

# HI-LINE RC & HI-LINE RC HEATER/COOLER FAN CONVECTOR

MODELS: 7-4, 10-6, 15-10, 20-14.

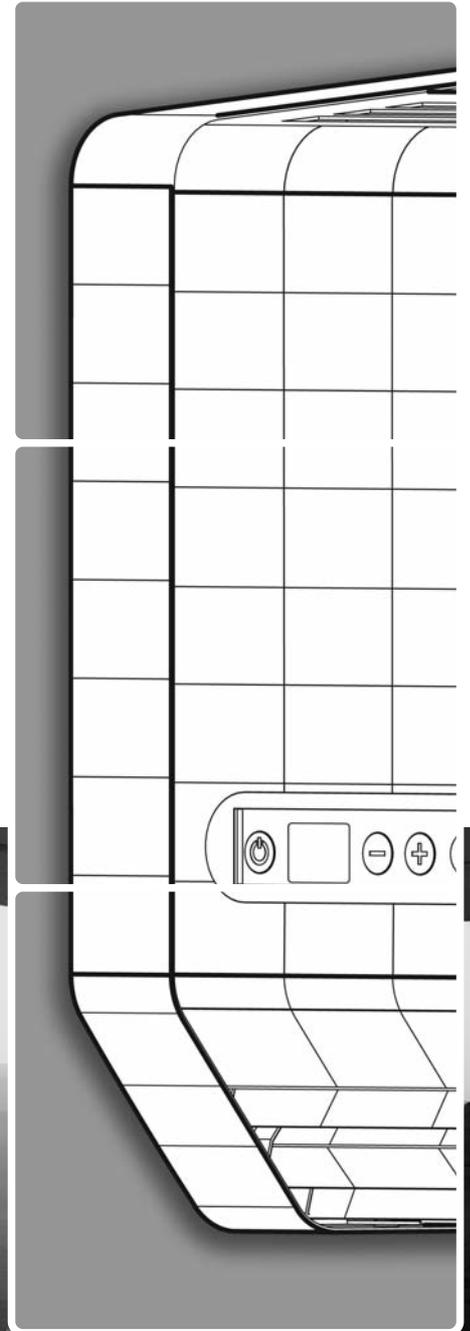
## INSTALLATION, OPERATING, MAINTENANCE & AFTER SALES MANUAL

Product Serial Number:

--	--	--	--	--	--	--	--	--	--

Please leave this manual with the end user.

Part Number: 1371052



**heating**through**innovation.**



Tested to UL & CSA Standards

## Contents

1.0	General Information	03
2.0	Heating System Design	03
3.0	Unit Selection/Sizing	03
4.0	Location	03
5.0	Preparation	04
6.0	Fixing	04
7.0	Water Connections	05
8.0	Electrical Connection	06
9.0	Commissioning Procedure	07
10.0	Technical Data	08
11.0	Operating Instructions	09
12.0	Troubleshooting	10
13.0	Maintenance	11

## 1.0 General Information

- This MYSON HI-LINE RC fan convector is designed for wall-mounted installation with a maximum installation height of 7ft to the underside of the unit.
- The minimum installation height is 6ft to the underside of the unit.
- The minimum clearance between the top of the unit and the ceiling should be 2 inches.
- The minimum side clearance is 4 inches.
- The HI-LINE RC should only be used on closed circulation, two pipe, pump assisted central heating systems (HI-LINE) on heating and cooling systems (HI-LINE Heater/Cooler), or as a stand alone zone.
- In rooms with ceiling heights above 10ft a ceiling fan or other means of heating stratification should be considered.
- Before proceeding with the installation, the heating system

design must be considered and the unit correctly sized to meet the heat loss requirements of the room at normal fan speed.

- This unit is supplied with an infra red remote control system and has 3 operating modes:  
 Automatic – the desired room temperature is programmed in to the unit and the fan speed is automatically adjusted until the desired room temperature is achieved.  
 Fan only – allows user selection of any of the 3 available fan speeds irrespective of room temperature or water temperature in the coil.  
 Fan only with water temperature control – allows the user to select any of the available fan speeds, which will operate only if the water temperature in the coil is above 90°F. This enables control of the unit via an externally mounted room thermostat if desired.

## 2.0 Heating System Design

This fan convector can be fitted on a series loop with mono-flo or venturi Tees, on a two pipe system or as a stand alone zone.

For optimum fan convector heating performance the system must be capable of providing sufficient hot water through the heat exchanger. This means that:

1. Care must be taken in sizing both the pump and piping.
2. The minimum pipe size from boiler to fan convector must be at least 1/2 inch.
3. Where the unit is fitted on to a system with other emitters a separate circuit for the fan convector should be considered to provide adequate water flow.

4. The system water must be above 90°F for heating mode.
5. **Optimum performance of this unit will require effective balancing of the whole system.**
6. This unit should NOT be used to replace a radiator in an existing system unless an adequate flow of water can be guaranteed through the unit.
7. The loop must be pumped. HI-LINE fan convectors are not suitable for gravity circulation systems.

## 3.0 Unit Selection/Sizing

Heat output performance is given in the Technical Data section of this manual. Outputs are shown for the 3 fan speeds, however, it is important to size the unit to match the calculated heat loss requirements of the room with the unit operating on the normal fan speed. The higher fan speeds are used in automatic mode when the room temperature is significantly lower than the preset temperature.

When establishing the temperature difference, i.e. entering water to room temperature, allowance should be made for temperature drop in the system. It is the water temperature at the unit that dictates the output.

## 4.0 Location

- This HI-LINE RC unit may be fitted to any convenient wall at a height from floor level that suits the application, providing an unimpeded flow of warm air into the area to be heated.
- The maximum distance from the underside of the unit to floor level is 7ft.
- The minimum distance to the underside of the unit is 6ft.

- This unit should not be installed in locations with ceiling heights greater than 10ft.
- For cooling applications, the need for disposal of condensate may influence the position of the unit.
- Prior to installation the wall should be checked to make sure it is straight and flat to avoid twisting the unit.

1.0

2.0

3.0

4.0

## 5.0 Preparation

Before proceeding with the installation, unpack the carton contents and check against the checklist below:

1. HI-LINE RC fan convector.
2. Instruction manual.
3. Fixing kit (rubber mounts and cable gland).
4. Remote control handset.

## 6.0 Fixing

- Using the fixing dimensions below (see fig. 1), mark the fixing hole positions on the wall.
- Plastic or metal anchors suitable for No. 8 wood screws should be used for mounting the convector to the wall.
- Remove the backing from the self-adhesive washers and place on screws with adhesive side towards the point.
- Tighten the screws into the wall leaving about  $\frac{3}{8}$  inch projecting.
- Press adhesive washers to the wall.

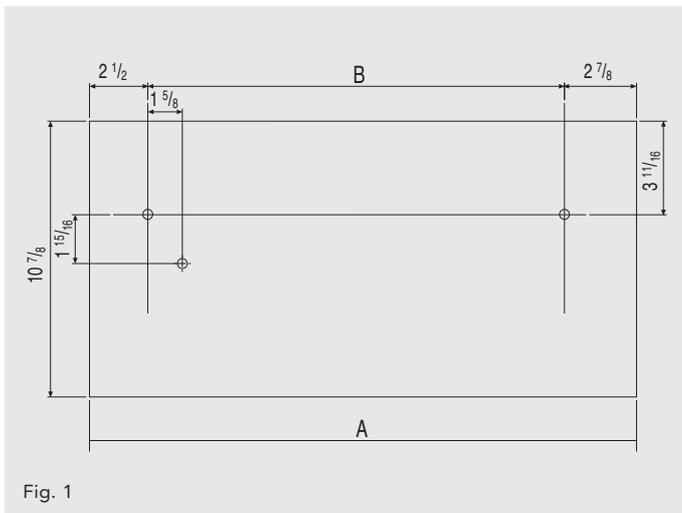


Fig. 1

Unit	Dimensions (inches)	
	A	B
20-14	$46\frac{3}{32}$	$40\frac{7}{8}$
15-10	$34\frac{15}{16}$	$29\frac{11}{16}$
10-6	$26\frac{7}{8}$	$21\frac{21}{32}$
7-4	$21\frac{13}{16}$	$16\frac{5}{8}$

Remove the outer casing as follows:

- Remove the 2 screws at each end of the outlet grille (see fig. 2).
- Lift off the outer case.
- Fit chassis on to mounting screws and tighten.

**Note:** Before proceeding with pipe-work connections check that the unit is level. If the right hand end is lower than the left then the ability to vent the unit may be restricted.

When water connections and electrical connections have been completed and the unit has been vented, fit the outer cover and secure with fixing screws.

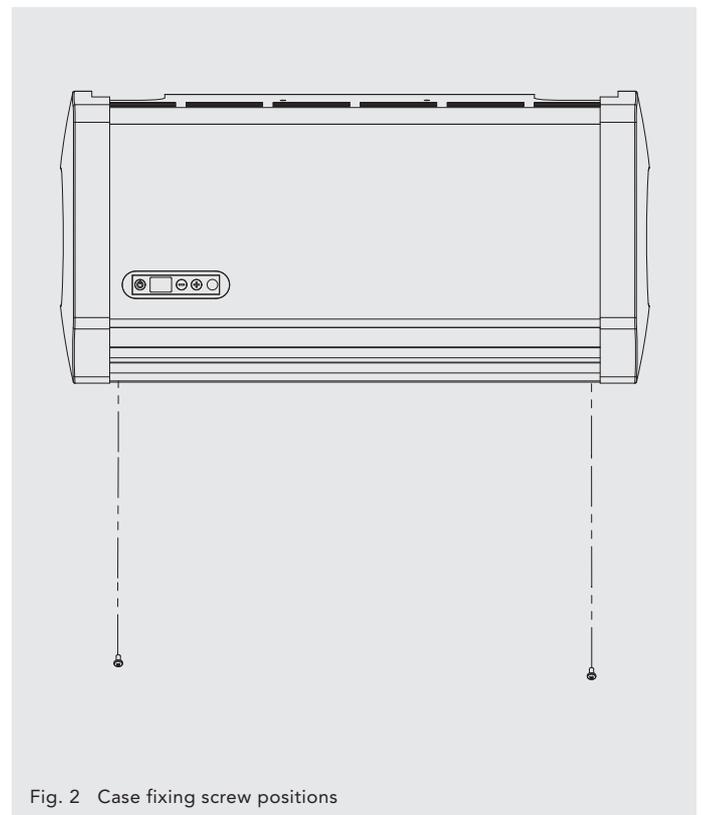


Fig. 2 Case fixing screw positions

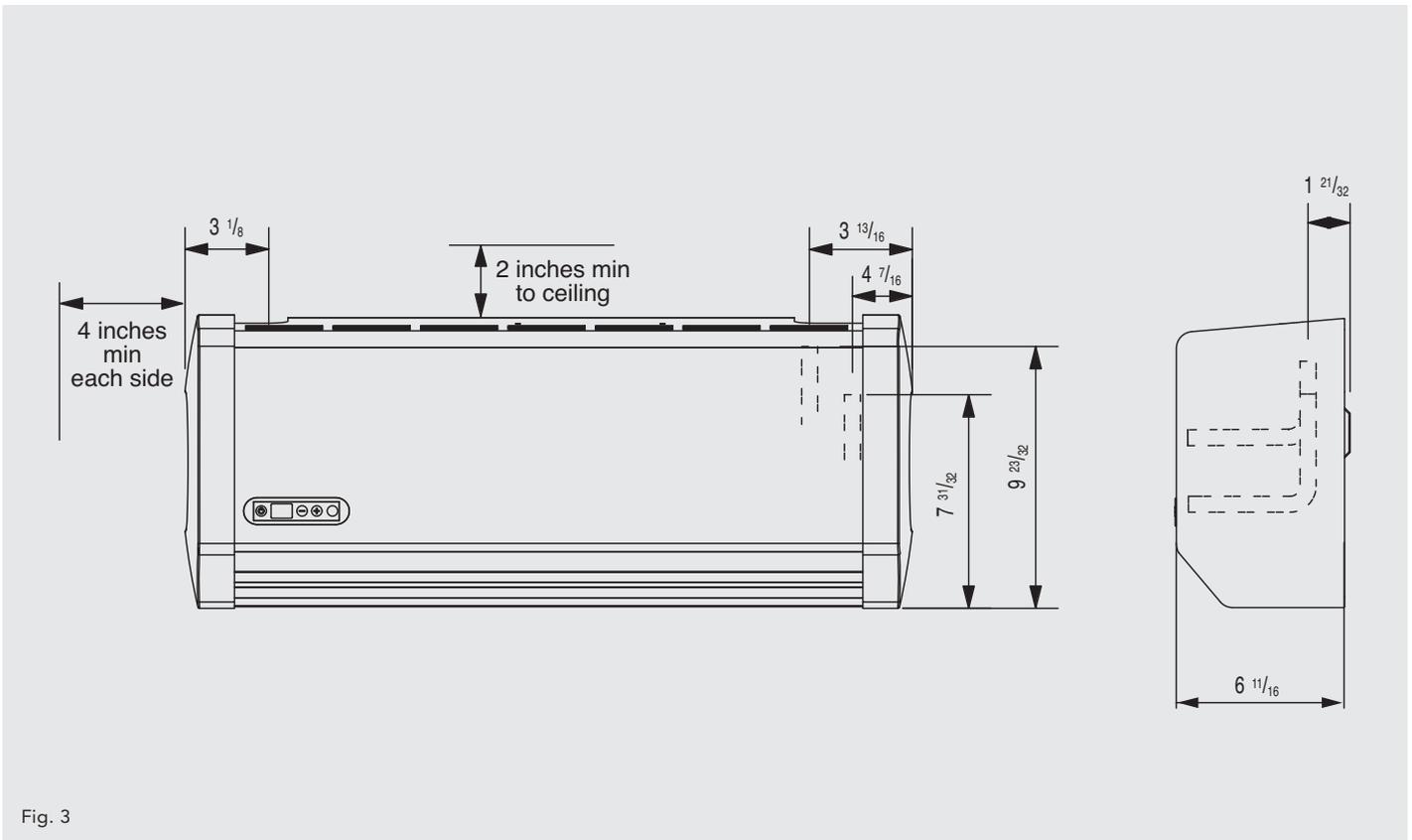
**7.0 Water Connections**

- Connect unit to system flow and return pipes. It is recommended that two 1/2 inch isolating valves are fitted. This will enable isolation of the unit for maintenance activities.
- Ensure system is flushed in accordance with recognised best practice and a suitable inhibitor is added to the system as necessary.
- Open valves fully, check pipe connections for leaks and vent the heat exchanger - see Commissioning Procedure.

**Note:** External pipe-work carrying chilled water must be insulated. Use a suitable sealant as necessary to ensure that condensate does not spill or leak.

HI-LINE Heater/Cooler installations with chilled water will require provision for condensate disposal in accordance with any local regulations.

A drain tray is fitted for condensate collection within the unit. This should be connected to a 5/8 inch drain pipe.



5.0
6.0
7.0

## 8.0 Electrical Connection

**WARNING:** This appliance must be grounded. The electrical installation must comply with state and local codes.

- This unit is supplied with a factory fitted 3 core cord, 6ft in length, with moulded plug.
- A suitable socket outlet with isolating switch must be available, or fitted to supply the HI-LINE.

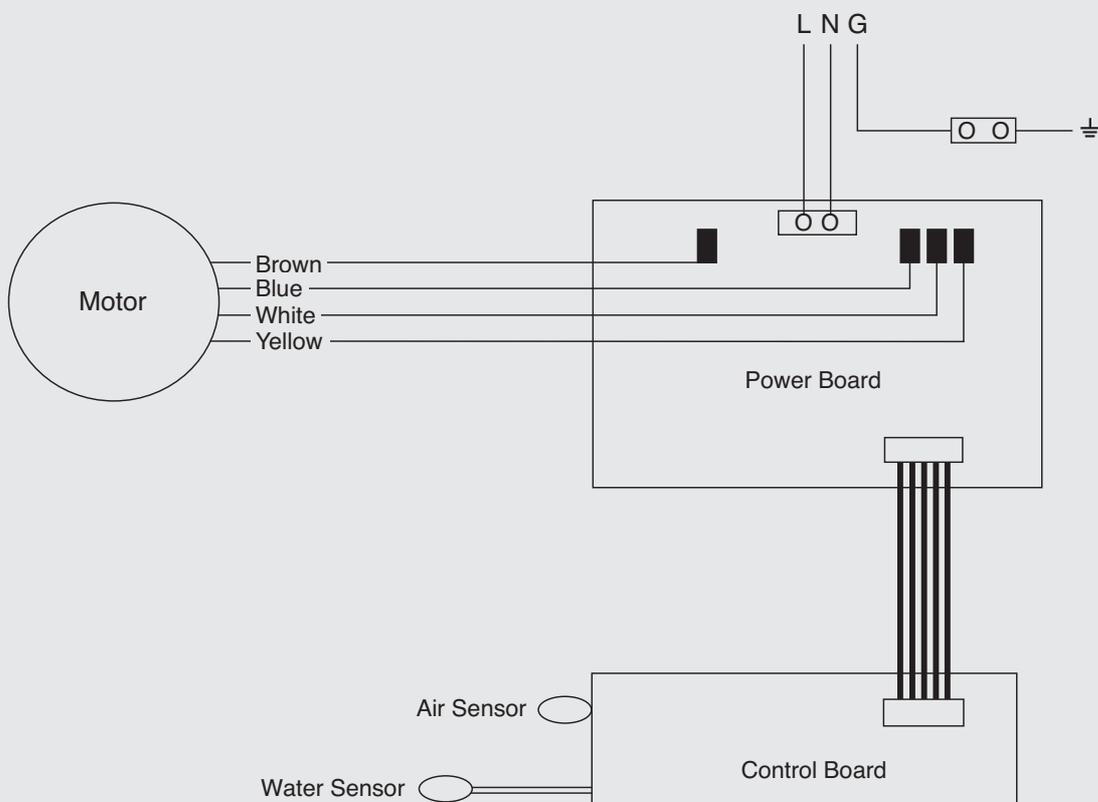


Fig. 4 Wiring diagram

**9.0 Commissioning Procedure**

- Fill and vent the system.
- Open both valves fully and check for leaks at pipe connections.
- Refit the outer case and secure using the 2 fixing screws.
- Switch on electrical supply.
- Check the operation of the unit by following the operating instructions.
- When installation and commissioning are complete, hand over instruction manual to end-user.

**Heat Pump and Low Water Temperature Systems**

In heating mode, the control system brings the fan on when the water in the coil reaches 90°F. For low water temperature systems, e.g. heat pump systems, it is possible to switch off the boost speed option in automatic mode so that the unit runs in medium or normal fan speeds depending on demand. This means low outlet air temperatures from the unit are avoided when the room temperature is low in relation to the set temperature.

This facility can be switched on or off by following the instruction below:

- Isolate electrical supply.
- Remove outer cover.
- Change switch 1 position according to requirements (see fig. 4).

- Refit outer cover.
- Switch on electrical supply.

**Fan Pulse**

Fan pulse mode causes room air to be drawn over the air temperature sensor periodically to maintain room temperatures more effectively. In certain circumstances, for example when units are over-sized in relation to the heat loss of the room, it may be necessary to turn off this function. Use dipswitch 3 according to requirements.

**Displayed Temperature Calibration**

Depending on the location of the unit there may be a difference between the temperature at the unit and the temperature in the middle of the room being heated.

The displayed temperature calibration function enables calibration in heating mode of the displayed temperature to the actual room temperature using the following procedure:

- Run the fan convector until room conditions stabilise.
- Press the 'On/Off key' and '+' key simultaneously for 5 seconds. The display will flash, alternating between 'ro' and the calibration temperature.
- Calibrate the displayed temperature by using the '+' and '-' keys with the fan running.
- Press the 'On/Off' key to finish.

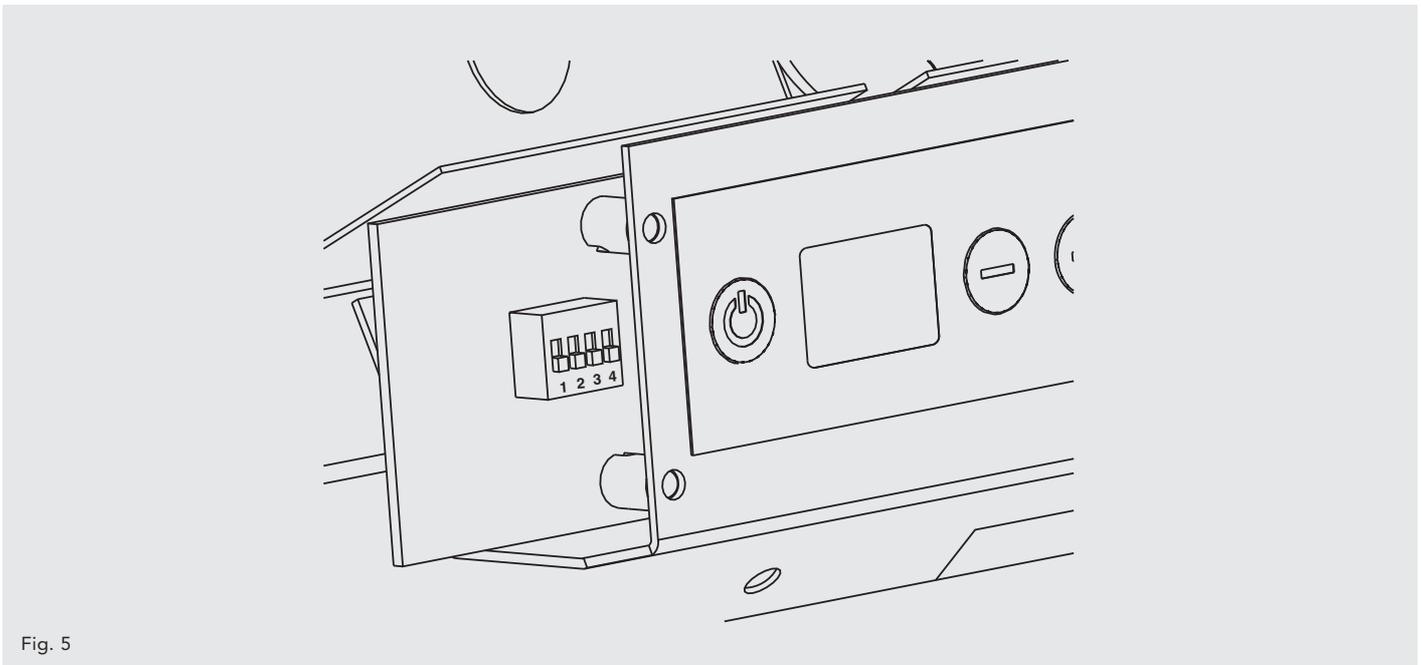


Fig. 5

Switch		Switch Down	Switch Up
1	Auto Fan Speed Selection	2 Speed	3 Speed
2	Heating / Cooling	Heating	Heating & Cooling
3	Fan Pulse	Off	On
4	Temperature Display	°F	°C

**10.0 Technical Data**

**Heating Performance Data**

Model	Fan Setting	GPM	Heat Output (Btu/h)									
			Entering Water Temperature (°F), entering air temperature 65°F									
			110	120	130	140	150	160	170	180	190	200
20-14	Boost	3	7870	9717	11582	13461	15354	17257	19171	21094	23026	24965
	Medium		7030	8685	10357	12043	13741	15449	17168	18895	20630	22373
	Normal		5922	7318	8728	10150	11583	13025	14475	15933	17398	18870
15-10	Boost	3	6019	7437	8870	10314	11770	13234	14708	16188	17676	19170
	Medium		4638	5732	6838	7953	9076	10206	11344	12487	13636	14789
	Normal		4128	5103	6088	7082	8083	9091	10105	11125	12150	13179
10-6	Boost	3	4226	5224	6233	7250	8275	9307	10345	11388	12437	13490
	Medium		3329	4116	4910	5712	6520	7334	8152	8975	9802	10633
	Normal		2761	3413	4072	4737	5407	6082	6761	7443	8129	8818
7-4	Boost	3	2912	3600	4295	4996	5703	6415	7131	7851	8574	9301
	Medium		2232	2760	3294	3833	4376	4922	5472	6025	6581	7140
	Normal		1620	2004	2392	2783	3178	3575	3975	4377	4781	5187

Note: Performance figures for heating and cooling based on a flow rate of 3 GPM. For a flow rate of 1 GPM multiply by 0.87.

Test Pressure: 290psi  
 Max working pressure: 145psi  
 Water connections: 1/2 inch sweat  
 Electrical Supply: 110V 60Hz

**Approximate Hydraulic Resistance through Fan Convectors**

GPM	ft wg			
	7-4	10-6	15-10	20-14
3	6.9	7.7	9.2	10.5
1	1.1	1.3	1.5	2.0

**Cooling Performance Data** (figures @ 50% RH)

Model	Fan Setting	Flowrate (GPM)	Cooling Performance (Btu/h)					
			Air-Mean Water Temperature Difference (°F)					
			25°		35°		45°	
			Tot.	Sens.	Tot.	Sens.	Tot.	Sens.
20-14	Boost	3	5320	4528	8750	6325	12689	6998
	Medium		5018	4123	8261	5707	11988	6550
	Normal		4172	3437	6867	4613	9964	5292
15-10	Boost	3	4241	3633	6978	5123	10124	5767
	Medium		3182	2707	5238	3781	7600	4183
	Normal		2943	2530	4842	3582	7023	4061
10-6	Boost	3	2592	2121	4266	3096	6189	4091
	Medium		2145	1813	3529	2517	5119	2741
	Normal		1920	1627	3158	2268	4579	2487
7-4	Boost	3	1906	1526	3137	2227	4550	1941
	Medium		1572	1347	2589	1898	3758	2138
	Normal		1057	912	1740	1294	2525	1477

Cooling performance tested in accordance with BS 4856 Part 2. Flow rate 340 ltr/h. Relative humidity 50%.

**Noise Levels**

Model	Sound Pressures at 2.5m (dBA)		
	Normal	Medium	Boost
20-14	33.3	38.7	45.4
15-10	28.8	35.4	45.6
10-6	23.5	30.8	37.2
7-4	23.4	32.5	43.3

Noise levels tested in accordance with EN 23741.

**Weight, Water Content and Motor Power**

Model	Motor Power (W)	Water Content (pints)	Unpacked Weight (lbs)
20-14	80	1.6	32.4
15-10	62	1.2	24.9
10-6	35	0.7	19.6
7-4	35	0.6	16.3

Test Pressure: 20bar (2 MPa) Maximum working pressure: 10bar (1MPa)  
 Water connections: 15mm Electrical supply: 230V - 50Hz

11.0 Operating Instructions

**Description**

This HI-LINE unit is fitted with a control system that provides either automatic or manual control of the unit. In automatic mode the desired temperature set point is selected and the unit will adjust the fan speed according to the difference between the actual room temperature and the set point. When the room temperature reaches the set point the fan will switch off and thereafter will continue to cycle on and off to maintain the room temperature. The temperature set point range is 59 - 95°F.

In manual mode the automatic temperature control is overridden and any of the three fan speeds can be operated irrespective of the water temperature in the unit. This means

that air circulation can be provided in summer for example, or that heating performance can be controlled manually.

In manual mode, with water temperature control, any of the 3 fan speeds can be selected and the fan will operate when the water temperature in the coil is greater than 90°F. This means that heating performance can be controlled manually, and the unit could be controlled via an external room thermostat.

The unit can be controlled using the infra red remote control handset supplied with the unit (see fig. 6) and also using the control panel on the unit (see fig. 7). If necessary, however, the control panel can be locked electronically to prevent tampering once the controls have been set (see over).



Fig. 6

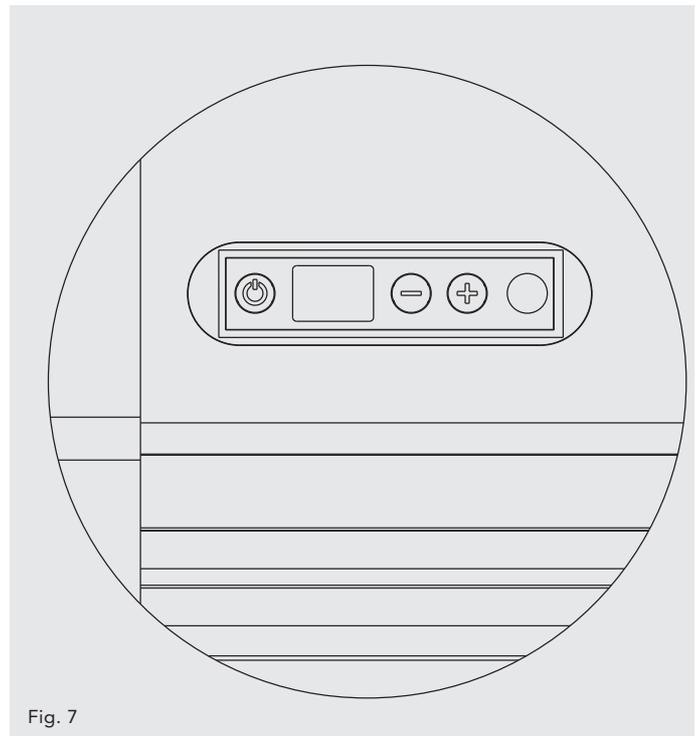


Fig. 7

The remote control hand set takes 2 AAA batteries (not supplied).

**Controls**

- Power button
- '+/-' button

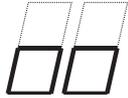
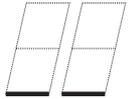
**Display**

- Switches unit on & off
- Adjust temperature set point from 59 - 95°F
- Scrolls into F1, F2, F3, A1, A2 or A3 manual mode.

**Heating**

Heating will only be provided when the central heating boiler is on, the pump is running and the system water temperature is greater than 90°F. Ensure the boiler is on, and set timer, boiler controls and room thermostats as necessary.

**11.0 Operating Instructions (continued...)**

Operation	Display
Power off	No Display
Switch on supply to unit (unit off)	 for 30 seconds
	 Supply on / unit off
Switch on unit	 Set point flashes for approx 5 secs, then
	 Ambient temperature displayed
Use '+/-' to adjust set point	 Set point flashes for approx 5 secs, then
	 Ambient temperature
The ambient temperature is always displayed unless the water temperature falls below 110°F*, or if the set point is being adjusted.	
Water temp <110°F	 Shows both power & unit on

\*110°F in normal heating system, 90°F for heat pumps and above 68°F in cooling.

**Manual**

Manual mode can be used for air circulation without heat or for manual control of the heating function.

Use '+' to scroll beyond 95°F  
Or use '-' to scroll below 59°F

Selected fan speed displayed



Scrolling back out of manual using the '+' or '-' button will revert the unit back to last temperature set point.

**Cooling Mode**

- Close the heating system and isolate any other heat emitters.
- Open the cooling water system.
- Ensure cooling is on, and set cooling unit timer and controls as necessary.

Cooling operation works in exactly the same way as heating. Follow the procedure above to set the unit controls.

**Locking Unit Controls**

The control panel on the main unit can be locked electronically to prevent interference once the controls have been set. After setting the unit to the desired temperature setting and with the unit in running mode, press the On/Off button on the main unit for about 6 seconds until the two middle horizontal bars appear on the display. The horizontal bars will disappear after about 6 seconds and the unit is in key lock mode.

If any of the unit controls are pressed the horizontal bars will reappear to show the key lock mode is activated, however, during this mode the handset controls remain functional.

To unlock the system press the On/Off button for about 6 seconds until the horizontal bars disappear.

**12.0 Troubleshooting**

Once installed this fan convactor becomes part of a complete heating system that generally will include boiler, pump, other emitters such as radiators and fan convectors, and a number of heating controls, dependent on system complexity. An apparent problem with this unit may be the result of system controls being incorrectly set and can be solved easily without calling out your installer or MYSON. Before calling your installer or MYSON, please carry out the checks listed opposite.

**12.0 Troubleshooting (continued...)**

Problem	Possible Causes	Remedy
Heating Mode - No Fan	Unit switched off	Turn on
	Temperature set point reached	Increase temperature set point
	Unit not switched on at breaker panel	Switch on at breaker
	Breaker tripped at panel	Check all wiring and reset breaker
	Unit isolating valves shut	Open valves
	Water temperature reaching fan convector below 110°F (Heater model only)	Check boiler - Programmer ON  Boiler ON and set to high with central heating pump running  Note: Operation of fan convector can be checked by switching to manual fan setting
Heating Mode (Heater model only) poor heating performance and/or unit cycles on water sensor	Low water temperature to unit	Turn up boiler thermostat
	Poor water flow	Vent air from heating system

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

**Common Installation Faults**

For optimum performance, this unit must be correctly sized to match the heat loss requirements of the space it is required to

heat, and the heating system must be correctly designed to provide adequate flow of hot water to the unit (see Section 2). If the recommendations in Section 2 are not followed, problems may arise as detailed below.

Problem	Possible Causes
Poor heating performance (Heater model only)	Unit incorrectly sized for heat loss of room
Heating Mode (Heater model only) poor heating performance and/or unit cycles on water sensor	Boiler thermostat set too low
	Lack of flow to fan convector -
	Pump set on low setting
	Isolating valves not fully open
	System incorrectly balanced with unit starved of hot water flow
	Pipe sizing to unit too small

**13.0 Maintenance**

Before undertaking any maintenance activity isolate the electrical supply.

Maintenance should be restricted to occasional removal of dust and lint around the unit. The outer surface may be wiped over

with warm water and mild detergent taking care to avoid water entering the grille areas.



**MYSON** RETTIG USA, INC. (MYSON) 45 Krupp Drive, Williston, VT 05495  
T: 800-698-9690, F: 802-654-7500, info@myson.com, www.mysoncomfort.com



**heating**through**innovation.**