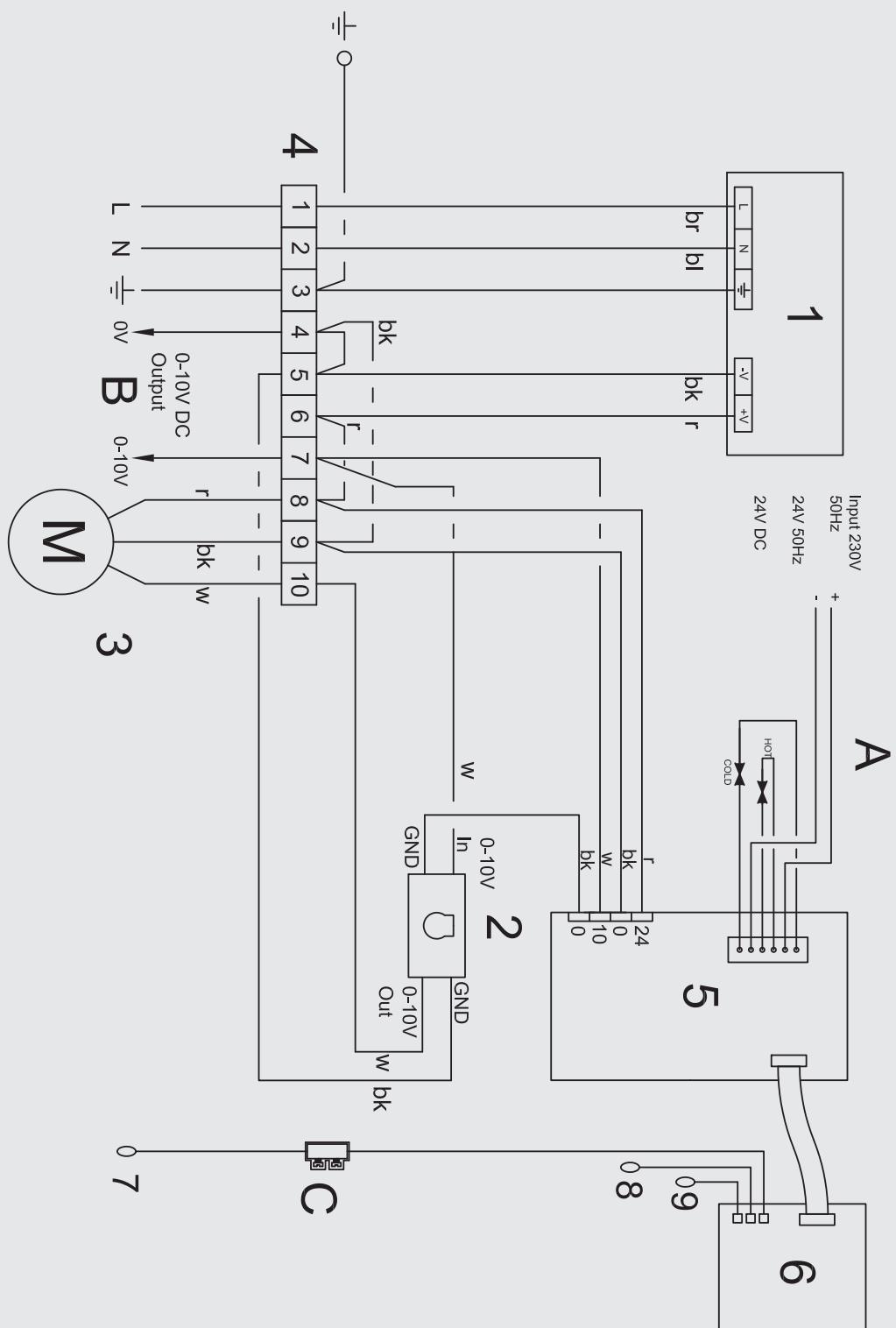


Fig 10a.

Appendix (continued...)

2. Type BN/FN only

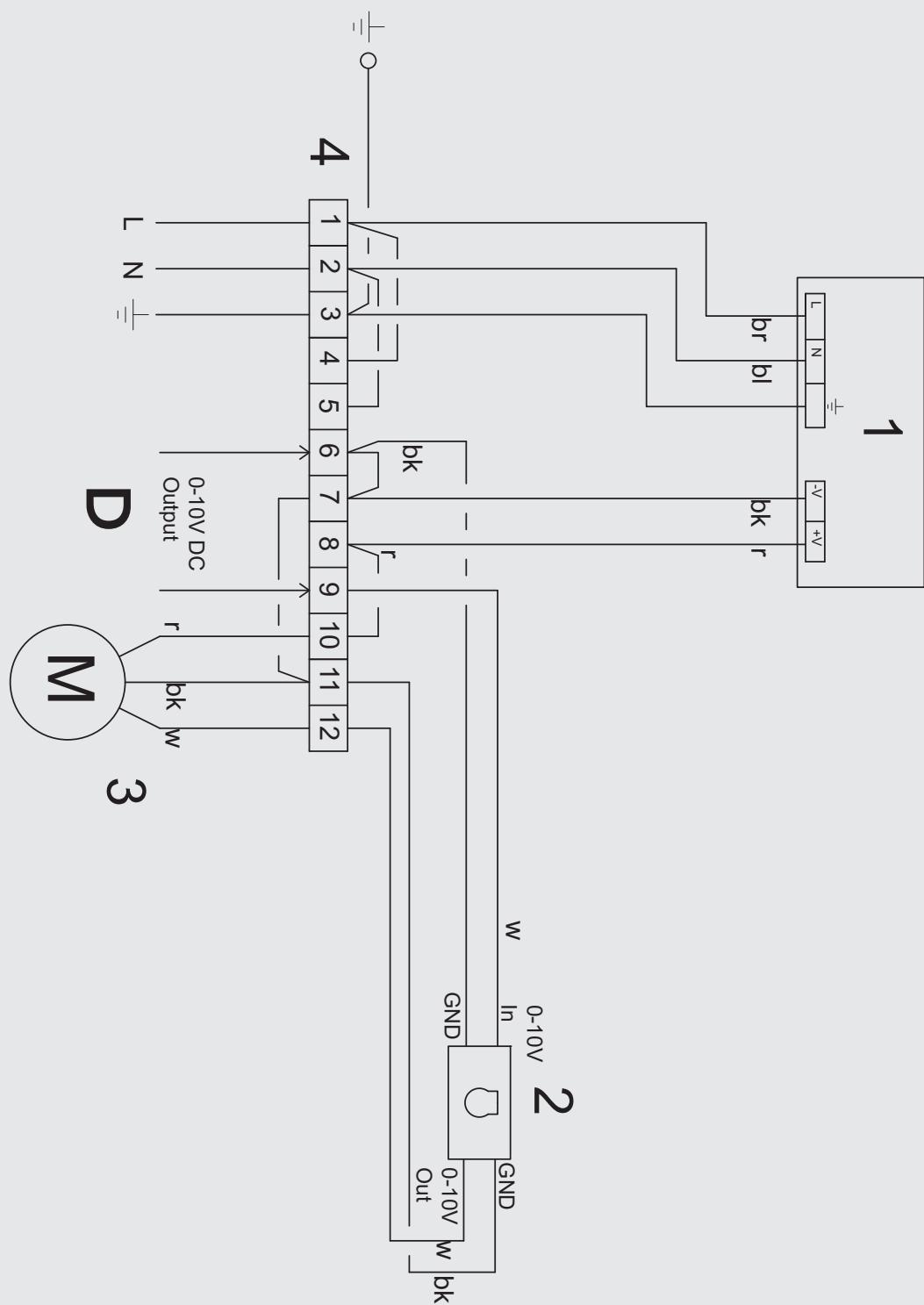


Fig 10b.

Appendix (continued...)

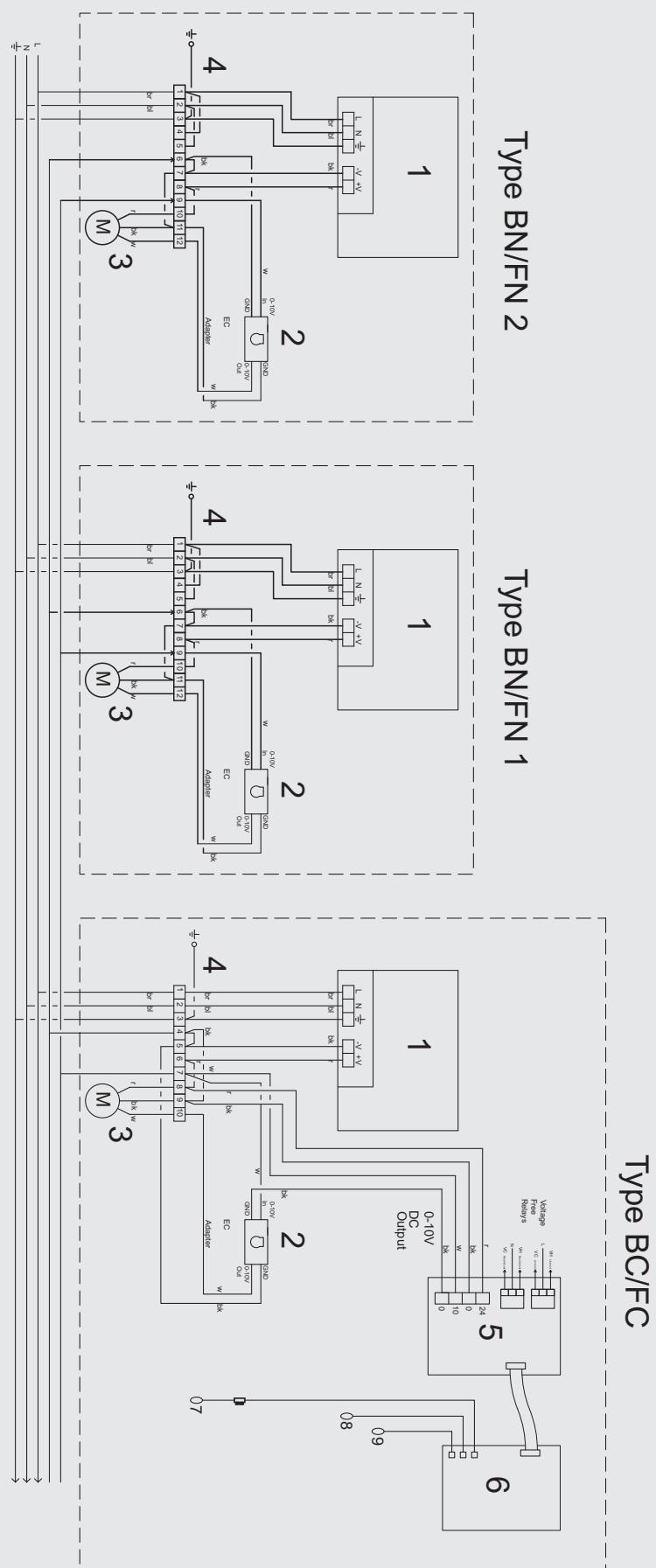


Fig 10c.

Appendix (continued...)

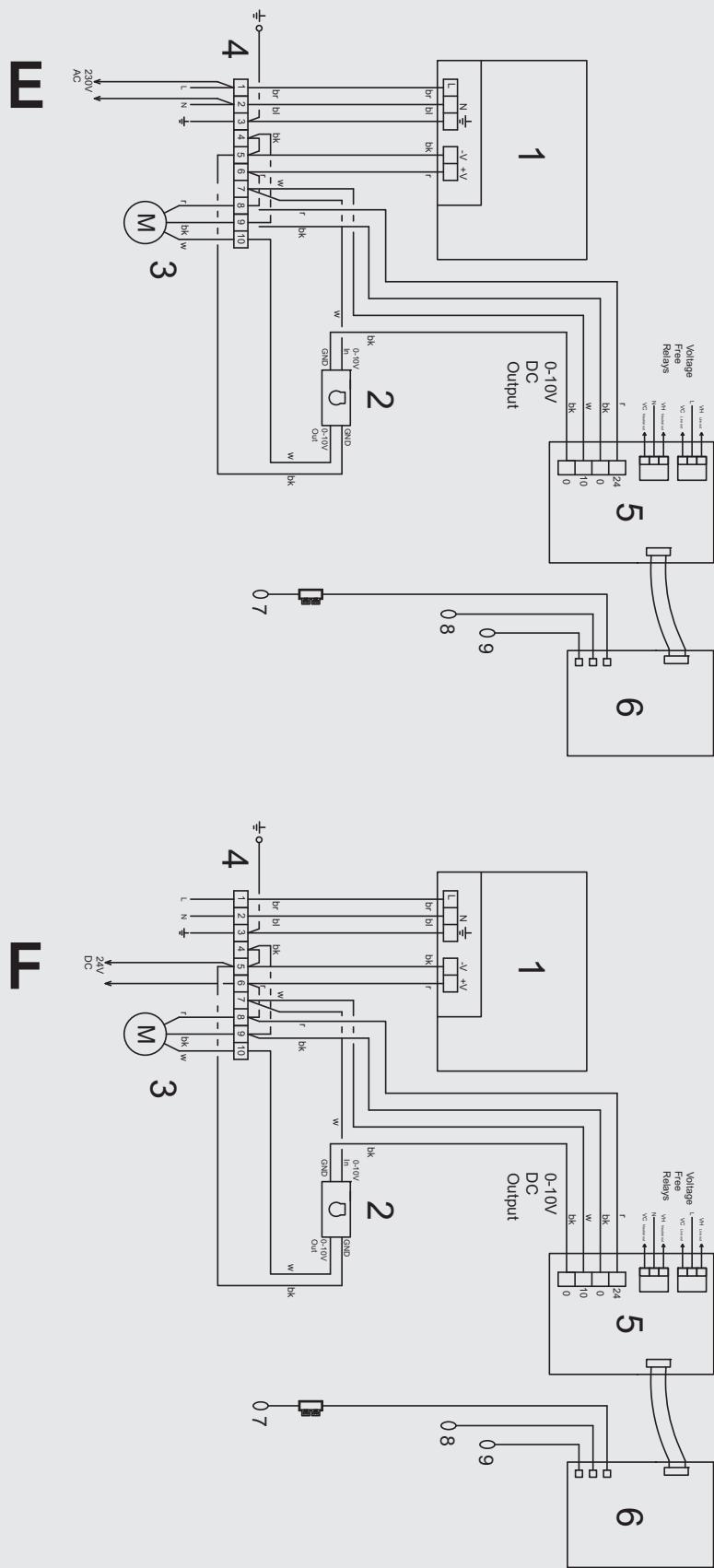


Fig 10d.

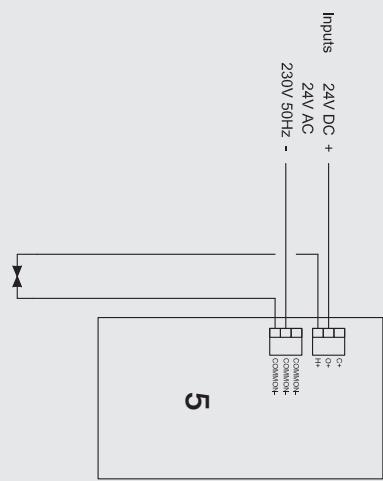
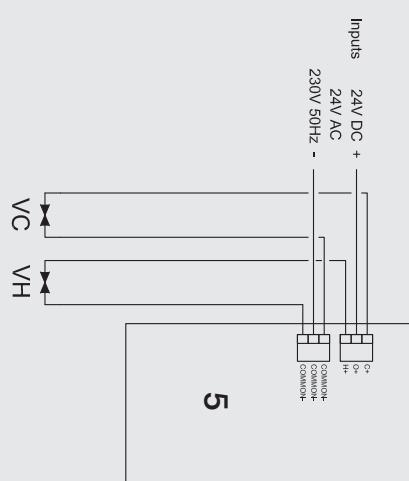
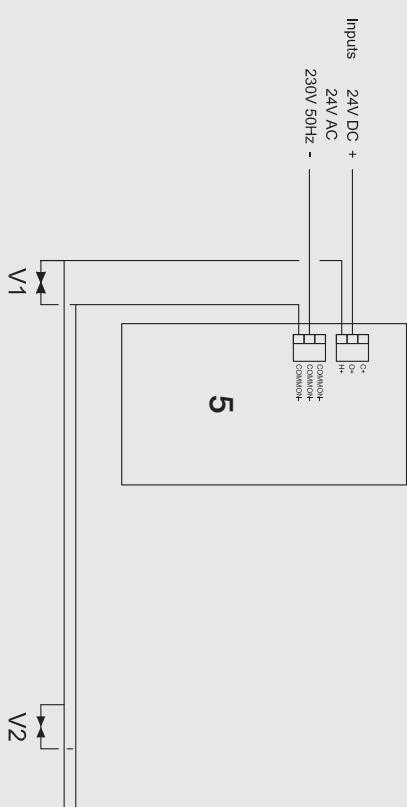
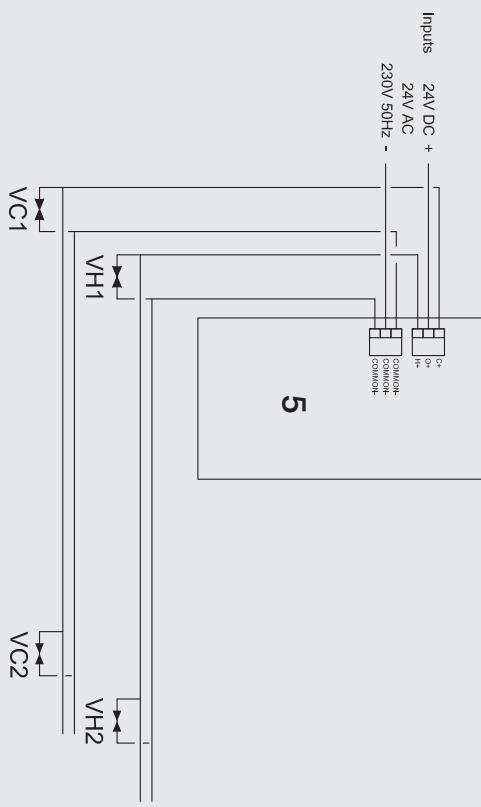
Appendix (continued...)
2p - Type BC/FC

4p - Type BC/FC

2p - Type BC/FC and Type BN/FN

4p - Type BC/FC and Type BN/FN


Fig 10e.

Appendix (continued...)**Wiring Diagrams' Key**

1	Power Supply	A	Voltage Free Terminals (Valve Switching)
2	EC Adaptor	B	Output to Slave unit (Optional)
3	Motor	C	Air Sensor Terminal Block
4	Terminal Block	D	Input from Master unit (Optional)
5	Power Board	E	220-240V AC Output
6	Control Board	F	24V DC Output
7	Air Sensor		
8	Water Sensor		
9	Water Sensor (4P Only)		

Appendix (continued...)**Performance Data 2-Pipe (Type BC/BN/FC/FN)**

Model	Fan Speed*	Heat Output (Watts)								Cooling (Watts)					
		Flow (l/h)	ΔT20		ΔT25		ΔT30		ΔT35		ΔT40	ΔT45	ΔT50	Condition 7-12-27	
			Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible					
2-080	Min	341	738	940	1146	1355	1567	1781	1997	707	527				
	Max	341	1360	1733	2113	2499	2889	3284	3682	1648	1227				
2-100	Min	450	1012	1289	1572	1859	2149	2443	2739	1011	753				
	Max	450	1892	2412	2941	3477	4020	4569	5124	2304	1716				
2-120	Min	600	1214	1548	1887	2231	2580	2932	3288	1520	931				
	Max	600	2409	3070	3743	4425	5117	5815	6521	2918	2173				
2-140	Min	700	1428	1820	2219	2624	3034	3449	3867	1490	1110				
	Max	700	2916	3716	4531	5357	6194	7040	7894	3533	2631				
2-160	Min	800	1647	2099	2560	3027	3499	3977	4460	1729	1288				
	Max	800	3422	4362	5318	6288	7270	8263	9266	4147	3088				

For BTUs multiply Watts by 3.412.

Relative Humidity: Sensible cooling at 50%.

Performance Data 4-Pipe (Type BC/BN/FC/FN)

Model	Fan Speed*	Heat Output (Watts)								Cooling (Watts)					
		Flow (l/h)	ΔT20		ΔT25		ΔT30		ΔT35		ΔT40	ΔT45	ΔT50	Condition 7-12-27	
			Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible				Flow (l/h)	Total
4-080	Min	300	517	658	802	949	1097	1247	1398	350	672	501	300	672	501
	Max	300	952	1213	1479	1749	2022	2299	2577	350	1566	1166			
4-100	Min	350	708	902	1100	1301	1504	1710	1917	450	960	715	350	960	715
	Max	350	1324	1688	2059	2334	2814	3198	3587	450	2189	1630			
4-120	Min	400	850	1084	1321	1562	1806	2052	2302	600	1444	884	400	1444	884
	Max	400	1686	2149	2620	3098	3582	4071	4565	600	2772	2064			
4-140	Min	450	1000	1274	1553	1837	2124	2414	2707	700	1416	1055	450	1416	1055
	Max	450	2041	2601	3172	3750	4336	4928	5526	700	3356	2499			
4-160	Min	500	1153	1469	1792	2119	2449	2784	3122	800	1643	1224	500	1643	1224
	Max	500	2395	3053	3723	4402	5089	5784	6486	800	3940	2934			

For BTUs multiply Watts by 3.412.

Relative Humidity: Sensible cooling at 50%.

*Outputs shown at fan speeds via Type BC/FC - may differ with an external controller.

*

Appendix (continued...))

Technical Information

		Fan Speed	Model				
			iV60x080	iV60x100	iV60x120	iV60x140	iV60x160
Dimensions	Nominal Height (mm)	-	600	600	600	600	600
	Depth (mm)	-	153	153	153	153	153
	Length (mm)	-	800	1000	1200	1400	1600
Sound Levels*	Sound Pressure (dBA) (at 2.5m)	Min	20.9	22.5	20.9	21.1	21.9
		Max	39.9	42.0	41.2	44.9	43.3
	Sound Power (dBA)	Min	33.8	35.4	33.8	34.0	34.8
		Max	52.8	59.9	54.1	57.8	56.2
Motor Power (W)		Min	3.5	3.6	3.8	4.5	4.6
		Max	13	18.5	23	30	35
Weight and Water Content†	2 Pipe Water Content (l)	-	0.66	0.92	1.19	1.45	1.72
	4 Pipe Water Content (l)	-	0.33	0.46	0.6	0.73	0.86
	2 Pipe Unpacked Weight (kg)	-	22.8	27.7	32.5	37.5	42.6
	4 Pipe Unpacked Weight (kg)	-	24.8	30.1	35.3	40.7	46.2
		Flow (l/h)	Model				
			iV60x080	iV60x100	iV60x120	iV60x140	iV60x160
Flow Rates/ Pressure Losses	Pressure Drop (kPa) (2 Pipe Heating/Cooling & 4 Pipe Cooling)	100	0.7	1	1.4	1.6	1.9
		150	1.4	2.1	2.9	3.2	3.7
		220	2.9	4.1	5.5	6.1	7.1
		330	6.1	8.5	11.1	12.2	14.2
		500	13	17.8	22.9	24.9	28.7
		750	27.5	36.5	46.2	49.8	57.1
	Pressure Drop (kPa) (4 Pipe Heating)	100	1.4	2	2.8	3.2	3.8
		150	2.8	4.2	5.8	6.4	7.4
		220	5.8	8.2	11	12.2	14.2
		330	12.2	17	22.2	24.4	28.4
		500	26	35.6	45.8	49.8	57.4

* Sound levels tested in accordance with ISO 3741. Sound performance show at fan speeds via controls unit - may differ with external controller.

† 2 pipe water content = 2 pipe heating/cooling or 4 pipe cooling and 4 pipe water content = 4 pipe heating.

Electrical Data

All iVECTOR models rated by an electrical supply of 100-240V
50/60Hz fused at 3A.



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