The present manual applies to the following ROOF TOP versions:

BCK 020 - BCK 025 - BCK 030 - BCK 040 - BCK 045 - BCK 050
BHK 020 - BHK 025 - BHK 030 - BHK 040 - BHK 045 - BHK 050
BGK 020 - BGK 025 - BGK 030 - BGK 040 - BGK 045 - BGK 050
BDK 020 - BDK 025 - BDK 030 - BDK 040 - BDK 045 - BDK 050

NOTES FOR UNIT FITTED WITH GAS BURNER:

THE UNIT MUST BE INSTALLED IN ACCORDANCE WITH LOCAL SAFETY CODES AND REGULATIONS AND CAN ONLY BE USED IN WELL VENTILATED AREA.

PLEASE READ CAREFULLY THE MANUFACTURER'S INSTRUCTIONS BEFORE STARTING THIS UNIT.

THIS MANUAL IS ONLY VALID FOR UNITS DISPLAYING THE FOLLOWING CODES: GB | IR | GR | DA | NO | FI | IS

In case these symbols are not displayed on the unit, please refer to the technical documentation which will eventually detail any modifications required to the installation of the unit in a particular country.

The technical information and specifications contained in this manual are for reference only. The manufacturer reserves the right to modify these without warning and without obligation to modify equipment already sold.
CONTENTS

INSTALLATION
TRANSPORT - HANDLING ................................................................. 4
DIMENSIONS AND WEIGHTS .......................................................... 5
LIFTING THE UNITS ........................................................................ 6
PRELIMINARY CHECKS .................................................................. 7
MINIMUM CLEARANCE AROUND THE UNIT .................................. 8
INSTALLATION ON ROOF MOUNTING FRAMES ............................ 9
Adjustable roofcurb ...................................................................... 10
Multidirectional roofcurb ............................................................. 16
Non-adjustable Non-assembled roofcurb ....................................... 22
Curbing and flashing ................................................................... 25
ECONOMISER AND EXTRACTION ................................................. 26

COMMISSIONING
BEFORE CONNECTING THE POWER ............................................. 27
CLIMATIC .................................................................................... 27
POWERING THE UNIT .................................................................. 28
RUN TEST ................................................................................... 28
COMMISSIONING SHEET ............................................................. 29

VENTILATION
BELT TENSION .............................................................................. 32
MOUNTING & ADJUSTING PULLEYS ............................................. 33
AIRFLOW BALANCING ................................................................ 34
FILTERS .................................................................................... 40
FAN STARTER .............................................................................. 41

HEATING OPTIONS
HOT WATER COILS ...................................................................... 42
ELECTRIC HEATER ...................................................................... 44
GAS BURNERS ............................................................................ 45

CLIMATIC CONTROLLER
COMMUNICATION LINKS ............................................................ 55
SOFTWARE FEATURES AND LOGIC .......................................... 57
OTHER FEATURES ..................................................................... 59
CONTROL INTERFACES .............................................................. 60
DC50 COMFORT DISPLAY .......................................................... 60
DS50 SERVICE DISPLAY ............................................................. 62
DS50 MENU TREE ..................................................................... 64
SAFETY AND ERROR CODES ..................................................... 73
COMMISSIONING ...................................................................... 74
CONTROL INTERFACE CLIMALINK-CLIMALOOK ...................... 75

ELECTRICAL WIRING DIAGRAM .................................................. 83
REFRIGERATION CIRCUIT ............................................................ 93
MAINTENANCE DIAGNOSTIC ..................................................... 95
MAINTENANCE PLAN ................................................................ 98
All Baltic units are compliant with the PED directive 97-23-CE. The following note must be followed carefully.

**IMPORTANT NOTICE**

*All work on the unit must be carried out by a qualified and authorised employee.*

Non-compliance with the following instructions may result in injury or serious accidents.

**Work on the unit:**
- The unit shall be isolated from the electrical supply by disconnection and locking using the main isolating switch.
- Workers shall wear the appropriate personal protective equipment (helmet, gloves, glasses, etc.).

**Work on the electrical system:**
- Work on electric components shall be performed with the power off (see below) by employees having valid electrical qualification and authorisation.

**Work on the refrigerating circuit(s):**
- Monitoring of the pressures, draining and filling of the system under pressure shall be carried out using connections provided for this purpose and suitable equipment.
- To prevent the risk of explosion due to spraying of coolant and oil, the relevant circuit shall be drained and at zero pressure before any disassembly or unbrazing of the refrigerating parts takes place.
- There is a residual risk of pressure build-up by degassing the oil or by heating the exchangers after the circuit has been drained. Zero pressure shall be maintained by venting the drain connection to the atmosphere on the low pressure side.
- The brazing shall be carried out by a qualified brazer. The brazing shall comply with the standard NF EN1044 (minimum 30% silver).

**Replacing components:**
- In order to maintain CE marking compliance, replacement of components shall be carried out using spare parts, or using parts approved by Lennox.
- Only the coolant shown on the manufacturer's nameplate shall be used, to the exclusion of all other products (mix of coolants, hydrocarbons, etc.).

**CAUTION:**

In the event of fire, refrigerating circuits can cause an explosion and spray coolant gas and oil.
DELIVERY CHECKS

On receipt of a new equipment please check the following points. It is the customer's responsibility to ensure that the products are in good working order:
- The exterior has not been damaged in any way.
- The lifting and handling equipment are suitable for the equipment and comply with the specifications of the handling instructions enclosed here-in.
- Accessories ordered for on site installation have been delivered and are in good working order.
- The equipment supplied corresponds to the order and matches the delivery note.

If the product is damaged, exact details must be confirmed in writing by registered post to the shipping company within 48 hours of delivery (working days). A copy of the letter must be addressed to Lennox and the supplier or distributor for information purposes. Failure to comply will invalidate any claim against the shipping company.

RATING PLATE

The rating plate provides a complete reference for the model and ensures that the unit corresponds to the model ordered. It states the electrical power consumption of the unit on start-up, its rated power and its supply voltage. The supply voltage must not deviate beyond +10/-15%. The start-up power is the maximum value likely to be achieved for the specified operational voltage. The customer must have a suitable electrical supply. It is therefore important to check whether the supply voltage stated on the unit's rating plate is compatible with that of the mains electrical supply. The rating plate also states the year of manufacture as well as the type of refrigerant used and the required charge for each compressor circuit.

STORAGE

When units are delivered on site they are not always required immediately and are sometimes put into storage. In the event of medium to long-term storage, we recommend the following procedures:
- Ensure that there is no water in the hydraulic systems.
- Keep the heat exchanger covers in position (AQUILUX cover).
- Keep protective plastic film in position.
- Ensure the electrical panels are closed.
- Keep all items and options supplied in a dry and clean place for future assembly before using the equipment.

MAINTENANCE KEY

On delivery we recommend that you keep the key which is attached to an eyebolt in a safe and accessible place. This allows you to open the panels for maintenance and installation work.

The locks are ¼ turn + then tighter (figure 2).

CONDENSATE DRAINS

The condensate drains are not assembled when delivered and are stored in the electrical panel with their clamping collars. To assemble them, insert them on the condensate tray outlets and use a screwdriver to tighten the collars (Figure 3).
TRANSPORT - HANDLING

DIMENSIONS AND WEIGHTS

**B BOX**

**C BOX**

**D BOX**

**DIMENSIONS AND WEIGHTS**

<table>
<thead>
<tr>
<th>BALTIC BCK/BHK/BGK/BDK</th>
<th>020</th>
<th>025</th>
<th>030</th>
<th>035</th>
<th>040</th>
<th>045</th>
<th>050</th>
</tr>
</thead>
<tbody>
<tr>
<td>View</td>
<td>B BOX</td>
<td>B BOX</td>
<td>C BOX</td>
<td>C BOX</td>
<td>D BOX</td>
<td>D BOX</td>
<td>D BOX</td>
</tr>
<tr>
<td>A mm</td>
<td>2050</td>
<td>2050</td>
<td>1950</td>
<td>1950</td>
<td>1950</td>
<td>1950</td>
<td>1950</td>
</tr>
<tr>
<td>B mm</td>
<td>1418</td>
<td>1418</td>
<td>1913</td>
<td>1913</td>
<td>2233</td>
<td>2233</td>
<td>2233</td>
</tr>
<tr>
<td>C mm</td>
<td>1220</td>
<td>1220</td>
<td>1220</td>
<td>1220</td>
<td>1220</td>
<td>1220</td>
<td>1220</td>
</tr>
<tr>
<td>D mm</td>
<td>478</td>
<td>478</td>
<td>418</td>
<td>418</td>
<td>418</td>
<td>418</td>
<td>418</td>
</tr>
<tr>
<td>Weight of standard units</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>without hood kg</td>
<td>377</td>
<td>428</td>
<td>501</td>
<td>503</td>
<td>626</td>
<td>630</td>
<td>638</td>
</tr>
<tr>
<td>with hood kg</td>
<td>400</td>
<td>451</td>
<td>529</td>
<td>531</td>
<td>659</td>
<td>663</td>
<td>671</td>
</tr>
<tr>
<td>Weight of gas units</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard heat without hood kg</td>
<td>419</td>
<td>472</td>
<td>567</td>
<td>572</td>
<td>709</td>
<td>718</td>
<td>723</td>
</tr>
<tr>
<td>Standard heat with hood kg</td>
<td>442</td>
<td>495</td>
<td>595</td>
<td>600</td>
<td>742</td>
<td>751</td>
<td>756</td>
</tr>
<tr>
<td>High heat without hood kg</td>
<td>431</td>
<td>484</td>
<td>586</td>
<td>591</td>
<td>730</td>
<td>739</td>
<td>744</td>
</tr>
<tr>
<td>High heat with hood kg</td>
<td>454</td>
<td>507</td>
<td>614</td>
<td>619</td>
<td>763</td>
<td>772</td>
<td>777</td>
</tr>
</tbody>
</table>

Fig. 4
LIFTING B BOX

RETRACTABLE LIFTING LUG

LIFTING C BOX

LIFTING D BOX

Fig. 5

Fig. 6

Fig. 7

Fig. 8
FORKLIFT PROTECTIONS

PRELIMINARY CHECKS
Before installing the equipment, the following points MUST be checked:
- Have the forklift protections been removed?
- Is there sufficient space for the equipment?
- Is the surface on which the equipment is to be installed sufficiently solid to withstand its weight? A detailed study of the frame must be made beforehand.
- Do the supply and return ductwork openings excessively weaken the structure?
- Are there any obstructing items which could hinder the operation of the equipment?
- Does the electrical power available correspond to the equipment's electrical specifications?
- Is drainage provided for the condensate?
- Is there sufficient access for maintenance?
- Installation of the equipment could require different lifting methods which may vary with each installation (helicopter or crane). Have these been evaluated?
- Ensure that the unit is installed in accordance with the installation instructions and local applicable codes.
- Check to ensure that the refrigerant lines do not rub against the cabinet or against other refrigerant lines.

In general, make sure no obstacles (walls, trees or roof ledges) are obstructing the duct connections or hindering assembly and maintenance access.

INSTALLATION REQUIREMENTS
The surface on which the equipment is to be installed must be clean and free of any obstacles which could hinder the flow of air to the condensers:
- Avoid uneven surfaces
- Avoid installing two units side by side or close to each other as this may restrict the airflow to the condensers.

Before installing a packaged Rooftop unit it is important to understand:
- The direction of prevailing winds.
- The direction and position of air flows.
- The external dimensions of the unit and the dimensions of the supply and return air connections.
- The arrangement of the doors and the space required to open them to access the various components.

CONNECTIONS
- Ensure that all the pipe-work crossing walls or roofs are secured, sealed and insulated.
- To avoid condensation problems, make sure that all pipes are insulated according to the temperatures of fluids and type of rooms.

NOTE: The AQUILUX protection sheets fitted to the finned surfaces must be removed prior to start up.
MINIMUM CLEARANCE AROUND THE UNIT

Figure 4 shows the required clearances and service access around the unit.

NOTE: Ensure the fresh air inlet does not face prevailing wind direction.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>B box</td>
<td>1000(1)</td>
<td>1500(2)</td>
<td>1500</td>
<td>1000</td>
</tr>
<tr>
<td>C box</td>
<td>1200(1)</td>
<td>1500(2)</td>
<td>1500</td>
<td>1000</td>
</tr>
<tr>
<td>D box</td>
<td>1400(1)</td>
<td>1500(2)</td>
<td>1500</td>
<td>1000</td>
</tr>
</tbody>
</table>

(1) Add one meter to this distance if units is fitted with Gas Burner.
(2) Double distance if unit fitted with extraction.
As levels are adjustable, observe the following recommendations when installing the equipment.

Above all, ensure that all the adjustable returns are facing outward (figure 11). They are usually turned inside-out for transport.

Place the roof mounting frame on the trimmer beam by first lining up the inlet and the outlet opening. (*2* figure 12)

After levelling the frame, secure the adjustable returns on the trimmer (figure 13).

It is important to centre the unit on the roof frame.
ADJUSTABLE ROOFCURB DRAWINGS

(*) without auxiliary electric heater without hot water coil.

Roof opening 1795 x 1085

1D Down Supply Air
2D Return Air
8 Main Power Entry
ADJUSTABLE ROOFCURB DRAWINGS

(*) without auxiliary electric heater
without hot water coil.

Roof opening 1642 x 1282

1D Down Supply Air
2D Front supply air
8 Main Power Entry
INSTALLATION ON A ROOF MOUNTING FRAMES

ADJUSTABLE ROOF CURB DRAWINGS

(*) without auxiliary electric heater
without hot water coil.

Main Power Entry
Front supply air
Down supply Air

Roof opening 1642 x 1532

1D Down Supply Air
2D Front supply air
8 Main Power Entry
(*) This roof curb is also necessary for all cooling only or heatpump rooftop with auxiliary electric heater or hot water coil.

Roof opening 1795 x 1085

1D Down Supply Air
2D Down Return Air
4D Down main power entry
5D Down hot water Entry
ADJUSTABLE ROOFCURB DRAWINGS

(*) This roofcurb is also necessary for all cooling only or heatpump rooftop with auxiliary electric heater or hot water coil.

Roof opening 1642 x 1282

1D Down Supply Air
2D Down Return Air
4D Down main power entry
ADJUSTABLE ROOF CURB
DRAWINGS

(*) This roof curb is also necessary for all cooling only or heatpump rooftop with auxiliary electric heater or hot water coil.

Roof opening 1642 x 1532

1D Down Supply Air
2D Down Return Air
4D Down main power entry
INSTALLATION ON A ROOF MOUNTING FRAMES

MULTIDIRECTIONAL HORIZONTAL ROOFCURB

(*) without auxiliary electric heater
without hot water coil.

WARNING: ONLY ONE OF THE 4 FOLLOWINGS POSSIBILITIES:
2F - 1F / 2F - 1F'
2F' - 1F / 2F' - 1F'

1F Front supply air
1F Front supply air
2F Front return air
2F Front return air
MULTIDIRECTIONAL HORIZONTAL ROOFCURB

(*) without auxiliary electric heater without hot water coil.

2F 2F 1F 1F 1F 1F

1F 2F

2F' - 1F / 2F' - 1F

1F 2F

2F 242 1740

650 405 345 405

INSTALLATION ON A ROOF MOUNTING FRAMES

WARNING : ONLY ONE OF THE 4 FOLLOWINGS POSSIBILITIES :
2F - 1F / 2F - 1F'
2F' - 1F / 2F' - 1F'

1F Front supply air
1F' Front supply air
2F Front return air
2F' Front return air

(*) without auxiliary electric heater
MULTIDIRECTIONAL HORIZONTAL ROOFCURB

(*) without auxiliary electric heater
without hot water coil.

WARNING: ONLY ONE OF THE 4 FOLLOWINGS POSSIBILITIES:
2F - 1F / 2F - 1F'
2F' - 1F / 2F' - 1F'

1F Front supply air
1F' Front supply air
2F Front return air
2F' Front return air
(*): This roof curb is also necessary for all cooling only or heatpump rooftop with auxiliary electric heater or hot water coil.

**WARNING**: ONLY ONE OF THE 4 FOLLOWINGS POSSIBILITIES:
- 2F - 1F / 2F' - 1F'
- 2F - 1F / 2F' - 1F

1F Front supply air

1F' Front supply air

2F Front return air

2F' Front return air
MULTIDIRECTIONAL HORIZONTAL ROOFCURB

(*) This roofcurb is also necessary for all cooling only or heatpump rooftop with auxiliary electric heater or hot water coil.

INSTALLATION ON A ROOF MOUNTING FRAMES

WARNING : ONLY ONE OF THE 4 FOLLOWINGS POSSIBILITIES :
2F - 1F / 2F - 1F'
2F' - 1F / 2F' - 1F'

1F: Front supply air
1F': Front supply air
2F: Front return air
2F': Front return air
(*) This roofcurb is also necessary for all cooling only or heatpump rooftop with auxiliary electric heater or hot water coil.

WARNING: ONLY ONE OF THE 4 FOLLOWINGS POSSIBILITIES:

- 2F - 1F / 2F' - 1F'
- 2F' - 1F / 2F - 1F'

Front supply air

Front return air
NON ADJUSTABLE NON ASSEMBLED ROOFCURB INSTALLATION

FRAME PARTS IDENTIFICATION
Figure 14 shows the different parts for identification

INSTALLATION
The roof mounting frame provides support when the units are installed in down-flow configurations. The non adjustable, non assembled roof mounting frame can be installed directly on decks having adequate structural strength or on roof supports under deck. See page 23 for frame dimensions, location of supply and return air opening.

NOTE: frame assembly must be installed flat, levelled within 5mm per linear meter in any direction.
NON ADJUSTABLE HORIZONTAL ROOFCURB

**BCK** = Cooling only unit
**BHK** = Heat pump unit
**BGK** = Cooling only unit with gas fired heating
**BDK** = Heat pump unit with gas fired heating

---

**Down Supply Air**

**Return Air**

**Main Power Entry 030-035-040-045-050**

**Main Power Entry 020-025**

---

<table>
<thead>
<tr>
<th>Type</th>
<th>Taille</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>020</td>
<td>1183</td>
<td>1893</td>
<td>691</td>
<td>400</td>
<td>246</td>
<td>246</td>
<td>515</td>
<td>50</td>
<td>1783</td>
<td>1083</td>
</tr>
<tr>
<td></td>
<td>025</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>030</td>
<td>1380</td>
<td>1740</td>
<td>790</td>
<td>400</td>
<td>351</td>
<td>240</td>
<td>675</td>
<td>50</td>
<td>1640</td>
<td>1280</td>
</tr>
<tr>
<td></td>
<td>035</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>040</td>
<td>1630</td>
<td>1740</td>
<td>1050</td>
<td>400</td>
<td>352</td>
<td>229</td>
<td>675</td>
<td>50</td>
<td>1640</td>
<td>1530</td>
</tr>
<tr>
<td></td>
<td>045</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>050</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(*) Non adjustable, non assembled roofcurb.
ASSEMBLY
The frame is supplied as a single package and shipped folded down for ease of transport and handling. It is easy field assembled as all parts required are supplied with the frame.

SECURING THE FRAME
To ensure proper mating with units (figure 15), it is mandatory that the roof mounting frame be squared to roof structure as follows:
-With frame positioned levelled in the desired location on roof trusses, tack weld corner of frame.

-Measure frame diagonally from corner to corner as shown in figure 16. These Dimensions must be equal in order for the frame to be square.
-It is extremely important to sight frame from all corner to ensure it is not twisted across. Shim frame under any low side. The maximum slope tolerance is 5mm per linear meter in any direction.
-After the frame has been squared, straightened and shimmed, weld or secure the frame to the roof deck.

NOTE: It must be securely fastened to the roof as per local codes and regulations.
When the frame is correctly positioned, it is essential to secure the assembly with a disconnected stitched welded seam (20 to 30mm every 200mm) along the outside or by using an alternative method.

**CURBING AND FLASHING**

Outside of frame must be insulated with rigid type insulation; we recommend a minimum of 20 mm thick insulation (2 figure 18).

Check that the insulation is continuous, counter flash and seal around the frame as shown in (1-figure 18).

**CAUTION**: To be effective, the upstream must end below the drop edge (3 - figure 18).

Where pipes and electrical conduits extend through the roof, flashing must conform to local codes of practice.

Before installing the equipment, make sure that seals are not damaged and check that the unit is secured to the mounting frame. Once in position, the bottom of the equipment must be horizontal.

The installer must comply to local authority standards and specifications.
Economiser
Free cooling can be provided through the use of fresh air where appropriate rather than cooling excessive amounts of return air.

The economiser is factory fitted and tested prior to shipment. It includes two dampers operating from a 24V actuator.

Rain hood
It also includes a factory fitted rain hood. Hoods is folded during transportation to limit risks of damage and must be unfolded on site as shown below:

Extraction
Installed with economiser assembly, the gravity exhaust dampers relieve the pressure when outside air is introduced into the system.

When large amount of fresh air is introduced into the system power exhaust fans can be used to equalise the pressures.

The extraction fan runs when return air dampers are being closed and supply air blower is in operation. The extraction fan runs when outdoor air dampers are at least 50% open (adjustable value) it is overload protected.

NOTE: When horizontal flow configuration is required, the multidirectional roof curb will be installed.

VERTICAL FLOW WITH EXTRACTION

VERTICAL FLOW STANDARD INSTALLATION

HORIZONTAL FLOW WITH MULTIDIRECTIONAL ROOF CURB
THIS WORK MUST ONLY BE CARRIED OUT BY TRAINED REFRIGERATION ENGINEERS

FILL THE COMMISSIONING SHEET AS YOU GO ALONG

BEFORE CONNECTING THE POWER:
- Ensure that the power supply between the building and the unit meets local authority standards and that the cable specification satisfies the start-up and operating conditions.

ENSURE THAT THE POWER SUPPLY INCLUDES 3 PHASES AND A NEUTRAL

- Check the following wire connections for tightness: Main switch connections, mains wires linked to the contactors and circuit breakers and the cables in the 24V control supply circuit.
- Ensure that all drive motors are secure.
- Ensure that the adjustable pulley blocks are secure and that the belt is tensioned with the transmission correctly aligned. Refer to the next section for details.
- Using the electrical wiring diagram, check the conformity of the electrical safety devices (circuit breaker settings, presence and rating of fuses).
- Check the temperature probe connections.

STARTING THE UNIT
At this point the unit circuit breakers should be open

You will need a DS50 maintenance controller or Climalook with appropriate Interface.

The jumpers are factory set and the configuration switches are adjusted depending on the option the type of unit.

Connecting the CLIMATIC displays.

Close the 24V Control Circuit breakers.

The CLIMATIC 50 starts after 30s

Reset the DAD photo (If fitted)

Check and adjust the control settings.
Refer to the control section in this manual to adjust the different parameters
POWERING THE UNIT
- Power up the unit by closing the isolator switch (if fitted).
- At this point the blower should start unless the climatic does not energise the contactor. In this particular case the blower can be forced by bridging the port NO7 and C7 on connector J14 on the Climatic. Once the fan is running check the rotation direction. Refer to the rotation arrow located on the fan.
- The fans and compressors direction of rotation is checked during the end of line test. They should therefore all turn in either the right or wrong direction.

NOTE : A compressor rotating in the wrong direction will fail.

- If the fan turns in the wrong direction, disconnect the main power supply to the machine at the building’s mains switch, reverse two phases and repeat the above procedure.
- Close all circuit breakers and power up the unit, remove the bridge on connector J14 if fitted.
- If now only one of the components rotates in the wrong direction, disconnect the power supply at the machine’s isolator switch (if fitted) and reverse two of the component's phases on the terminal within the electrical panel.
- Check the current drawn against the rated values, in particular on the supply fan (ref. page 34).
- If the readings on the fan are outside the specified limits, this usually indicates excessive air flow which will affect the life expectancy and the thermodynamic performances of the unit. This will also increase the risks of water ingress into the unit. Refer to the “Air Flow Balancing” section to correct the problem.

At this point attach the manometers to the refrigerant circuit.

RUN TEST
Start unit in cooling mode

Thermodynamic readings using manometers and prevailing environmental conditions
No rated values are given here. These depend on the climatic conditions both outside and inside the building during operation. However, an experienced refrigeration engineer will be able to detect any abnormal machine operation.

Safety test
- "Dirty filter" detection test : vary the set-point value (menu 3413 on DS50) in respect to the air pressure value. Observe the response of the CLIMATIC™.
- Same procedure for detecting "Missing Filter" (menu 3412) or "Air Flow Detection" (menu 3411).
- Check the smoke detection function (if fitted).
- Check the Firestat by pressing the test button(if fitted).
- Disconnect the circuit breakers of the capacitor fans and check the high pressure cut-out points on different refrigerant circuits.

Reverse cycle test
This test is designed to check the good operation of the 4-way reversing valves on heat pump reversible systems. Start the reverse cycle by adjusting the cold or hot temperature threshold data according to the indoor and outdoor conditions at the time of test (menu 3320).
(1) ROOF INSTALLATION / INSTALLATION SUR LE TOIT

Sufficient Access OK / Accès Suffisants
Yes/Oui ☐ No/ Non ☐
Condensate drain fitted / Drainage condensats
Yes/Oui ☐ No/ Non ☐
Roofcurb / Costière OK ☐ Not OK/PasOK ☐

(2) CONNECTIONS CHECK / VERIFICATIONS DE RACCORDEMENTS

Phase check/ Vérification des Phases
Yes / Oui ☐ No / Non ☐
Voltage between Phases
1 / 2 ☐ 2 / 3 ☐ 1 / 3 ☐

(3) CLIMATIC CONFIGURATION CHECK / VÉRIFIER LA CONFIGURATION CLIMATIQUE

CLIMATIC 50 Configured according to the Options and Specifications / CLIMATIC 50 configuré en fonction des options et des spécifications:
Yes/Oui ☐ No/ Non ☐

(4) SUPPLY BLOWER SECTION / VENTILATION TRAITEMENT

<table>
<thead>
<tr>
<th>Type / Type: Power displayed on plate / Puissance affichée sur la plaque: Voltage displayed on plate / Tension affichée sur la plaque: Current displayed on plate / Intensité affichée sur la plaque: Fan Type / Type de Ventilateur:</th>
<th>N°1</th>
<th>N°2</th>
</tr>
</thead>
<tbody>
<tr>
<td>KW</td>
<td>…………</td>
<td>…………</td>
</tr>
<tr>
<td>V</td>
<td>…………</td>
<td>…………</td>
</tr>
<tr>
<td>A</td>
<td>…………</td>
<td>…………</td>
</tr>
<tr>
<td>Fan Speed / Vitesse rotation Ventilateur = Motor rpm x DM / DP</td>
<td>rpm</td>
<td>…………</td>
</tr>
<tr>
<td>Shaft Mechanical Power (Refer to airflow balancing) Puissance Mécanique à l’Arbre (Voir section réglage débit)</td>
<td>W</td>
<td>…………</td>
</tr>
<tr>
<td>Operating point checked / Vérif. Point de fonctionnement:</td>
<td>Yes/Oui ☐ No/ Non ☐</td>
<td>Yes/Oui ☐ No/ Non ☐</td>
</tr>
</tbody>
</table>

Estimated Airflow / Estimation Débit d’Air
………………… m³/h
………………… m³/h

(5) AIRFLOW PRESS. SENSOR CHECK / VERIF. DES SECURITES PRESSOSTATS D’AIR

Measured pressure drop / Pertes de charge au pressostat
………………… mbar
………………… mbar

Set Points Adjusted / Changement des consignes:
Yes/Oui ☐ No/ Non ☐
If Yes enter new values/ Si oui noter les nouvelles consignes:
3410: ………… 3411: ………… 3412: …………

(6) EXTERNAL SENSOR CHECKS / VERIFICATION DES CAPTEURS EXTERNES

Check electrical connections / Vérification des connections électricques:
Yes/Oui ☐ No/ Non ☐
Supply Temperature / Température Soufflage
…………………°C
…………………°C
Return Temperature / Température reprise
…………………°C
…………………°C
Outdoor Temperature / Température extérieure
…………………°C
…………………°C

100% Fresh Air / 100% Air neuf
100% return Air / 100% Air repris

(7) MIXING AIR DAMPERS CHECKS / VERIFICATIONS VOLETS DE MELANGE

Dampers open & close freely/ Volets s’ouvrent et se ferment OK
Yes/Oui ☐ No/ Non ☐
% Minimum FA:
………………… %
% Minimum Air Neuf:
………………… %
Power exhaust checked/ Ventilateur extraction
Yes/Oui ☐ No/ Non ☐
Enthalpy sensor(s) checked/ Control enthalpie installé
Yes/Oui ☐ No/ Non ☐
## (8) REFRIGERATION SECTION / SECTION REFREGERATION

<table>
<thead>
<tr>
<th>Motor 1 / Moteur 1</th>
<th>L1 ......A</th>
<th>L2 ......A</th>
<th>L3 ......A</th>
<th>Yes/Oui</th>
<th>No/ Non</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor 2 / Moteur 2</td>
<td>L1 ......A</td>
<td>L2 ......A</td>
<td>L3 ......A</td>
<td>Yes/Oui</td>
<td>No/ Non</td>
</tr>
<tr>
<td>Motor 3 / Moteur 3</td>
<td>L1 ......A</td>
<td>L2 ......A</td>
<td>L3 ......A</td>
<td>Yes/Oui</td>
<td>No/ Non</td>
</tr>
<tr>
<td>Motor 4 / Moteur 4</td>
<td>L1 ......A</td>
<td>L2 ......A</td>
<td>L3 ......A</td>
<td>Yes/Oui</td>
<td>No/ Non</td>
</tr>
<tr>
<td>Motor 5 / Moteur 5</td>
<td>L1 ......A</td>
<td>L2 ......A</td>
<td>L3 ......A</td>
<td>Yes/Oui</td>
<td>No/ Non</td>
</tr>
<tr>
<td>Motor 6 / Moteur 6</td>
<td>L1 ......A</td>
<td>L2 ......A</td>
<td>L3 ......A</td>
<td>Yes/Oui</td>
<td>No/ Non</td>
</tr>
</tbody>
</table>

### Outdoor Fan Motor Current / Intensité Moteurs Batterie externe:

<table>
<thead>
<tr>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>Yes/Oui</th>
<th>No/ Non</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Compressor Voltage / Tension Compressor:

<table>
<thead>
<tr>
<th>Comp 1</th>
<th>Comp 2</th>
<th>Comp 3</th>
<th>Comp 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage/ Tension</td>
<td>Voltage/ Tension</td>
<td>Voltage/ Tension</td>
<td>Voltage/ Tension</td>
</tr>
<tr>
<td>L1</td>
<td>L2</td>
<td>L3</td>
<td>L1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Compressor Amps COOLING / Intensité Compressore MODE FROID

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suction/ Asp</td>
<td>Disch / refoul</td>
<td>Pressures / Pression</td>
</tr>
<tr>
<td>L1</td>
<td>L2</td>
<td>L3</td>
</tr>
<tr>
<td>Pressure/ Température</td>
<td>Pressure/ Température</td>
<td>Pressure/ Température</td>
</tr>
<tr>
<td>Bar</td>
<td>Bar</td>
<td>Bar</td>
</tr>
</tbody>
</table>

### Check Reversing valves./ Vérifier vannes d'inversion:

<table>
<thead>
<tr>
<th>Valve1/Vanne1</th>
<th>Valve2/Vanne2</th>
<th>Valve3/Vanne3</th>
<th>Valve4/Vanne4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/Oui</td>
<td>Yes/Oui</td>
<td>Yes/Oui</td>
<td>Yes/Oui</td>
</tr>
<tr>
<td>No/ Non</td>
<td>No/ Non</td>
<td>No/ Non</td>
<td>No/ Non</td>
</tr>
</tbody>
</table>

### Compressor Amps HEATING / Intensité Compresseur en Pompe à Chaleur

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suction/ Asp</td>
<td>Disch / refoul</td>
<td>Pressures / Pression</td>
</tr>
<tr>
<td>L1</td>
<td>L2</td>
<td>L3</td>
</tr>
<tr>
<td>Pressure/ Température</td>
<td>Pressure/ Température</td>
<td>Pressure/ Température</td>
</tr>
<tr>
<td>Bar</td>
<td>Bar</td>
<td>Bar</td>
</tr>
</tbody>
</table>

### HP cut out / Coupure HP

<table>
<thead>
<tr>
<th>Pressure cut out / Coupure sécurité BP</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 : 14.4kg</td>
</tr>
<tr>
<td>C4 : 14.4kg</td>
</tr>
</tbody>
</table>

### Refrigerant charge / Charge réfrigérant

<table>
<thead>
<tr>
<th>Type / Type:</th>
<th>Serial No/ No Série:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (8) ELECTRIC HEATER SECTION / SECTION RECHAUFFEUR ELECTRIQUE

<table>
<thead>
<tr>
<th>AMPS 1st stage (Baltic) / Intensité 1er étage (Baltic)</th>
<th>AMPS 2nd stage (Baltic) / Intensité 2e étage (Baltic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Intensité 1er étage (Baltic)</td>
<td>Intensité 2e étage (Baltic)</td>
</tr>
</tbody>
</table>

### (9) HOT WATER COIL SECTION / SECTION BATTERIE EAU CHAUDE

Check Three Way Valve Movement / Vérification Mouvement Vanne trois voies: Yes/Oui | No/ Non

### (10) GAS HEATING SECTION / RAMPE GAZ

<table>
<thead>
<tr>
<th>Gas Burner N°1 / Brûleur gaz N°1</th>
<th>Gas Burner N°2 / Brûleur gaz N°2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size / Taille:</td>
<td>Valve type / Type vanne:</td>
</tr>
<tr>
<td>Size / Taille:</td>
<td>Valve type / Type vanne:</td>
</tr>
<tr>
<td>Gas type / Type gaz: G......</td>
<td>Gas type / Type gaz: G......</td>
</tr>
<tr>
<td>Pipe size/ tuyauterie:</td>
<td>Line press./ press. ligne:</td>
</tr>
<tr>
<td>Drop test / test pression Yes/Oui</td>
<td>Drop test / test pression Yes/Oui</td>
</tr>
<tr>
<td>Pressure cut out airflow press switch / Pression coupure pressostat débit d’air :</td>
<td>Pressure cut out airflow press switch / Pression coupure pressostat débit d’air :</td>
</tr>
<tr>
<td>High fire/Grande allure,......</td>
<td>High fire/Grande allure,......</td>
</tr>
<tr>
<td>Low fire/Petite allure,......</td>
<td>Low fire/Petite allure,......</td>
</tr>
<tr>
<td>CO2 %:</td>
<td>CO ppm:</td>
</tr>
<tr>
<td>CO ppm:</td>
<td>CO ppm:</td>
</tr>
</tbody>
</table>

### (11) REMOTE CONTROL BMS CHECK / VERIFICATIONS BMS CONTROL A DISTANCE

<table>
<thead>
<tr>
<th>Type / Type:</th>
<th>Sensor type / Type Capteur:</th>
<th>KP07 KP17 checked/ vérifiées:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interconnect wiring checked:</td>
<td>Yes/Oui</td>
<td>No/ Non</td>
</tr>
<tr>
<td>Interconnect wiring checked:</td>
<td>Yes/Oui</td>
<td>No/ Non</td>
</tr>
</tbody>
</table>

Comments:............................................................................................................................
............................................................................................................................
............................................................................................................................
It is recommended that you fill the three tables below before transferring the zone settings to the Climatic controller.

Il est recommandé de remplir les deux tableaux ci-dessous avant de transférer les consignes de zones vers le contrôleur Climatic50.

**Refer to control section page 55 / Se référer à la section régulation page 55**

**Time Zones / Zones horaires**

<table>
<thead>
<tr>
<th>Time</th>
<th>Zone A</th>
<th>Zone B</th>
<th>Zone C</th>
</tr>
</thead>
<tbody>
<tr>
<td>00h00</td>
<td>7h15</td>
<td>11h00</td>
<td>14h00</td>
</tr>
<tr>
<td>19h00</td>
<td>UNO</td>
<td>ZA</td>
<td>ZB</td>
</tr>
</tbody>
</table>

**Variables to adjust for each time zone / Consignes à renseigner pour chaque zone horaire**

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>Menu</th>
<th>Min</th>
<th>Max</th>
<th>Zone A</th>
<th>Zone B</th>
<th>Zone C</th>
<th>UNOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sp Room</td>
<td>°C</td>
<td>3311</td>
<td>8</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mini.Air</td>
<td>%</td>
<td>3312</td>
<td>0</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sp Dyna</td>
<td>°C</td>
<td>3321</td>
<td>0</td>
<td>99.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sp Cool</td>
<td>°C</td>
<td>3322</td>
<td>8</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sp Heat</td>
<td>°C</td>
<td>3323</td>
<td>8</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swap Heater</td>
<td>On/Off</td>
<td>3324</td>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activation</td>
<td>On/Off</td>
<td>3331</td>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swap Heater</td>
<td>On/Off</td>
<td>3332</td>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sp.Dehu</td>
<td>%</td>
<td>3341</td>
<td>0</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sp.Humi</td>
<td>%</td>
<td>3342</td>
<td>0</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fan On/Off</td>
<td>On/Off</td>
<td>3351</td>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fan Dead</td>
<td>On/Off</td>
<td>3352</td>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F.Air</td>
<td>On/Off</td>
<td>3353</td>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO2</td>
<td>On/Off</td>
<td>3354</td>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp.Cool.</td>
<td>On/Off</td>
<td>3355</td>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp.Heat.</td>
<td>On/Off</td>
<td>3356</td>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AuxHeat</td>
<td>On/Off</td>
<td>3357</td>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidif.</td>
<td>On/Off</td>
<td>3358</td>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Noise</td>
<td>On/Off</td>
<td>3359</td>
<td>~</td>
<td>~</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

**COMMISSIONING report**

IOM / ROOFTOP BALTIC Series - 0803 - E Page 31
BELT TENSION

On delivery, the drive belts are new and correctly tensioned. After the first 50 operating hours check and adjust the tension. 80% of the total elongation of belts is generally produced during the first 15 hours of operation.

Before adjusting the tension, make sure that the pulleys are correctly aligned.
To tension the belt, set the height of motor support plate by moving the plate adjustment screws.

The recommended deflection is 16 mm per metre from centre to centre.

Check that according to the diagram below (figure 30), the following ratio remains the same.

$$\frac{P}{A} = 20$$

The belts should always be replaced when:
- the disk is set to maximum,
- the belt rubber is worn or the wire is visible.

Replacement belts must have the same rated size as the ones they are replacing. If a transmission system has several belts, they must all be from the same manufacturing batch (compare serial numbers).

NOTE:
An under-tensioned belt will slip, heat and wear prematurely. On the other hand, if a belt is over-tensioned, the pressure on the bearings will cause them to over-heat and wear prematurely. Incorrect alignment will also cause the belts to wear prematurely.
MOUNTING AND ADJUSTING PULLEYS

Fan pulley removal
Remove the 2 screws and put one of them in the extraction threaded screw.

Screw in fully. The hub and the pulley will separate from each other.

Remove the hub and the pulley by hand without damaging the machine.

Fan pulley installation
Clean and de-grease the shaft, hub and conical bore of the pulley. Lubricate the screws and install the hub and pulley. Position the screws without turning them.

Place the assembly on the shaft and screw in the screws alternatively and evenly. Using a mallet or a hammer with a wooden wedge, tap on the face of the hub to keep the assembly in place. Torque the screws to 30 Nm.

Take the pulley in both hands and shake it vigorously to make sure everything is in place.
Fill the holes with grease for protection.

NOTE: During installation, the key should never protrude out of its groove.
After 50 operating hours, check that the screws are still in place.

MOTOR PULLEY INSTALLATION AND REMOVAL
The pulley is held in position by the key and a screw located in the groove. After unlocking, removing this screw by pulling against the shaft spindle (if necessary, use a mallet and tap uniformly on the hub to remove it).
To assemble, proceed in the reverse order after having cleaned and de-greased the motor shaft and the pulley bore.

PULLEYS ALIGNMENT
After adjusting one or both of the pulleys, check the transmission alignment using a ruler placed on the inner face of the two pulleys.

NOTE: The warranty may be affected if any major modification is made to the transmission without obtaining our agreement beforehand.
The actual resistance of ductwork systems is not always identical to the calculated theoretical values. To rectify this, it may be necessary to modify the pulley and belt setting. To this effect, the motors are fitted with variable pulleys.

**AIRFLOW BALANCING**

**Measure the absorbed amps**

If the absorbed amps are greater than the rated values, the ventilation system has a lower pressure drop than anticipated. Reduce the flow by reducing the rpm. If the system resistance is significantly lower than design, there is a risk that the motor will overheat resulting in an emergency cut out.

If the absorbed amps are lower than the rated values, your system has a higher pressure drop than anticipated. Increase the flow by increasing the rpm. At the same time you will increase the absorbed power which may result in having to increase the motor size.

To carry out the adjustment and to avoid a time-consuming re-start, stop the machine and if necessary lock the main switch. First unscrew the 4 Allen screw(s) on the pulley (see figure 35).

<table>
<thead>
<tr>
<th>Pulley type</th>
<th>Pulley External Diameter</th>
<th>Min Dia / Min Dist</th>
<th>Max Dia / Max Dist</th>
<th>NB of turns from fully closed to fully open</th>
<th>Actual diameter (DM) or distance between faces for a given number of turns from fully closed with SPA belt in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>8450 / D8450</td>
<td>120</td>
<td>95</td>
<td>116</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>20.2</td>
<td>28</td>
<td>5</td>
<td>21.0</td>
</tr>
<tr>
<td>8550 / D8550</td>
<td>136</td>
<td>110</td>
<td>131</td>
<td>5</td>
<td>128.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20.6</td>
<td>31.2</td>
<td>5</td>
<td>21.6</td>
</tr>
</tbody>
</table>

Table 1

The easiest way to determine the fan rotation speed is to use a tachometer. If not available the fan rpm can be estimated using the following two methods.

**1st Method with the pulley secured in place:**

![ALLEN WRENCH 4](image)

Measure the distance between the two outside faces of the pulley.

Using table 1 the motor pulley actual diameter can be estimated.
VENTILATION: AIRFLOW BALANCING

2nd method when adjusting the pulley:
- Close the pulley fully and count the number of turns from fully closed position. Using table 1 determine the motor pulley actual diameter.
- Record the fix fan pulley diameter (DF).
- Determine the fan speed using the following formula:

\[ \text{rpm FAN} = \frac{\text{rpm MOTOR} \times D_M}{D_F} \]

Where: rpm MOTOR : from the motor plate or table 2
D_M : from table 1
D_F : from machine

Once the pulleys are adjusted and the belt checked and tensioned, start the fan motor and record the Amps and Voltage between the phases:

Using the measured data and table 2:
- Theoretical mechanical power at the fan shaft:

\[ P_{\text{meca fan}} = P_{\text{meca motor}} \times \eta_{\text{Transmission}} \]
\[ P_{\text{meca fan}} = P_{\text{elec}} \times \eta_{\text{meca motor}} \times \eta_{\text{Transmission}} \]

\[ P_{\text{meca fan}} = V \times I \times \sqrt{3} \times \cos \phi \times \eta_{\text{meca motor}} \times \eta_{\text{Transmission}} \]

This formula can be approximated in this way

\[ P_{\text{meca fan}} = V \times I \times 1.73 \times 0.85 \times 0.76 \times 0.9 \]

With the fan "rpm" and the mechanical power at the fan shaft an operating point and the supplied airflow can be estimated using the fan curves.

CHECKING AIRFLOW AND ESP

Using the fan curves on page 25, 26, 27, the airflow, the total pressure available (P_TOT) and the corresponding dynamic pressure (Pd) can now be estimated, for a specific operating point;

The next step consist in estimating the pressure losses across the unit.
This can be achieved using the "dirty filter pressure sensor" and the accessories pressure drop table:
Also the pressure drop due to the duct inlet into the roof-top unit can be taken as 20 to 30 Pa.

\[ \Delta P_{\text{INT}} = \Delta P_{\text{filter + coil + P inlet + P Options}} \]

using the results from above, the external static pressure (ESP) can then be estimated:

\[ ESP = P_{\text{TOT}} - P_d - \Delta P_{\text{INT}} \]

Table 2

<table>
<thead>
<tr>
<th>Motor Size</th>
<th>Nom. Speed</th>
<th>Cos</th>
<th>meca motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,75 kW</td>
<td>1400 rpm</td>
<td>0,77</td>
<td>0,70</td>
</tr>
<tr>
<td>1,1 kW</td>
<td>1425 rpm</td>
<td>0,82</td>
<td>0,77</td>
</tr>
<tr>
<td>1,5 kW</td>
<td>1430 rpm</td>
<td>0,81</td>
<td>0,75</td>
</tr>
<tr>
<td>2,2 kW</td>
<td>1430 rpm</td>
<td>0,81</td>
<td>0,76</td>
</tr>
<tr>
<td>3,0 kW</td>
<td>1425 rpm</td>
<td>0,78</td>
<td>0,77</td>
</tr>
<tr>
<td>4 kW</td>
<td>1425 rpm</td>
<td>0,79</td>
<td>0,80</td>
</tr>
<tr>
<td>5,5 kW</td>
<td>1430 rpm</td>
<td>0,82</td>
<td>0,82</td>
</tr>
</tbody>
</table>

Table 3 - Accessories pressure drop

<table>
<thead>
<tr>
<th>SIZE</th>
<th>Airflow</th>
<th>Economiser (Pa)</th>
<th>EU4 Filters (Pa)</th>
<th>Hot water S</th>
<th>Hot coil (Pa)</th>
<th>Electric heater (Pa)</th>
<th>rooftop curb (Pa)</th>
<th>Multi-directional (Pa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>020</td>
<td>2900</td>
<td>8</td>
<td>0</td>
<td>22</td>
<td>31</td>
<td>37</td>
<td>38</td>
<td>40</td>
</tr>
<tr>
<td>3600</td>
<td>13</td>
<td>6</td>
<td>32</td>
<td>46</td>
<td>55</td>
<td>57</td>
<td></td>
<td>59</td>
</tr>
<tr>
<td>4300</td>
<td>12</td>
<td>18</td>
<td>43</td>
<td>61</td>
<td>76</td>
<td>79</td>
<td></td>
<td>81</td>
</tr>
<tr>
<td>3600</td>
<td>13</td>
<td>6</td>
<td>32</td>
<td>46</td>
<td>55</td>
<td>57</td>
<td></td>
<td>59</td>
</tr>
<tr>
<td>4500</td>
<td>14</td>
<td>16</td>
<td>46</td>
<td>66</td>
<td>83</td>
<td>85</td>
<td>88</td>
<td>88</td>
</tr>
<tr>
<td>5400</td>
<td>25</td>
<td>28</td>
<td>63</td>
<td>89</td>
<td>117</td>
<td>120</td>
<td>123</td>
<td>123</td>
</tr>
<tr>
<td>3600</td>
<td>13</td>
<td>6</td>
<td>32</td>
<td>46</td>
<td>55</td>
<td>57</td>
<td></td>
<td>59</td>
</tr>
<tr>
<td>4300</td>
<td>11</td>
<td>13</td>
<td>39</td>
<td>40</td>
<td>42</td>
<td>55</td>
<td></td>
<td>47</td>
</tr>
<tr>
<td>3600</td>
<td>12</td>
<td>15</td>
<td>59</td>
<td>80</td>
<td>89</td>
<td>83</td>
<td></td>
<td>93</td>
</tr>
<tr>
<td>5000</td>
<td>7</td>
<td>37</td>
<td>51</td>
<td>85</td>
<td>119</td>
<td>128</td>
<td></td>
<td>127</td>
</tr>
<tr>
<td>5400</td>
<td>12</td>
<td>17</td>
<td>63</td>
<td>76</td>
<td>84</td>
<td>88</td>
<td></td>
<td>91</td>
</tr>
<tr>
<td>6300</td>
<td>24</td>
<td>13</td>
<td>56</td>
<td>76</td>
<td>84</td>
<td>88</td>
<td></td>
<td>91</td>
</tr>
<tr>
<td>7600</td>
<td>32</td>
<td>33</td>
<td>77</td>
<td>105</td>
<td>119</td>
<td>123</td>
<td></td>
<td>127</td>
</tr>
<tr>
<td>5800</td>
<td>18</td>
<td>0</td>
<td>35</td>
<td>46</td>
<td>50</td>
<td>53</td>
<td></td>
<td>57</td>
</tr>
<tr>
<td>8000</td>
<td>28</td>
<td>6</td>
<td>51</td>
<td>67</td>
<td>74</td>
<td>78</td>
<td></td>
<td>82</td>
</tr>
<tr>
<td>6500</td>
<td>12</td>
<td>20</td>
<td>70</td>
<td>91</td>
<td>101</td>
<td>106</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>8600</td>
<td>10</td>
<td>3</td>
<td>43</td>
<td>56</td>
<td>61</td>
<td>65</td>
<td></td>
<td>69</td>
</tr>
<tr>
<td>8100</td>
<td>10</td>
<td>36</td>
<td>63</td>
<td>82</td>
<td>91</td>
<td>95</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>9700</td>
<td>18</td>
<td>47</td>
<td>87</td>
<td>113</td>
<td>126</td>
<td>131</td>
<td></td>
<td>137</td>
</tr>
<tr>
<td>10000</td>
<td>28</td>
<td>6</td>
<td>51</td>
<td>67</td>
<td>74</td>
<td>78</td>
<td></td>
<td>82</td>
</tr>
<tr>
<td>10800</td>
<td>14</td>
<td>47</td>
<td>76</td>
<td>99</td>
<td>110</td>
<td>115</td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>8000</td>
<td>35</td>
<td>25</td>
<td>105</td>
<td>136</td>
<td>154</td>
<td>160</td>
<td></td>
<td>166</td>
</tr>
</tbody>
</table>
EXAMPLE
The unit used for this example is a BGK035ND1M with Economiser and Electric Heater type H.
It is fitted with a fan which curve is shown on page 38 and a 2.2kW motor.
- Motor rpm: 1430 rpm
- \( \cos \phi = 0.81 \)
- Voltage = 400V
- Current = 3.77A (measured)

\[
P_{\text{mech \ fan}} = V \times I \times \sqrt{3} \times \cos \phi \times \eta_{\text{mech \ motor}} \times \eta_{\text{Transmission}}
\]

\[
= 400 \times 3.77 \times 3 \times 0.81 \times 0.76 \times 0.9 = 1.45 \text{kW}
\]

The unit is also fitted with a transmission kit 7
- Fixed Fan pulley : 160mm
- Motor adjustable pulley type "8450" opened 4 turns from fully closed or measured distance between pulley end plates is

\[
rpm_{\text{FAN}} = \frac{rpm_{\text{MOTOR}} \times D_m}{D_f} = \frac{1430 \times 99.2}{160} = 886 \text{ rpm}
\]

Using the fan curve below the operating point can be located.
It can be determined that the fan is providing approximately 6300 m³/h with a total pressure \( P_{\text{TOT}} = 530 \text{ Pa} \).
VENTILATION : AIRFLOW BALANCING

Fig. 37
VENTILATION: AIRFLOW BALANCING

Fig. 38

Pa (N/m²)

Ht (mm H₂O)

N %

0 63 66 68 70

100 110 120 130 140 150

RPM

0 0.2 0.4 0.6 0.8 1.0

0 15 30 45 60

Pr (kW) = 0.1

0 15 30

60 dB(A)

55

70

90

100 100 150 x 100

7 8 9 10 11 12 13 14

80

70

60

50

40

30

20

10

100 200 300 400 500 600 700 800 900 1000

0.5 1 2 3 4 5 10 20 30 40 50 (Pa = Ht x 10)

C (m/s)

7 8 9 10 11 12 13 14

0.5 1 2 3 4 5 10 20 30

ные
FILTER REPLACEMENT
After opening the filter access panel, lift the filter retaining log.
The filters can then be removed and replaced easily by sliding the dirty filters out and clean ones in.

The CLIMATIC controller can monitor the pressure drop across the filter (If option fitted)

The following set points can be adjusted depending on the installation.

"Airflow" in page 3411 = 25Pa by default
"No filter " in page 3412 = 50Pa by default
"Dirty Filter" in page 3413 = 250Pa by default

The actual pressure drop measured across the coil can be read on the Climatic Display DS50 in menu 2120.

The following faults may be identified:
-Fault code 0001 AIRFLOW FAILURE, if measured $\Delta P$ across the filter and coil is below the value set in page 3411

-Fault code 0004 DIRTY FILTERS, if measured $\Delta P$ across the filter and coil is above the value set in page 3413

-Fault code 0005 MISSING FILTERS, if measured $\Delta P$ across the filter and coil is below the value set in page 3412
AIR SOCK CONTROL

FANSTART OPERATION

The use of air socks for space conditioning allows high air volumes to be distributed at low velocity and is becoming a common feature in many applications. To accommodate this trend, Air-sock control is offered which allows the air socks to be progressively filled with air on start up. BALTIC has been enhanced with an electronic device to soft start the fan. It takes up to 1 minute to go from 0% of air to full air flow.

This time can be divided in several stages:
- The aim of this first voltage input is to overcome the resistance of the transmission (Pulleys and belts): 0.5s and up to 1000 rpm
- The second stage is to inflate the air sock: 5 to 30s. and 600 to 900 rpm

Finally the air sock is gradually pressurised during the last 5 to 30 second. The motor reaches nominal speed and the controller is bypassed.

The motor speed control is achieve through a variation of the supply voltage of each phase at constant frequency.

The thermal overload limit on the motor imposes a current limitation during the acceleration stage. Hence if the selected slope is too steep, a predefined current limit can be reached (potentiometer adjustment) and the controller will automatically reduce the voltage set-point accordingly. Then once the current is back under the high current limit it carries on with the start up cycle.

Safety

Excessive "slow down" limit
The FANSTART will display a fault (red LED) and stop the motor, if the motor slows down excessively (voltage could reach 0V) because of the current limitation during the acceleration stage.

Missing phase safety
The FANSTART will display a fault (red LED) if the current in the third phase is too low or reaches 0 Amps (Three phase supply or motor problem)

Current protection of the Thyristor
The FANSTART will display a fault (red LED) if the current exceeds the thyristor current limits
- 125A during 0.4s
- 87.4A during 2s
- 75A during 6s.
- 62.5A during 20s.

Start up sequence too long
A fault (red LED) will appear if after 1min20s the FANSTART Control is not bypassed and the motor running from the mains.

Phase rotation check
If the phase rotation is incorrect the FANSTART Control will display a fault (Red LED). Two of the phases must then be inverted and the start up cycle resumed.
HYDRAULIC CONNECTIONS
The hot water coil is fitted with a three way proportional valve and two isolating shut off valves. Two spanners must be used to tighten the connections. One spanner must maintain the valve body when connecting the pipe-work to the main. Failure to do so may damage the pipes joints and invalidates the warranty.

Filling up and starting the system
- Adjust the control for Heating by reducing the simulated ambient temperature down to 10°C
- Check that the red indicators located under the valve actuator are moving correctly with the signal.

FREEZE PROTECTION
1) Glycol for freeze protection.
Check the hydraulic system contains Glycol for protection against freezing.

GLYCOL IS THE ONLY EFFECTIVE PROTECTION AGAINST FREEZING
The antifreeze must protect the unit and avoid icing under winter conditions.
WARNING: Mono-ethylene glycol based fluids may produce corrosive agents when mixed with air.

2) Drain the installation.
You must ensure that the manual or automatic air bleeders have been installed on all high points in the system. In order to drain the system check that all the drain cocks have been installed on all low points of the system.

HEATING HOT WATER COILS FROZEN DUE TO LOW AMBIENT CONDITIONS ARE NOT COVERED BY THE WARRANTY.

ELECTROLYTIC CORROSION
Attention is drawn to the corrosion problems resulting from electrolytic reaction created by unbalanced earth connections.

ANY COIL DAMMAGED BY ELECTROLYTIC CORROSION IS NOT COVERED BY THE WARRANTY
Connection HWC B Box Downflow

Connection HWC B Box Horizontal Flow

Connection HWC C Box Downflow

Connection HWC C Box Horizontal Flow

Connection HWC D Box Downflow

Connection HWC D Box Horizontal Flow

Pipe Internal diameters (DN)

<table>
<thead>
<tr>
<th>Ø S</th>
<th>Ø H</th>
</tr>
</thead>
<tbody>
<tr>
<td>B020</td>
<td>20</td>
</tr>
<tr>
<td>B025</td>
<td>20</td>
</tr>
<tr>
<td>B030</td>
<td>20</td>
</tr>
<tr>
<td>B035</td>
<td>20</td>
</tr>
<tr>
<td>B040</td>
<td>25</td>
</tr>
<tr>
<td>B045</td>
<td>25</td>
</tr>
<tr>
<td>B050</td>
<td>25</td>
</tr>
</tbody>
</table>
GENERAL INFORMATION

The Baltic electric heaters are stand alone options which are fitted in the heating section of the unit. As for the hot water coil or the gas burner this option slides into the heating compartment located under the supply fan.

In order to reduce the pressure drops the airflow is ducted around the shielded resistances. The resistances are made smooth stainless steel tubes with a capacity of 6W/cm².

It is protected as standard, against overheat via a high temperature overload protection set at 90°C and located less than 150mm after the heater itself.

There are three sizes available for each size of unit:

S: Standard heat
M: Medium heat
H: High heat

The standard and Medium heat electric heaters, are staged control with 50% or 100%. The high heat versions is controlled through a fully modulating triac.

<table>
<thead>
<tr>
<th>Module size (kW)</th>
<th>380V</th>
<th>400V</th>
<th>415V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current (A)</td>
<td>Cap (kW)</td>
<td>Current (A)</td>
</tr>
<tr>
<td>12</td>
<td>16,3</td>
<td>10,8</td>
<td>17,0</td>
</tr>
<tr>
<td>24</td>
<td>32,6</td>
<td>21,5</td>
<td>34,0</td>
</tr>
<tr>
<td>36</td>
<td>48,9</td>
<td>32,3</td>
<td>51,1</td>
</tr>
<tr>
<td>48</td>
<td>65,2</td>
<td>43,0</td>
<td>68,1</td>
</tr>
<tr>
<td>54</td>
<td>73,4</td>
<td>48,4</td>
<td>76,6</td>
</tr>
</tbody>
</table>
PRELIMINARY CHECKS BEFORE START-UP

**NOTE:**
ANY WORK ON THE GAS SYSTEM MUST BE CARRIED OUT BY QUALIFIED PERSONNEL.

THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH LOCAL SAFETY CODES AND REGULATIONS AND CAN ONLY BE USED IN WELL VENTILATED AREA.

PLEASE READ CAREFULLY THE MANUFACTURER’S INSTRUCTIONS BEFORE STARTING A UNIT.

BEFORE COMMISSIONING A UNIT WITH GAZ BURNER, IT IS MANDATORY TO ENSURE THAT THE GAZ DISTRIBUTION SYSTEM (type of gas, available pressure…) IS COMPATIBLE WITH THE ADJUSTMENT AND SETTINGS OF THE UNIT.

Check access and clearance around the unit
- Make sure one can move freely around the unit.
- A minimum one-meter clearance must be left in front of the burnt gas exhaust flue.
- Combustion air inlet and burnt gas exhaust(s) must Not be obstructed in any way.

**Supply Network Pipe Sizing**

MALE THREADED CONNECTION FOR GAZ BURNER: 3/4”

Check that the gas supply line can provide the burners with the pressure and the gas flow rate necessary to provide the heating output duty.
- The gas supply to a Rooftop gas unit must be according to Sound Engineering Practice and the local safety codes and regulations.
- In any case the pipe-work connected to each Rooftop must not be smaller than the diameter of the connection on the Rooftop unit.
- Make sure that a shut-off isolation valve has been installed before EACH Rooftop.
- Check the supply voltage to the ignition control board (it must be between 220 and 240V).

**STARTING UP THE GAS BURNER**

MAXIMUM WORKING PRESSURE: 8bar
MAXIMUM WORKING TEMPERATURE: 125°C

Purge the pipe-work near the connection on the ignition control Valve for a few seconds.
- Check that the Centrifugal Fan Blower in the unit is running.
- Set the control to "ON" This will priorities the gas burner.
- Increase the set temperature (room set point temperature) to a temperature higher than the actual room temperature.

**Standard start-up Chronology**

<table>
<thead>
<tr>
<th>Time in seconds</th>
<th>Control operation sequence</th>
<th>Extraction fan</th>
<th>Smoke extraction fan &quot;ON&quot;</th>
<th>30 to 45 seconds pre-Ventilation</th>
<th>Fire-up spark electrode 4s</th>
<th>Opening of the gas valve &quot;High Heat&quot;</th>
<th>Flame propagation towards the ionisation probe</th>
<th>If Ionisation within 5sec: Normal running</th>
<th>Otherwise fault on gas ignition control block</th>
<th>After 5 minutes, fault reported on the climatic controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If incorrect sequence refer to the fault analysis table to identify the problem.
PRESSURE ADJUSTMENTS ON HONEYWELL PRESSURE REGULATING VALVE TYPE VK 4125 P

Pressure regulator adjustment with 300mbar gas supply:
- The Burner must run in High Heat mode for this check.

![Image of Honeywell Valve](image)

- Place the tube of the "accurate" manometer on the Inlet pressure port figure 54 of the Gas Regulating Valve after having loosened the screw by two turns

![Image of Manometer](image)

- Check and adjust if necessary the valve Inlet pressure to 20 mbar (G20) or 37 mbar for propane (G31) or 25 mbar for Groningue (G25).

High Heat Injection Pressure Checks
Check and adjust if necessary the valve OUTLET pressure to 8.4 mbar (G20) / 31.4 mbar for propane (G31) and 12.3 mbar for Groningue (G25).

![Image of High Heat Checks](image)

- Check and adjust if necessary the Outlet pressure to 3.5 mbar (G20) or 14 mbar for propane (G31) and 5 mbar for Groningue(G25)

![Image of Low Heat Checks](image)

- Carefully disconnect the wire on the coil of the valve as shown below

![Image of Wire Disconnect](image)

- Reconnect the wires on the coil
- Re-tighten all pressure adjustment screws and nuts.
PRESSURE ADJUSTMENTS ON HONEYWELL PRESSURE REGULATING VALVE TYPE VK 4105

Pressure regulator adjustment with 300mbar gas supply:
- The Burner must run in High Heat mode for this check.
- Place the tube of the "accurate" manometer on the Inlet pressure port (figure 61) of the Gas Regulating Valve after having loosened the screw by two turns.

- Check and adjust if necessary the valve Inlet pressure to 20.0 mbar (G20) or 37.0 mbar for propane (G31) or 25 mbar for Groningue (G25).

- Place the tube of the "accurate" Manometer to the OUT port on the Gas injector support bar after having loosened the nut.

- Check and adjust if necessary the Valve Outlet pressure to 8.4 mbar (G 20) / 31.4 mbar for propane (G31) and 12.3 mbar for Groningue (G25).

- Switch the control to Low Heat
- Check and adjust if necessary the Outlet pressure to 3.5 mbar (G20) or 14 mbar for propane (G31) and 5 mbar for Groningue (G25).

- Re-tighten all pressure adjustment screws and nuts.

High Heat Injection Pressure Checks
- Place the tube of the "accurate" Manometer to the OUT port on the Gas injector support bar after having loosened the nut.

Low Heat Injection Pressure Checks
- Switch the control to Low Heat
- Check and adjust if necessary the Outlet pressure to 3.5 mbar (G20) or 14 mbar for propane (G31) and 5 mbar for Groningue (G25).

Pressure adjustments table for each type of gas

<table>
<thead>
<tr>
<th>Category</th>
<th>Supply pressure</th>
<th>Low Heat injection</th>
<th>High Heat Injection</th>
</tr>
</thead>
<tbody>
<tr>
<td>G20</td>
<td>20.0 mbar</td>
<td>3.5 mbar</td>
<td>8.4 mbar</td>
</tr>
<tr>
<td>G25 (Groningue)</td>
<td>25.0 mbar</td>
<td>5.0 mbar</td>
<td>12.3 mbar</td>
</tr>
<tr>
<td>G31 (GPL)</td>
<td>37.0 mbar</td>
<td>14.0 mbar</td>
<td>31.4 mbar</td>
</tr>
</tbody>
</table>
BURNER SAFETY CHECKS

Smoke extractor pressure switch Test.
- With the gas burner running, disconnect the flexible tube fitted to the pressure taping on the pressure switch (fig. 65).
- The Flame must disappear and the extraction fan must carry on running.
- However, NO fault will be displayed (Gas ignition control block or CLIMATIC).

Gas pressure switch test
- With the gas burner running, close the shut off valve located before the rooftop.

- The burner stops completely.
- However, No fault light will be displayed on the Gas ignition control block. After 6 Minutes, the CLIMATIC will display a fault.
- Reset the CLIMATIC.

Ionisation Probe test
- With the gas burner running, disconnect the terminal plug coming from the ionisation probe to the gas ignition control box.

- The flame disappears
- The fan is still running and attempting to restart the burner (restart cycle 30 to 45 seconds).
- If the ignition probe is not reconnected at the end of the ignition sequence the burner will stop completely.
- The fault light on the gas ignition control block is ON.
- Manually reset the gas ignition control block to eliminate the fault.

IN CASE OF PROBLEMS REFER TO THE START UP SEQUENCE FLOWCHART NEXT PAGE
GAS BURNER FIRE-UP SEQUENCE

Fig. 68

Operation from control
Thermostat GAS = Closed

Supply Thermostat Limit? (Auto reset)

Gaz low pressure switch?

Gaz ignition control block signal

Extraction Fan ON

Air pressure switch ON
Backfire thermostat ON?

Pre-ventilation 30 to 45 seconds

Fire-up Electrode 4s

Gas valve open

Ionisation 1 second after the end of sparking?

Gas valve remains open

Normal operation

Air press switch ON or Backfire thermostat?

Signal from ionisation probe still ON?

Gas control Valve closes BURNER STOPS

Fault on Gas control block

6 minutes Delay

FAULT ON CLIMATIC
### GAS BURNER TROUBLESHOOTING

If faults reported on CLIMATIC

- Reset the CLIMATIC.
- Check voltage: 230V after circuit breaker.
- Check GAS isolation shut-off valves are open.
- Check GAS pressure at the inlet of the GAS valves. It must be >20 mbar when the Burners shut down.
- Adjust the set points to priorities the burner. Increase the value of the room temperature set point to a temperature higher than actual room temperature.

<table>
<thead>
<tr>
<th>STAGE</th>
<th>NORMAL</th>
<th>POSSIBLE OPERATION</th>
<th>ACTION FAULT</th>
<th>POSSIBLE SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating Requested</td>
<td>Contactors engaged</td>
<td>Contactors do not engage</td>
<td>+ Check &quot;Safety Thermostats&quot; In the air flow before the gas heat exchanger.</td>
<td>Replace component</td>
</tr>
<tr>
<td>Contactors are engaged</td>
<td>Extraction Fans running</td>
<td>Nothing happens</td>
<td>+ Check the free movement of the fan wheel + Check the supply temperature limitation thermostats + Check gas low pressure switch + Check electrical connection on the gas Ignition Control Block and on connection board + Check the fan voltage supply voltage</td>
<td>+ Replace thermostat + Open gas supply + Replace connection board if necessary</td>
</tr>
<tr>
<td>Extraction fan is ON</td>
<td>After 30 to 45 seconds : pre-ventilation the fire-up electrode should spark</td>
<td>Continuous ventilation happens without sparks from fire-up electrode</td>
<td>+ Check the fire-up electrode + Check the pressure drop at the pressure switch : It must be higher than 165 Pa + Check the good operation of the pressure switch using an Ohmmeter and by artificially creating a depression in the tube. + Check the operation the Backfire thermostat.</td>
<td>+ Re-position the pressure switch tube + Change the pressure switch + Reset or replace the Thermostat</td>
</tr>
<tr>
<td>Continuous ventilation and sparks from fire up electrode</td>
<td>After a few seconds the gas burner fires-up</td>
<td>After 4 seconds the GAS burner still not operating and safety shutdown by the ignition Control Block.</td>
<td>+ Check injection pressure during start-up (value for High Heat) + Check the supply voltage to the ignition control box (continuous voltage) + Remove the control box from the gas block.</td>
<td>+ Remove the air from the gas pipe-work + Adjust the injection pressure to high heat value. + Change the control box if the gas valve is OK. + Change the gas valve.</td>
</tr>
</tbody>
</table>

| Within 4 seconds the GAS burner fires-up BUT safety shutdown from the ignition Control Block. | + Check that the High / Low control is connected (for valve VK 4125 P). + Check the position and connections of the Ionisation Probe. It must not be Earthed (230 V) + Check the Polarity of the 230 V connection on the gas burner transformer. + Measure the Ionisation Current : It must be higher than 1,5 microAmps. + Check the type of gas. | + Check the whole electrical supply. + Adjust the supply and injection pressure if gas is different from natural gas G20 : ( G25 gas of Groningue for example). |
DISASSEMBLING THE GAS BURNER FOR MAINTENANCE PURPOSES

Preliminary Safety Recommendations
- Isolate the unit using the main isolator switch.
- Close off the isolating gas valve located before the unit.
- Disconnect the Pipe-work. Do not discard the seals.

Disassembling the gas "burner support bar"
- Disconnect the Electrical Connector on the electric connection board
- Remove the two screws which hold the gas Bar in Place
- Carefully remove the gas "burner support bar" avoiding any damages to the electrodes.

Disassembling the flue
- Electrically disconnect the fan and remove the screws holding it in place.
- Take care not to loose any cage nuts in the smoke box.

ATTENTION: Check the correct position of the pressure tube used by the extraction pressure switch.

Required Equipment List for maintenance Adjustment and Start-up
- An accurate manometer from 0 to 3500 Pa (0 to 350 mbar): 0.1% full scale.
- A Multimeter with Ohmmeter and Micro-amps scale
- An Adjustable Spanner
- Tube Spanner Set: 8, 9, 10, and 13.
- Flat Screwdrivers diameter 3 and 4, Fillips n°1
- Vacuum cleaner
- Paint brush

GAS INJECTORS SUPPORT BAR
HEATING: GAS BURNER

GAS MODULE-20KW-B-BOX

Fig. 75

GAS MODULE-33KW-B-BOX

Fig. 76
HEATING: GAS BURNER

GAS MODULE-20KW-C-BOX

Fig. 77

GAS MODULE-46KW-C-BOX

Fig. 78
GAS MODULE-46KW-C-BOX

Fig. 79

GAS MODULE-60KW-D-BOX

Fig. 80
CLIMATIC 50

The new generation of microprocessor based control, CLIMATIC™ 50 is fitted to the BALTIC Rooftop range. It inherits 15 years of technology and field operating experience from its predecessors the CLIMATIC™ 1 and CLIMATIC™ 2. LENNOX has found the latest hardware technology available on the market place and developed a software specifically designed for Rooftop applications, maximising the LENNOX Rooftop efficiency and performance.

COMMUNICATION LINKS

Master / Slave

Rooftop can now be connected together (up to 12) via a double shielded pair of wire (0.75mm² not supplied by Lennox) and use different running modes, as explained below, with no cost increase.

<table>
<thead>
<tr>
<th>Mode Name</th>
<th>Fan</th>
<th>Set Point</th>
<th>Room Temp</th>
<th>Cooling Heat Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Total master / slave</td>
<td>MASTER</td>
<td>MASTER</td>
<td>MASTER</td>
<td>N/A</td>
</tr>
<tr>
<td>2 Master / slave temperature</td>
<td>MASTER</td>
<td>STAND ALONE</td>
<td>MASTER</td>
<td>N/A</td>
</tr>
<tr>
<td>3 Master / slave average</td>
<td>MASTER</td>
<td>STAND ALONE</td>
<td>AVERAGE</td>
<td>N/A</td>
</tr>
<tr>
<td>4 Master / slave heating / cooling</td>
<td>STAND ALONE</td>
<td>STAND ALONE</td>
<td>STAND ALONE</td>
<td>MASTER</td>
</tr>
<tr>
<td>5 Back-up</td>
<td>All units are stand alone, one unit is waiting for a failure to start</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Rolling Back-up</td>
<td>All units are stand alone, one unit is waiting for a failure to start. This back-up unit changes every Tuesday</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_1 : Master slave mode "total"
The master gives the ventilation order, its set point and its room temperature/humidity to all other rooftops.

_2 : Master slave mode "temperature"
The master gives the ventilation order and its room temperature/humidity to all other rooftops, but they have their own set point.

_3 : Master slave mode "average"
The master gives the ventilation order and the room temperature/humidity used by all rooftop is the average of all rooftop. Each rooftop has its own set point.

_4 : Master slave mode "cooling/heating"
All rooftop are stand-alone but the slaves have to have the same running mode as the master (Cooling or heating).

_5 : Back-up mode
One rooftop is the back-up unit and will operate if any of the other rooftop has a failure.

_6 : Rolling Back-up mode
Same as above, except the "back-up" unit will be different each Tuesday. On top of that, the outside temperature/humidity given to all rooftop can either be the average of rooftop or be the external humidity/temperature of the master, making possible the use of a single "weather station" for the whole site.DS50 Comfort Display / DC50 Service Display.
DS 50 : SERVICE DISPLAY / DC 50 : COMFORT DISPLAY

Fig. 82

CLIMALINK / CLIMALOOK

Fig. 83
CLIMATIC 50 SOFTWARE FEATURES AND LOGIC

CLIMATIC™ 50 provides flexibility and the ability to control multiple Rooftops on a single site. Enhanced with a 16 bit processor at 14Mhz and a 2 Megabytes flash memory, CLIMATIC™ 50 has been designed to save energy and to extend the operational life of the BALTIC product range. It is able to control 50 fault signals and manage security algorithms generating various fault signals. In terms of comfort, CLIMATIC™ 50 provides an innovative PI control. CLIMATIC™ 50 offers incredible flexibility. For example, advanced users can go in the heart of the regulation and adjust the reactivity of the PI algorithm or set the supply temperature limits.

As a standard feature, CLIMATIC™50 provides 4 scheduling time zones per day on 7 days. On each of the 4 time zones, heating set point, cooling set point, minimum fresh air, humidity set point high and up, and even the different authorisations for cooling and heating can be adjusted. CLIMATIC™ 50 provides a choice of different remote displays depending on customer requirement and application of the system. As a standard feature, it is possible to set alarms (adjustable value low and high) on room temperature and humidity.

CONTROL SOFTWARE LOGIC

With the CLIMATIC™ 50 Lennox is going away from the traditional step control

Capacity factor

It is used to determine the exact capacity required at any time in order to react quicker and more accurately to any change in demand.

The capacity factor is a percentage of the total cooling or heating capacity.

Example:

On a three circuit rooftop unit with two compressors running out of three has a capacity factor of 66%

In the same way, a three circuit rooftop with a modulating electric heater running at 20% of its full capacity has a CF: CF = 25%+25%+25%+5% = 80%

The Capacity factor will increase, decrease, or freeze depending on the temperature difference between the set point and the room temperature but also on the way this room temperature is changing:

Example:
The room set point is 25°C with a 3 compressor unit.

<table>
<thead>
<tr>
<th>Delta vs room set point</th>
<th>Room Temp.</th>
<th>Cap. factor</th>
<th>COMP 1</th>
<th>COMP 2</th>
<th>COMP 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>+0</td>
<td>Increasing</td>
<td>0%</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>+1</td>
<td>Increasing</td>
<td>35%</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>+2</td>
<td>Increasing</td>
<td>70%</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>+3</td>
<td>Increasing</td>
<td>100%</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>-2</td>
<td>Decreasing</td>
<td>100%</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>-1</td>
<td>Decreasing</td>
<td>100%</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>0</td>
<td>Decreasing</td>
<td>100%</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>-1</td>
<td>Decreasing</td>
<td>60%</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>0</td>
<td>Increasing</td>
<td>60%</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
</tbody>
</table>

Reactivity.
The reactivity determines how fast the capacity factor should vary.

It is given in: Percentage of capacity / °C (Room Temp. VS Set Point) / minute

Example:

If the reactivity is set to 3 % / °C / min

Then:

Capacity factor can go from 0 to 30% in 10 minutes if Room Temp. VS Set Point is 1°C

Or capacity factor will go from 0 to 60% in 4 minutes if Room Temp. VS Set Point is 5°C

The reactivity can be adjusted with the CLIMATIC™ 50 The larger the reactivity the faster the rooftop will react to a change.

The next table shows the effect of a change of the reactivity on the capacity factor: This shows that by increasing the reactivity, the unit reaches the set point quicker but the energy consumption (capacity factor) is larger.
CONTROL SOFTWARE FEATURES

OTHER FEATURES

Dynamic Set Point

This feature allows the set point to change according to the outside temperature.

Example:
If the set point is 25°C
And the dynamic set point is set to 6°C

Then, when the outdoor temperature reaches: 31°C (25°C + 6°C) the set point will follow the outdoor temperature with a 6°C temperature difference.

If you do not want to use this feature, set the dynamic set point to 99

Time Zones and scheduling

With the Climatic50 the scheduling has been completely reviewed:
The first day of the week is Monday.
Automatic switch from winter time to summer time.
Unoccupied mode from one to seven days
Three occupied and one unoccupied zone per day

For each zone a series of set points and feature can be adjusted or selected, depending on the type of display which is being used.

Forced modes

3 hours Override
A three hours override period can be forced on the CLIMATIC™50:
With this feature, a new room temperature set point and fresh air requirement can be imposed for a three hour period; It will then revert to the original setting at the end of the override period or earlier by switching off the override on the controller display.

Forced unoccupied zone.
The unoccupied zone settings can be forced for a period of up to seven days. It will then revert to the original settings at the end of the defined period or earlier by switching off the forced unoccupied mode on the controller display.

Heating priorities
It is possible to set heating priorities depending on the outdoor temperature.

Example:
It could be decided based on energy costs, that on a dual fuel unit, it should run in heat pump mode when the temperature is above 0°C and switch to gas burner below that point.
**Staggered start**

After a power cut, the units can be made to restart one after the other to prevent any current surge.
There is no need for a link between the units, they just have to be given an address during commissioning and they will restart 10 seconds x their “address number” after the power is switched back on.

Example:
If a unit is given the address N°3 it will be switched-on 30 seconds (3 x 10sec) after the power is switched back on.

**Fresh air adjustment and calibration on Economiser**
The actual fresh air volume brought into the system is not always proportional to the percentage of opening of the fresh air damper. That is particularly true when the return air duct system has been sized to produce excessive pressure drop.
This often results in bringing into the system an excessive amount of fresh air, hence increasing the running cost of the system.

The control of fresh air is now achieved through the use of three temperature sensors: One in the supply air flow, one in the return air and one for the outdoor temperature.
Using these three sensors, the Climatic50 will calculate and memorise the exact percentage of fresh air for each position of the damper.

\[
T_{\text{supply air}} = T_{\text{return air}} \times \%_{\text{return air}} + T_{\text{fresh air}} \times \%_{\text{fresh air}}
\]

The calibration sequence will take place periodically when all cooling or heating inputs are off.

**Dynamic Defrost**

This new feature patented under INPI 91.033.063 allows the unit to start the defrost cycle only when required.
This is achieved through the measurement of the temperature difference between the coil and the outdoor.

The defrost will be initiated shortly after the Climatic50 has located the largest gradient in the curve.

The defrost cycle ends when one of these two condition is completed whichever comes first:
+ Three defrost cycles max.
+ 4 minutes.

**Alternate defrost**

All dual circuits Baltic units have "Alternate Defrost" as a standard feature.
When one circuit is going through a defrost cycle the second circuit is running in heat pump mode. This reduces the need for costly electric heater to maintain the supply air temperature to an acceptable level of comfort during the defrost cycles.
CONTROL INTERFACES AND DISPLAYS
DC50 COMFORT DISPLAY

This is a remote controller for non-technical customer. This display gives information such as running mode status of the fan, set point, % of fresh air and outside air temperature. It can be used to set or change the scheduling of the different time zones, the temperature set point, and the % of fresh air for each zone. It also has the capacity to set a 3 hours override and to force the unoccupied mode for up to 7 days. It displays the real time clock and different faults signals.

Keys

**Override 3 hours:**
From main screen press any of the two arrow keys as shown below:

**Main screen:**

**Override menu:**
Valid / Go next line
Decrease
Increase
Valid go main screen

**Forced Unoccupied zone:**
Select “unoc” in the override menu and validate UP to 7 days unoccupied period (starting from current day).

**Clock Menu:**
From main screen press the clock key, the following menu appears:
"Time Zone" Menu

From main screen press the "Prg" key, the following menu appears:

**Alarm History Menu**

You can scroll down this menu using the arrow keys and select one of the alarm message by pressing the return key.

**Alarm details**

This menu allows you to view details on the selected fault as shown below:

**Switching ON and OFF the unit**

Pressing the return key on the main screen will display the following message:

**WARNING : Switching Off the unit disable all safety Protections**

Move up and down to display "YES" then pressing the return key again will switch off the unit.

It can then be switched back ON by pressing the return key once more.

**Alarm screen**

*Filter Alarm:* All keys are locked, the only way to escape this screen is to clean the filter

**Major Alarm**

*Alarm: MAJOR***

call for maintenance

24.2°C OFF

**Back to main**
CONTROL INTERFACE DS50

DS50 SERVICE DISPLAY
This new service display controller is a plug and play feature but it can also be remotely installed. Plugging the DS50 will freeze a DC50

Start up screen or Screen(1)

Screen (2) language selection
Five languages are available in addition to English. The required language must be specified at the time of order. In this menu the specified language can be selected using the up and down keys. The “prg” key validates the choice and start the controller.

Moving down the menus
Pressing the arrow keys allows you to move up and down the menu tree. The selected item changes to CAPITAL letter. It can then be selected by pressing the “return” or “select” key.

Sub-menu Data (2000)
If the menu GENERAL is selected, the controller then displays a second level sub-menu.

By selecting the item TEMPERATURE and pressing return, a third level page is displayed as shown below:
Pressing “ESC” at any time sends you back one level up the menu tree. In the example shown above “ESC” must be pressed 3 times to go back to the main menu (0000) Pressing “ESC” will invalidate any changes made to a value in a setting page.

Clock settings
The clock setting menu can be accessed from the main menu by selecting the menu “SETTING” and then navigating down through the sub-menus until page (3120).

Pressing the “ALARM” key resets all the alarms
The number of active alarms goes to 0, no active alarm shown in the menu, the “bell” key is switched off.

In this particular page, pressing the “prg” key, changes the time zone. If “ROOM SET” is selected, this displays the room set point for the specific time zone shown in the top corner.

Pressing the “prg” validates any changes made, and move to the next time zone. “ESC” does not validate the changes and move back one step in the menu tree.

Zone Settings
From Main menu (0000) navigate down to sub-menu "SETTINGS", zone settings (3310).

Selecting the HOUR for displays the page 3121 shown bellow:

In this particular page, pressing the “prg” key, changes the time zone. If “ROOM SET” is selected, this displays the room set point for the specific time zone shown in the top corner.

Pressing the “prg” validates any changes made, and move to the next time zone. “ESC” does not validate the changes and move back one step in the menu tree.
### Table 13

<table>
<thead>
<tr>
<th>Main Screen Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>UNIT</th>
<th>Min</th>
<th>Factory Max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1-Alarm</strong></td>
<td></td>
<td>1000</td>
<td>1-(date).(time)</td>
<td>1100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2-(date).(time)</td>
<td>1200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3-(date).(time)</td>
<td>1300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2-Data</strong></td>
<td></td>
<td>2000</td>
<td>1-General</td>
<td>2100</td>
<td>1-Temperature</td>
<td>2110</td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Outside</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Room</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Supply</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Return</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2-Humidity</strong></td>
<td></td>
<td>2120</td>
<td></td>
<td></td>
<td>Outside</td>
<td></td>
<td>%.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Room</td>
<td></td>
<td>%.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Outside</td>
<td></td>
<td>g/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Room</td>
<td></td>
<td>g/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3-Other</strong></td>
<td></td>
<td>2130</td>
<td></td>
<td></td>
<td>Air Pres.</td>
<td></td>
<td>Pa</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CO2</td>
<td></td>
<td>ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sw On/Off</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sw Reset</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sw Unoc.</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4-Customized</strong></td>
<td></td>
<td>2140</td>
<td></td>
<td></td>
<td>Temp. 1</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Temp. 2</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Temp. 3</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Temp. 4</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Humi. 1</td>
<td></td>
<td>%.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Humi. 2</td>
<td></td>
<td>%.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Humi. 3</td>
<td></td>
<td>%.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Humi. 4</td>
<td></td>
<td>%.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5-Customized</strong></td>
<td></td>
<td>2150</td>
<td></td>
<td></td>
<td>Switch 1</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Switch 2</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Switch 3</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Switch 4</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Switch 5</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Switch 6</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6-Customized</strong></td>
<td></td>
<td>2160</td>
<td></td>
<td></td>
<td>Relay 1</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Relay 2</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Relay 3</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Relay 4</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Relay 5</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2-Control</strong></td>
<td></td>
<td>2200</td>
<td>1-Room</td>
<td>2210</td>
<td>Sp Cool</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sp Heat</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Capa Cool</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Capa Heat</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sw Dis.Cool</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sw Dis.Heat</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2-Reheat</strong></td>
<td></td>
<td>2220</td>
<td></td>
<td></td>
<td>Set Point</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Capacity</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3-Humidity</strong></td>
<td></td>
<td>2230</td>
<td></td>
<td></td>
<td>Sp Dehu</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sp Humi</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Capa Dehu</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Capa Humi</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4-TCB</strong></td>
<td></td>
<td>2240</td>
<td></td>
<td></td>
<td>Sw G</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sw Y1</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sw Y2</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sw W1</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sw W2</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sw B</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## CONTROL INTERFACES DS50 MENU TREE

<table>
<thead>
<tr>
<th>Main Screen Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code Description</th>
<th>Code</th>
<th>UNIT</th>
<th>Min</th>
<th>Factory</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Fan</td>
<td>1-Ventilation</td>
<td>2300</td>
<td>2310</td>
<td>Config.</td>
<td>State</td>
<td>List</td>
<td></td>
<td></td>
<td>List</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Extraction</td>
<td></td>
<td>2320</td>
<td>State</td>
<td></td>
<td></td>
<td>List</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Condenser 1</td>
<td></td>
<td>2330</td>
<td>Config.</td>
<td></td>
<td>State</td>
<td>List</td>
<td></td>
<td></td>
<td>List</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-Condenser 2</td>
<td></td>
<td>2340</td>
<td>Config.</td>
<td></td>
<td>State</td>
<td>List</td>
<td></td>
<td></td>
<td>List</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-Condenser 3</td>
<td></td>
<td>2350</td>
<td>Config.</td>
<td></td>
<td>State</td>
<td>List</td>
<td></td>
<td></td>
<td>List</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-Condenser 4</td>
<td></td>
<td>2360</td>
<td>Config.</td>
<td></td>
<td>State</td>
<td>List</td>
<td></td>
<td></td>
<td>List</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-Fresh Air</td>
<td></td>
<td>2410</td>
<td>Config.</td>
<td></td>
<td>State</td>
<td>List</td>
<td></td>
<td></td>
<td>List</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-Compressor</td>
<td>1-Compressor 1</td>
<td>2500</td>
<td>2510</td>
<td>Config.</td>
<td>State</td>
<td>List</td>
<td></td>
<td></td>
<td>List</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Compressor 2</td>
<td></td>
<td>2520</td>
<td>Config.</td>
<td></td>
<td>State</td>
<td>List</td>
<td></td>
<td></td>
<td>List</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Compressor 3</td>
<td></td>
<td>2530</td>
<td>Config.</td>
<td></td>
<td>State</td>
<td>List</td>
<td></td>
<td></td>
<td>List</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-Compressor 4</td>
<td></td>
<td>2540</td>
<td>Config.</td>
<td></td>
<td>State</td>
<td>List</td>
<td></td>
<td></td>
<td>List</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Screen Code</td>
<td>Description</td>
<td>Code</td>
<td>Description</td>
<td>Code</td>
<td>Description</td>
<td>Code</td>
<td>UNIT</td>
<td>Min</td>
<td>Factory Max</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
<td>------</td>
<td>-------------</td>
<td>------</td>
<td>-------------</td>
<td>------</td>
<td>------</td>
<td>-----</td>
<td>-------------</td>
</tr>
<tr>
<td>5-Other</td>
<td></td>
<td>2550</td>
<td>Low Amb.</td>
<td>W/Cond.1</td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>W/Cond.2</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-Aux. Heater</td>
<td></td>
<td>2600</td>
<td>1-Gas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Config.</td>
<td></td>
<td>List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>State</td>
<td></td>
<td>List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sw State 1</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sw State 2</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Relay 1</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Relay 2</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>High</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Modulat.</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sw Disable</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Elec. H.</td>
<td></td>
<td>2620</td>
<td>1-Gas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Config.</td>
<td></td>
<td>List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>State</td>
<td></td>
<td>List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sw State 1</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sw State 2</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Relay 1</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Relay 2</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Modulat.</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sw Disable</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Hot W/Coil</td>
<td></td>
<td>2630</td>
<td>Config.</td>
<td></td>
<td>List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>State</td>
<td></td>
<td>List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Opening</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sw Freeze</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sw Disable</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-Pump</td>
<td></td>
<td>2640</td>
<td>Config.</td>
<td></td>
<td>List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>State</td>
<td></td>
<td>List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sw State</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Relay</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-Humidif.</td>
<td></td>
<td>2710</td>
<td>Config.</td>
<td></td>
<td>List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>State</td>
<td></td>
<td>List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sw State</td>
<td></td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Modulat.</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-Com.</td>
<td></td>
<td>2800</td>
<td>1-Outside</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Value</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sensor</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Link</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BMS</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Value</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sensor</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Link</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BMS</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Room</td>
<td></td>
<td>2820</td>
<td>Value</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sensor</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Link</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BMS</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Value</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sensor</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Link</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BMS</td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Main Screen Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>UNIT</th>
<th>Min</th>
<th>Factory</th>
<th>Max</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3000</td>
<td>1-General</td>
<td>3100</td>
<td>1-Order</td>
<td>3110</td>
<td>1-On/Off</td>
<td>3111</td>
<td>On/Off</td>
<td>~</td>
<td>Off</td>
<td>~</td>
<td>[On / Off] Unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Reset Al.</td>
<td>3112</td>
<td>On/Off</td>
<td>~</td>
<td>Off</td>
<td>~</td>
<td>[Reset] Discharges the safety measures of the unit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Resume</td>
<td>3113</td>
<td>On/Off</td>
<td>~</td>
<td>Off</td>
<td>~</td>
<td>[Override] Cancel any override action set with the DC50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-Test</td>
<td>3114</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>[TEST] Test set point &quot;LENNOX&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2-Clock

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>UNIT</th>
<th>Min</th>
<th>Factory</th>
<th>Max</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3200</td>
<td>1-Time</td>
<td>3210</td>
<td>1-Start Uno</td>
<td>3211</td>
<td>h</td>
<td>0</td>
<td>22</td>
<td>23</td>
<td>[Zone Setting] Starting time &quot;Hour&quot; for &quot;Unoccupied&quot; zone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Start Uno</td>
<td>3212</td>
<td>m</td>
<td>0</td>
<td>0</td>
<td>59</td>
<td>[Zone Setting] Starting time &quot;Minutes&quot; for &quot;Unoccupied&quot; zone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Start z.A</td>
<td>3213</td>
<td>h</td>
<td>0</td>
<td>6</td>
<td>23</td>
<td>[Zone Setting] Starting time &quot;Hour&quot; for &quot;Zone A&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-Start z.A</td>
<td>3214</td>
<td>m</td>
<td>0</td>
<td>0</td>
<td>59</td>
<td>[Zone Setting] Starting time &quot;Minutes&quot; for &quot;Zone A&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-Start z.B</td>
<td>3215</td>
<td>h</td>
<td>0</td>
<td>22</td>
<td>23</td>
<td>[Zone Setting] Starting time &quot;Hour&quot; for &quot;Zone B&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-Start z.B</td>
<td>3216</td>
<td>m</td>
<td>0</td>
<td>0</td>
<td>59</td>
<td>[Zone Setting] Starting time &quot;Minutes&quot; for &quot;Zone B&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-Start z.C</td>
<td>3217</td>
<td>h</td>
<td>0</td>
<td>22</td>
<td>23</td>
<td>[Zone Setting] Starting time &quot;Hour&quot; for &quot;Zone C&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-Start z.C</td>
<td>3218</td>
<td>m</td>
<td>0</td>
<td>0</td>
<td>59</td>
<td>[Zone Setting] Starting time &quot;Minutes&quot; for &quot;Zone C&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2-Anticipation

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>UNIT</th>
<th>Min</th>
<th>Factory</th>
<th>Max</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3220</td>
<td>1-Foot</td>
<td>3221</td>
<td>°C</td>
<td>-10</td>
<td>10</td>
<td>20</td>
<td>[Anticipation Function] bottom of the slope in °C. Limit of activation of the function. This allows an anticipated startup in the morning depending on the outdoor temperature. Only for the &quot;Zone-A&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Gradient</td>
<td>3222</td>
<td>~</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>[Anticipation Function] Slope in &quot;Minutes of anticipation per degrees&quot;. This allows an anticipated startup in the morning depending on the outdoor temperature. Only for the &quot;Zone-A&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3-Control

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>UNIT</th>
<th>Min</th>
<th>Factory</th>
<th>Max</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3300</td>
<td>1-Customer</td>
<td>3310</td>
<td>1-Sp Room</td>
<td>3311(1)</td>
<td>°C</td>
<td>8</td>
<td>20</td>
<td>35</td>
<td>[Room SP] Required room temperature set point in °C. Middle of the dead zone.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Mini.Air</td>
<td>3312(1)</td>
<td>%</td>
<td>0</td>
<td>20</td>
<td>100</td>
<td>[Room SP] Required room minimum fresh air rate in % Middle of the dead zone.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3-Reheat

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>UNIT</th>
<th>Min</th>
<th>Factory</th>
<th>Max</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3330</td>
<td>1-Activation</td>
<td>3331(1)</td>
<td>°On/Off</td>
<td>~</td>
<td>Off</td>
<td>~</td>
<td>[F-Air Reheat] Activate reheating of the fresh air in the dead zone to maintain supply temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Swap Heater</td>
<td>3332(1)</td>
<td>°On/Off</td>
<td>~</td>
<td>Off</td>
<td>~</td>
<td>[F-Air Reheat] Prioritise the heating mode for fresh air reheat. [OFF] Heat Pump and then Heater [ON] Heater and then Heat Pump</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3-Reheat

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>UNIT</th>
<th>Min</th>
<th>Factory</th>
<th>Max</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3340</td>
<td>1-Sp Dehu</td>
<td>3341(1)</td>
<td>°%</td>
<td>0</td>
<td>100</td>
<td>100</td>
<td>[Humidity] Desired Maximum relative humidity in Room (in %). – Dehumidification set point.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Sp Humi</td>
<td>3342(1)</td>
<td>°%</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>[Humidity] Desired Minimum relative humidity in Room (in %). – Humidification set point.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Interfaces DSM50 Menu Tree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Main Screen

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3350</td>
<td>Fan On/Off</td>
<td>3351</td>
<td>On/Off</td>
<td>3352</td>
<td>Fan Dead</td>
<td>3353</td>
<td>On/Off</td>
<td>3354</td>
<td>CO2</td>
<td>3355</td>
<td>Comp.Cool.</td>
</tr>
<tr>
<td>3356</td>
<td>Comp.Heat.</td>
<td>3357</td>
<td>On/Off</td>
<td>3358</td>
<td>Humidif.</td>
<td>3359</td>
<td>Low Noise</td>
<td>3360</td>
<td>Capacity</td>
<td>3361</td>
<td>Room</td>
</tr>
<tr>
<td>3362</td>
<td>Reheat</td>
<td>3363</td>
<td>Room Low</td>
<td>3364</td>
<td>Room High</td>
<td>3365</td>
<td>Safety</td>
<td>3366</td>
<td>Safe.</td>
<td>3367</td>
<td>Safety</td>
</tr>
<tr>
<td>3368</td>
<td>Low Noise</td>
<td>3369</td>
<td>Room Low</td>
<td>3370</td>
<td>Room High</td>
<td>3371</td>
<td>Room Low</td>
<td>3372</td>
<td>Room High</td>
<td>3373</td>
<td>Room Low</td>
</tr>
<tr>
<td>3374</td>
<td>Room Low</td>
<td>3375</td>
<td>Room High</td>
<td>3376</td>
<td>Room Low</td>
<td>3377</td>
<td>Room High</td>
<td>3378</td>
<td>Room Low</td>
<td>3379</td>
<td>Room High</td>
</tr>
<tr>
<td>3380</td>
<td>Room Low</td>
<td>3381</td>
<td>Room High</td>
<td>3382</td>
<td>Room Low</td>
<td>3383</td>
<td>Room High</td>
<td>3384</td>
<td>Room Low</td>
<td>3385</td>
<td>Room High</td>
</tr>
<tr>
<td>3386</td>
<td>Room Low</td>
<td>3387</td>
<td>Room High</td>
<td>3388</td>
<td>Room Low</td>
<td>3389</td>
<td>Room High</td>
<td>3390</td>
<td>Room Low</td>
<td>3391</td>
<td>Room High</td>
</tr>
<tr>
<td>3392</td>
<td>Room Low</td>
<td>3393</td>
<td>Room High</td>
<td>3394</td>
<td>Room Low</td>
<td>3395</td>
<td>Room High</td>
<td>3396</td>
<td>Room Low</td>
<td>3397</td>
<td>Room High</td>
</tr>
<tr>
<td>3398</td>
<td>Room Low</td>
<td>3399</td>
<td>Room High</td>
<td>3400</td>
<td>Room Low</td>
<td>3401</td>
<td>Room High</td>
<td>3402</td>
<td>Room Low</td>
<td>3403</td>
<td>Room High</td>
</tr>
<tr>
<td>3404</td>
<td>Room Low</td>
<td>3405</td>
<td>Room High</td>
<td>3406</td>
<td>Room Low</td>
<td>3407</td>
<td>Room High</td>
<td>3408</td>
<td>Room Low</td>
<td>3409</td>
<td>Room High</td>
</tr>
<tr>
<td>3410</td>
<td>Air Flow</td>
<td>3411</td>
<td>Pa</td>
<td>3412</td>
<td>Air Flow</td>
<td>3413</td>
<td>Pa</td>
<td>3414</td>
<td>Air Flow</td>
<td>3415</td>
<td>Pa</td>
</tr>
<tr>
<td>3416</td>
<td>Air Flow</td>
<td>3417</td>
<td>Pa</td>
<td>3418</td>
<td>Air Flow</td>
<td>3419</td>
<td>Pa</td>
<td>3420</td>
<td>Air Flow</td>
<td>3421</td>
<td>Pa</td>
</tr>
</tbody>
</table>

### Description

- **Enable** Stopping and running of the Fan Blower. [OFF] the blower is stopped, [ON] the blower is running.
- **Enable** Stopping and running of the fan in the "Control Dead Zone". [OFF] the blower is stopped, [ON] the blower is running.
- **Enable** Run eco: [ON] the Economiser is running, [OFF] the Economiser if stopped.
- **Enable** Run CO2 Sensor: [ON] Switch-on the CO2 on a Zone, [OFF] Stop the CO2 sensor on a zone.
- **Enable** Force the unloading of compressors in cooling mode.
- **Enable** Force the unloading of compressors in heating mode.
- **Enable** Force the unloading of heating module (electric, gas or heat water coil)
- **Enable** Force the unloading of humidity control.
- **Enable** Force the noise reduction mode, [ON] 50% of the compressors are unloaded in "Unoccupied" zone.
- **Capacity Factor** Reactivity: Refer to "Climatic features" in IOM for details
- **Capacity Factor** Reactivity: Refer to "Climatic features" in IOM for details
- **Safety Limit** Room temperature "Low Limit" in °C Threshold of activation of an alarm
- **Safety Limit** Room temperature "High Limit" in °C Threshold of activation of an alarm
- **Safety Limit** Supply temperature low Limit (in °c) - Threshold of activation of the 1° level of security: Reduce the "Capacity Factor" by one stage of compressor and switch to minimum Fresh Air.
- **Safety Limit** Supply temperature low Limit (in °c) - Threshold of activation of the 2° level of security: Reduce the "Capacity Factor" to zero and switch to 0% Fresh Air, open the HWC valve.
- **Safety Limit** Supply temperature low Limit (in °c) - Threshold of activation of the 3° level of security: - Alarm threshold, the unit is switched off.
- **Safety Limit** Supply temperature high Limit (in °c) - Threshold of activation of the 1° level of security: reduce the capacity factor by one stage of compressor. Close the HWC valve.
- **Safety Limit** Supply temperature high Limit (in °c) - Threshold of activation of the 2° level of security: Alarm threshold: Reduce the capacity factor to 0
- **Safety Limit** Room relative humidity low Limit (in %) - Threshold of activation of the alarm
- **Safety Limit** Room humidity high Limit (in %) - Threshold of activation of the alarm
- **Safety Limit** Airflow Detection Threshold of pressure difference in Pa indicating Low Airflow Rate. If the pressure difference across the filter is lower than this threshold the safety is activated.

---

*ALL CODES SHOWING (1) CAN BE ADJUSTED FOR EACH TIME ZONE*
### Main Screen Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description | Code Description |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Ventilation</td>
<td>3410</td>
<td>1-Air Flow</td>
<td>3411</td>
<td>Pa</td>
<td>0</td>
<td>25</td>
<td>1000</td>
<td><em>[Safety Limit] Airflow Detection Threshold of pressure difference in Pa indicating Low Airflow Rate. If the pressure difference across the filter is lower than this threshold the safety is activated.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-No Filter</td>
<td>3412</td>
<td>Pa</td>
<td>0</td>
<td>50</td>
<td>1000</td>
<td><em>[Safety Limit] Missing Filters. Threshold of pressure difference in Pa indicating absence of filters. If the pressure difference across the filter is lower than this threshold the safety is activated.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3-Dirty Fil</td>
<td>3413</td>
<td>Pa</td>
<td>0</td>
<td>250</td>
<td>1000</td>
<td><em>[Safety Limit] Dirty Filters. Threshold of pressure difference in Pa indicating Filters are Dirty. If the pressure difference across the filter is Higher than this threshold the safety is activated.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-Fresh Air</td>
<td>3510</td>
<td>1-Out.Limit</td>
<td>3511</td>
<td>°C</td>
<td>-20</td>
<td>0</td>
<td>40</td>
<td>*[Fresh air Damper] Minimum outdoor temperature limit in °C. If the outdoor temperature is lower than this limit the control in free cooling is not allowed. The fresh air damper is then set to the minimum setting.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-Maximum</td>
<td>3512</td>
<td>%</td>
<td>0</td>
<td>100</td>
<td>100</td>
<td>*[Fresh air Damper] Maximum allowable opening of the fresh air damper in %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3-Start Ext</td>
<td>3513</td>
<td>%</td>
<td>0</td>
<td>30</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4-Mini.Co2</td>
<td>3514</td>
<td>ppm</td>
<td>0</td>
<td>1000</td>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-Maxi.Co2</td>
<td>3515</td>
<td>ppm</td>
<td>0</td>
<td>1500</td>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-Compressor</td>
<td>3600</td>
<td>1-Out.Limit</td>
<td>3610</td>
<td>°C</td>
<td>-10 or 10</td>
<td>20</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-Cool.100</td>
<td>3612</td>
<td>°C</td>
<td>-10 or 10</td>
<td>12</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3-Heat.100</td>
<td>3613</td>
<td>°C</td>
<td>-50</td>
<td>-20</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Defrost</td>
<td>3620</td>
<td>1-Type</td>
<td>3621</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-Outside</td>
<td>3622</td>
<td>°C</td>
<td>8</td>
<td>10</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3-Coil</td>
<td>3623</td>
<td>°C</td>
<td>-10</td>
<td>-2</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4-Time Limit</td>
<td>3624</td>
<td>m</td>
<td>30</td>
<td>45</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-Time Fc</td>
<td>3625</td>
<td>~</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Safety</td>
<td>3630</td>
<td>1-W/Cd Mini</td>
<td>3631</td>
<td>°C</td>
<td>4</td>
<td>5</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-W/Cd Maxi</td>
<td>3632</td>
<td>°C</td>
<td>20</td>
<td>45</td>
<td>46</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Safety Limit* Low Temperature Limit for water heat exchanger output (°C) - Threshold of activation of the safety limit.

*Safety Limit* High Temperature Limit for water heat exchanger output (°C) - Threshold of activation of the safety limit.
<table>
<thead>
<tr>
<th>Main Screen Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>UNIT</th>
<th>Min</th>
<th>Factory</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-Aux. Heater</td>
<td>3710</td>
<td>1-Out.Limit</td>
<td>3711</td>
<td>°C</td>
<td>-20</td>
<td>10</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Sp Mixing</td>
<td>3712</td>
<td>°C</td>
<td>0</td>
<td>5</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Maximum</td>
<td>3713</td>
<td>%</td>
<td>0</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-Config.</td>
<td>3800</td>
<td>1-Option</td>
<td>3810</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-LAK</td>
<td>3812</td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Defrost+</td>
<td>3813</td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-Hu. Pack</td>
<td>3814</td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-P. Air</td>
<td>3815</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-AuxHeat</td>
<td>3816</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-FAir</td>
<td>3817</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-TCB</td>
<td>3818</td>
<td>On/Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Out. Custom</td>
<td>3820</td>
<td>1-BM50.1</td>
<td>3821</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-BE50.1</td>
<td>3822</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-BE50.2</td>
<td>3823</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-BE50.3</td>
<td>3824</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-BE50.4</td>
<td>3825</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-In. Custom</td>
<td>3830</td>
<td>1-BM50.1</td>
<td>3831</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-BM50.2</td>
<td>3832</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-BE50.1</td>
<td>3833</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-BE50.2</td>
<td>3834</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-BE50.3</td>
<td>3835</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-BE50.4</td>
<td>3836</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-In.% Custom</td>
<td>38401-BE50.1</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-BE50.2</td>
<td>3842</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-BE50.3</td>
<td>3843</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-BE50.4</td>
<td>3844</td>
<td>List</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **7-Aux. Heater**: 3710, 1-Out.Limit; 3711, °C; -20 to 10; Factory Max 40. *Limit of Regulation: Unloading 100% of heaters. Threshold of outside temperature (in °C). If the outside temperature is higher than this threshold, Heaters are switched off.*

- **2-Sp Mixing**: 3712, °C; 0 to 10. *Electrical heater: Regulation all seasons of FLEXY FX. Threshold of temperature of mixture (in °C). If the temperature of mixture is lower than this threshold, Electrical Heaters are activated.*

- **3-Maximum**: 3713, %; 0 to 100; Factory Max 100. *Electrical heater: For Electric Heater with Triac: Maximum power of use of Electrical heater (in %).*

- **8-Config.**: 3800, 1-Option; 3810, 1-Size; 3811, List; 0 to 2. *Configuration: Type of unit.*

- **2-LAK**: 3812, On/Off. *Configuration: Low Ambient Kit "all season control".*

- **3-Defrost+**: 3813, On/Off. *Configuration: Activation of the "Optimized Defrost" Option.*


- **5-P. Air**: 3815, List; 0 to 2. *Configuration: Configuration of the differential pressure sensor: 0Pa; 500Pa; 1000Pa.*


- **7-FAir**: 3817, List; 0 to 3. *Configuration: Configuration of the Fresh Air / Economiser: NO, 100% fixed or 0-50% or 0-100% Modulating.*

- **8-TCB**: 3818, On/Off. *Configuration: Configuration of the Thermostat Control Board.*

- **2-Out. Custom**: 3820, 1-BM50.1; 3821, List; 0 to 6. *Configuration: Free output to be customised on the BM50.*

- **3-BE50.2**: 3823, List; 0 to 6. *Configuration: Free output to be customised (Second output of the extension board BE50).*

- **4-BE50.3**: 3824, List; 0 to 6. *Configuration: Free output to be customised (Third output of the extension board BE50).*

- **5-BE50.4**: 3825, List; 0 to 6. *Configuration: Free output to be customised (Fourth output of the extension board BE50).*

- **3-In. Custom**: 3830, 1-BM50.1; 3831, List; 0 to 8. *Configuration: Free input to be customised on the BM50.*

- **2-BM50.2**: 3832, List; 0 to 8. *Configuration: Free input to be customised on the BM50.*

- **3-BE50.1**: 3833, List; 0 to 8. *Configuration: Free input to be customised (input on the extension board BE50).*

- **4-BE50.2**: 3834, List; 0 to 8. *Configuration: Free input to be customised (input on the extension board BE50).*

- **5-BE50.3**: 3835, List; 0 to 8. *Configuration: Free input to be customised (input on the extension board BE50).*

- **6-BE50.4**: 3836, List; 0 to 8. *Configuration: Free input to be customised (input on the extension board BE50).*

- **4-In.% Custom**: 38401-BE50.1; 3841, List; 0 to 4. *Configuration: Free input to be customised (input on the extension board BE50).*

- **2-BE50.2**: 3842, List; 0 to 4. *Configuration: Free input to be customised (input on the extension board BE50).*

- **3-BE50.3**: 3843, List; 0 to 4. *Configuration: Free input to be customised (input on the extension board BE50).*

- **4-BE50.4**: 3844, List; 0 to 4. *Configuration: Free input to be customised (input on the extension board BE50).*
<table>
<thead>
<tr>
<th>Main Screen Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>UNIT</th>
<th>Min</th>
<th>Factory</th>
<th>Max</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-Com. 3900</td>
<td>1-Display</td>
<td>3910</td>
<td>1-Sp Mini.</td>
<td>3911</td>
<td>°C</td>
<td>8</td>
<td>17</td>
<td>21</td>
<td>* Mode: Minimum temperature for the required room temperature setpoint at the middle of the dead zone.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2-Sp Maxi.</td>
<td>3912</td>
<td>°C</td>
<td>21</td>
<td>27</td>
<td>35</td>
<td>* Mode: Maximum temperature for the required room temperature setpoint at the middle of the dead zone.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3-Offset</td>
<td>3913</td>
<td>°C</td>
<td>-5</td>
<td>0</td>
<td>5</td>
<td>* Offset of the value measured by the ambient temperature sensor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4-Standard Sp</td>
<td>3914</td>
<td>On/Off</td>
<td>~</td>
<td>Off</td>
<td>~</td>
<td>* Allows a reset of ALL set point to standar factory settings (when available). No possible for configurations, and clock as there is no factory settings for these.</td>
</tr>
<tr>
<td>2-Link 3920</td>
<td>1-ID</td>
<td>3921</td>
<td>~ 1 1 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>* Configuration: Identification address for the unit from 1 to 12.</td>
</tr>
<tr>
<td></td>
<td>2-Number</td>
<td>3922</td>
<td>~ 1 1 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>* Configuration: Number of units on the BUS. Unit with address No 1 is always the master.</td>
</tr>
<tr>
<td></td>
<td>3-Type</td>
<td>3923</td>
<td>List 0 0 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>* Master / Slave relationship: refer to IOM &quot;Climatic section&quot; for details.</td>
</tr>
<tr>
<td></td>
<td>4-Type</td>
<td>3924</td>
<td>List 0 0 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>* Configuration of the sharing of the Outdoor humidity and temperature.</td>
</tr>
<tr>
<td>3-BMS 3930</td>
<td>1-ID</td>
<td>3931</td>
<td>~ 1 1 200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>* Configuration: Identification number on the 485 Bus</td>
</tr>
<tr>
<td></td>
<td>2-Watchdog</td>
<td>3932</td>
<td>~ 0 0 255</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>* BMS: Activation of the control by a computer or an automat. This value is different from zero.</td>
</tr>
<tr>
<td></td>
<td>3-BMS Unoc.</td>
<td>3933</td>
<td>On/Off ~ Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>* [BMS] Cancel the override unoccupied mode</td>
</tr>
<tr>
<td></td>
<td>4-Speed</td>
<td>3934</td>
<td>On/Off ~ Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>* Blower Speed Control in the dead zone: [ON] the unit runs in Low Speed mode [OFF] the unit runs in High Speed mode</td>
</tr>
<tr>
<td>CODE</td>
<td>DESCRIPTION LIGNE1</td>
<td>DESCRIPTION LIGNE2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------------------</td>
<td>-----------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Air Flow Failure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Filters Dirty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Filters Missing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Electrical Heater Faulty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Supply Air Over Temp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Room Temp. Too Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Gas Burner, 1 Faulty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Gas Burner, 2 Faulty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Supply Air Temp. To Below</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Room Temp. Too High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Humidifier Faulty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Room Humidity Too Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Room Humidity Too High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Pump Faulty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>81</td>
<td>Room Temperature Faulty Sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>82</td>
<td>Room Humidity Faulty Sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>83</td>
<td>Outside Temperature Faulty Sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>84</td>
<td>Outside Humidity Faulty Sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>Supply Temperature Faulty Sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>Condenser Temp. Faulty Sensor 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>Condenser Temp. Faulty Sensor 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>88</td>
<td>Return or Mixing T. Faulty Sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91</td>
<td>Blower Fan Faulty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>92</td>
<td>Air Condenser Faulty, System 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>93</td>
<td>Air Condenser Faulty, System 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>Air Condenser Faulty, System 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>Air Condenser Faulty, System 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>Water Condenser Temp. To Below</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>97</td>
<td>Water Condenser Over Temp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98</td>
<td>Water Condenser Faulty, Flow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99</td>
<td>Fire / Smoke Error</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>Air Condenser Temp. Faulty Sensor, 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>115</td>
<td>Compressor 1 High Pres/Elec.Power</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>117</td>
<td>Compressor 1 Low Pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>121</td>
<td>Air Condenser Temp. Faulty Sensor, 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>125</td>
<td>Compressor 2 High Pres/Elec.Power</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>127</td>
<td>Compressor 2 Low Pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>131</td>
<td>Air Condenser Temp. Faulty Sensor, 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>135</td>
<td>Compressor 3 High Pres/Elec.Power</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>137</td>
<td>Compressor 3 Low Pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>141</td>
<td>Air Condenser Temp. Faulty Sensor, 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>145</td>
<td>Compressor 4 High Pres/Elec.Power</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>147</td>
<td>Compressor 4 Low Pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
COMMISSIONING

Here is a list of essential points to be checked when commissioning a unit:

- 3111: switch on and off the unit
- 3113: cancel any "overrides" set with a DC50
- 3120: real-time clock
- 3810: configuration of unit and option
- 3920: unit ID for multiple unit connections
- Adjust all time zones and corresponding parameters as detailed on page 31 of this IOM
- 3220: set the anticipation if required
- 3360: set capacity factor if necessary
- 3620: set defrost type and parameters
- 3370 / 3410: set safety limits

This list maybe changed depending on options and features fitted.
It is possible to connect up to 12 CLIMATIC50 with Climalook2 or 8 rooftops equipped with CLIMATIC2 and 12 with CLIMATIC 50 when Climalook 3 or Climalink is installed.

**CLIMALINK 2**
This product consists of a central unit and a communication interface. This unit is designed to be connected to a maximum of 12 rooftops fitted with CLIMATIC 50 controllers via a RS485 interface. A connection diagram is provided in the box. The central unit must be installed in a dry, secured location. Once the unit is connected and powered up, it is entirely automatic and does not require a screen or keyboard. After a power failure, the central unit must be restarted using the ON/OFF button. To avoid this, Lennox recommends connecting the central unit to a pulsating current power outlet or "UPS." Lennox cannot be held responsible for this recommendation.

**CLIMALOOK 2**
This product is identical to the CLIMALINK 2 but it is equipped with a 15-inch TFT flat screen, a mouse, and a numeric keypad to have a local display of the installation. It can be connected to up to 12 CL50 controllers via a RS485 interface.

**CLIMALOOK 3**
Climalook 3 provides the same features as Climalook 2 as it can be connected to 12 rooftops equipped with CLIMATIC 50 controller but it can also be connected to 8 rooftops fitted with CLIMATIC2 controller and KP01 board (Flexy and Linea already on site).

NOTE: In order to connect a unit fitted with CLIMATIC2 you must ensure that the program version is at least LF20. Otherwise, it must be upgraded to LF20 before connection to Climalook 3. Climalook uses the internet explorer interface for local operation. The local operating mode is completely automatic and does not require any configuration. Like Climalink, Climalook can receive remote queries thanks to its internal modem and an analogue telephone line. Climalook and Climalink do not work with ISDN telephone lines.

**CONNECTION TO CLIMATIC2 and KP01 BOARD**
The connections between the units and the Climalink/Climalook must be done using a double-shielded pair of wire (not supplied by Lennox). This cable must have external metal braiding, and its cross-section must be at least 0.5mm² with a maximum of 1mm².

Each cable will be connected to the COM B port on the KP01 Board, and particular attention must be taken to the order of connections. The cable coming out of the KP14 with a BD9 plug at the end will be connected to the SERIAL Port at the back of the central unit.

NOTE: To function correctly each RTU requires an address to be set using a KP02 (setpoint 91). To register in the climatic, the power to the climatic must be switched off twice after entering the value. Whenever the power is switched on, it is necessary to wait 5 minutes after the welcome page is displayed to allow the software to fully update.
After the starting procedure of the Climalook 3 central unit, the LED next to the B PORT on the CLIMATIC KP01 board will start to flash. The CPU connects to the boards one after the other, and so it is normal for the LED to stop flashing occasionally.

When all the connections are established, press the on/off button. The programs are launched automatically, and the LED located to the right of the Com B on the CLIMATIC KP01 board should flash.

Note the site telephone number in order to make the remote query.

It is possible to connect up to 12 rooftops fitted with CLIMATIC 50 when using a Climalook 3. The connections between the units and the Climalink/Climalook must be done using a double shielded pair of wire (not supplied by Lennox) This cable must have external metal braiding, and its cross-section must be at least 0.5mm² with a maximum of 1mm².

The wires will be connected to each CLIMATIC50 485 ports. You must ensure the connection order is correct:
+ on +,
- on -
and gnd on gnd.

Note the site telephone number in order to make the remote query.
SETTINGS FOR THE CONNECTIONS

Depending on the version of Windows you are running, access the « Make new connection » function.

Enter the telephone number to which your ClimaLook’s modem is connected.

Click on next

Click

Click

Click on next
Enter the site name

Type "Administrateur"

The modem dials the number, and then the two modems hook up.
In the task bar next to the time display you should see the symbol indicating connection with the remote computer.

Type "http://Lennox" in the Address field

On some versions of Windows, a dialogue box may ask you to enter the password again. In this case:
- for User enter Administrateur
- for password enter VISION
- leave the workgroup field empty.

The first time you log in, Windows asks you to confirm your login identifiers:
- for User enter Administrateur
- for password enter VISION
- leave the workgroup field empty.

After this formality, you gain access to:

THE WELCOME PAGE

First of all you must lower the virtual keyboard window, before choosing the language.
NOTE: To operate the program it is necessary to minimise the virtual keyboard.
Then click on the flag corresponding to the language you want to use.

The modem dials the number, and then the two modems hook up.
In the task bar next to the time display you should see the symbol indicating connection with the remote computer.

Click on Finish

Enter your access code and confirm. The access code 999 serves as a temporary code until you have configured your own security code.
If your code is valid you will access the next menu.
Otherwise you remain on the same page.

There are three access levels:
1st level: use of the User, Schedule, Macro and History pages.
2nd level: ditto, plus the Service page.
3rd level: ditto, plus the Access page.

If the local application is not functioning, it is possible you may remain on the same page, even if your access code is valid. In this case, it is necessary to first restart the local central unit before continuing.

You can now start Internet Explorer.
THE MAIN PAGE

The colour outline around the roof-top unit and the operating temperatures indicate the unit’s status:
- **Green**: Operating mode,
- **White**: Stop mode,
- **Orange**: Night mode,
- **Red**: Fault mode,

This page gives you the basic information about how your installation functions. The roof-top unit’s number corresponds to its EPROM number.

Position the mouse on one of the units to obtain information indicating this unit’s status.

If the unit does not exist, is not powered up, or if communication with it is impossible, its icon disappears from the screen. The program attempts to communicate with absent units every ten minutes.

To access a unit’s operating details, just click on it once.

20 seconds automatic refresh on this screen.

THE USER PAGE

This is the page used most frequently. It enables you to display and modify a number of settings on your unit.

Use the refresh function to update the values read.

Some settings are read-only, others can be modified.

**Read-only setting:**
- **Night mode**: Off

**Modifiable setting:**
- **On / Off**

The bottom of the page displays the unit currently being queried, and can also be used to change the unit by clicking. This takes you to the user page for the new machine.

If the unit does not exist, is not powered up, or if communication with it is impossible, its icon disappears from the screen. The program attempts to communicate with absent units every ten minutes.

It is possible modify several settings at the same time.

The settings will only be modified if the «submit» function is confirmed.

If your unit has - or had - a fault, it is outlined in red on the main page. You can use the fault module to trouble-shoot:

If the fault is still present, it is displayed here:

The fault reset function is used to clear the unit’s errors if this is possible. If the error persists, the fault returns.

The clear default function is used to reset the software memory of defaults. It does not erase the unit’s faults.
The empty fields correspond to occasions when the CLIMALOOK / CLIMALINK unit has stopped

The menus
- Welcome page
- Main page
- Macro page
- General History page
- Access codes page

To refresh the values
- Service page or experienced user
- Schedule page which shows all the set points for the different modes.

THE SERVICE PAGE

The Service page is for technical users who know exactly how to adjust air-conditioning units. It is protected by a second level password.

The units are presented in groups, and it is possible to display and modify several settings, as in the User page.

The settings will only be modified if the «submit» function is confirmed.

THE SCHEDULE PAGE

This page is used to display and modify all the configuration settings for each zone of a unit’s operating schedule.

Use the refresh function to update the values read.

In addition it is possible to copy all the displayed settings and then paste them in another unit you have chosen.

The settings will only be modified if the «submit» function is confirmed.
THE MACRO PAGE

This page enables you to modify all the units on your site in one action.
You can choose to perform one or more actions.
Modify the value or values you want to submit.

The standard Macros are:
- Adjust the Comfort thermostat
- Set to Night mode
- Set fresh air to the minimum
- Set the time on the Climatic boards.

Click on “Submit”  Select “ Entire site”

THE HISTORY PAGE

This page is provided in addition to the individual history you’ve already seen in the User page. It tells you when local communication starts and stops, and gives you the users’ access codes.

This is a read-only page. The history is automatically cleared to ensure refreshment doesn’t take too long.
This page will also show units faults.

THE ACCESS PAGE

This page enables users who have a third level access code to attribute access codes to other users.
The access code 999 is your first access code. Remember to delete it once you have created your own access codes.

To create a new user:

Click on name

Select “ Entire site”

Click on “Submit”

Use the virtual keyboard on the task bar

Use the keyboard to enter the name, password (maximum of 4 digits) and the access level.

1 = use of the User, Schedule, Macro and History pages.
2 = same level, plus the Service page.
3 = same level, plus the Access page.
CONFIRM BY CLICKING ON «SUBMIT»

PROBLEM SOLVING

**Impossible to enter your access code, you remain on the welcome page.**

Local communication has been interrupted. You must restart the local unit.
After restarting, you must wait for 5 to 10 minutes until the unit is ready to be queried once more.

**The values read do not seem to move.**

The values are not in fact refreshed automatically, and for all the pages you must use the Refresh function to be sure you are reading the latest values.

The keyboard has disappeared from the task bar.
Click on Start / Programs / StartUp

The local unit is not answering the phone
The local unit is - or was - powered down, and you must press the On/Off button. See recommendations at the beginning of the document.
The unit is not connected to a direct analogue phone line.

How to check the Climalink is functioning correctly after installation:
Connect up the unit and the KP14

Connect the cables to the J18 inputs on the Climatic boards.
After a few minutes, the central unit should start its dialogue. The LED on the Climatic board to the right of the J18 input should flash.

If this does not happen, check the wiring.
The only way to examine the problem in more detail is to obtain a monitor and a mouse and contact the Lennox services.

After installing a ClimaLook or ClimaLink central unit, it is vital to perform the telephone communication tests.

Take a test telephone set and make sure you have a connection.
Note the telephone number to which the central unit is connected.
Connect the central unit and ask a person on the remote site to test communication.

Obviously the central unit must be the only device installed on the phone line. It cannot share the line with a fax or another modem.
**PERFORMANCES**

**BCK** = Cooling only rooftop

- Fully modulating electric heater (TRIAC)
- Staged electric heater
- Hot water coil
- Economiser
- Extraction fan
- Firestat
- Smoke detector
- Air sock control
- TCB
- Main switch
- Air pressostat

**BGK** = Cooling only rooftop with gas fired heating

- Gas burner
- Economiser
- Extraction fan
- Firestat
- Smoke detector
- Air sock control
- TCB
- Main switch
- Air pressostat

**BHK** = Heat pump rooftop

- Heat pump
- Fully modulating electric heater (TRIAC)
- Staged electric heater
- Hot water coil
- Economiser
- Extraction fan
- Firestat
- Smoke detector
- Air sock control
- Dynamic defrost
- TCB
- Main switch
- Air pressostat

**BDK** = Heat pump rooftop with gas fired heater

- Heat pump
- Gas burner
- Economiser
- Extraction fan
- Firestat
- Smoke detector
- Air sock control
- Dynamic defrost
- TCB
- Main switch
- Air pressostat

**WARNING:** ONLY ONE HEATING INPUT CAN BE INSTALLED
## DIAGRAM REFERENCE LEGEND

- **A1** Soft starter  
- **B2** Smoke detection head  
- **B4** Gas manifold ionisation probe  
- **B6** Gas manifold ignition electrode  
- **B13** Dirty air filter pressure switch / air flow rate  
- **B14** Hot water battery antifreeze thermostat  
- **B16** Fire thermostat  
- **B17** Gas manifold smoke minimum gas pressure switch  
- **B19** Blower fan motor -MS1-MS2 stoptherme  
- **B21** Gas manifold extraction air pressure switch  
- **B23-B24** Extraction fan motor -ME1-ME2 stoptherme  
- **B25-B26** Electric battery -E1-E2 safety klixon  
- **B29** Gas manifold air flow rate safety klixon  
- **B32** Gas manifold flashback safety klixon  
- **B41-B42** Compressor -MG1-MG2 high pressure safety switch  
- **B45** Gas manifold 1 / gas manifold 2 regulation klixon  
- **B51-B52** Compressor -MG1-MG2 low pressure safety switch  
- **B61-B62** Compressor -MG1-MG2 high pressure control switch  
- **B71-B72** Condenser -MC1-MC2 fan motor stoptherme  
- **B81-B82** Scroll compressor -MG1-MG2 protection module  
- **BE50** Climatic 50 extension board  
- **BG10** CO2 sensor  
- **BH10** Regulation hygrometry probe  
- **BH11** External hygrometry probe  
- **BT10** Regulation temperature probe  
- **BT11** External temperature probe  
- **BT12** Blower temperature probe  
- **BT17** Return air sensor  
- **BT91-BT92** Defrost temperature sensor compressor 1-2  
- **BM50** Climatic 50  
- **BX 50** Multiplexer Climatic 50  
- **C1-C2-C3-C4** Condensator  
- **E1-E2** Heater -E1-E2  
- **E11** Smoke detector printed circuit  
- **E14** Burner control box  
- **EF47** Gaz burner printed circuit  
- **F1** Secondary circuit -T1 128VA / 24V protection fuse  
- **KA31** Gas burner fault relay  
- **KE1-KE2** Heater -E1-E2 contactor  
- **KM1** Blower fan motor -MS1-MS2 contactor  
- **KM5** Extraction fan motor -ME1-ME2 contactor  
- **KM9-KM10** Condenser 1 / condenser 2 fan motor contactor  
- **KM11-KM12** Compressor -MG1-MG2 contactor  
- **MC1-MC2** Condenser -MC1-MC2 fan motor  
- **ME1-ME2** Extraction fan motor -ME1-ME2 contactor  
- **MG1-MG2** Compressor -MG1-MG2 contactor  
- **MR1** Economiser damper motor  
- **MR3** Fresh air damper motor  
- **MS1** Blower fan motor -MS1-MS2  
- **Q1** Blower fan motor -MS1-MS2 protection  
- **Q5** Extraction fan motor -ME1-ME2 protection  
- **Q9** Condenser -MC1-MC2 fan motor protection  
- **Q11-Q12** Compressor -MG1-MG2 protection  
- **QF1** Primary circuit protection -T1  
- **QF2** Primary circuit protection -T3  
- **QF3** Secondary circuit protection -T3  
- **QG** Main switch  
- **QE1-QE2** Heater -E1-E2 protection  
- **T1** Control circuit transformer 400v / 24v  
- **T3** Burner power supply transformer 400 / 230v  
- **TCB** control thermostat  
- **UF** Cooling unit  
- **UT** Air treatment unit  
- **V1** Electric heater static contactor  
- **YV2** Hot water 3-way valve  
- **YV11-YV12** Compressor -MG1-MG2 cycle reversing valve  
- **YV31** Burner gas solenoid valve  
- **YV41** Gas manifold safety solenoid valve  
- **YV51** Gas manifold main solenoid valve  
- **Z** Capacity resistance circuit
**ELECTRICAL DATA - WIRING DIAGRAMS**

*BCK* = Cooling only unit  
*BHK* = Heat pump unit  
*BGK* = Cooling only unit with gas fired heating  
*BDK* = Heat pump unit with gas fired heating

**MAIN CURRENT DIAGRAM TRI / 400V / 50Hz + N + T**
CLIMATIC 50 OUTPUT BCK / BHK

ELECTRICAL DATA - WIRING DIAGRAMS
ELECTRICAL DATA

WIRING DIAGRAM GAS BURNER 15 / 20 / 30 / 40 / 60 Kw

FULLY MODULATING ELECTRIC HEATER

STAGED ELECTRIC HEATER
ELECTRICAL DATA

STANDARD

Logical Output Board (2 outputs: 1 frozen, 1 customized)
A 1 - Alarm, General
B 2 - Customized (choose 1 output between those 5 possibilities)
  - Alarm, Filters
  - Alarm, Blower
  - Alarm, Compressors
  - Alarm, Heaters
  - Free, for BMS

Logical Input Board (4 inputs: 2 frozen, 2 customized)
A 1 - ON/OFF
A 2 - Reset alarm
B 3 & 4 - Customized (choose, for each input (2) between those 7 possibilities)
  - Disable, Compressors & Heaters
  - Disable, Compressors
  - Disable, Heaters
  - Disable, Cooling
  - Disable, Heating
  - Fault contact, Humidifier
  - Free, for BMS

Logical Input Board (4 outputs: 2 frozen, 2 customized)
B 1 to 4 - Customized (choose, for each input (4) between those 7 possibilities)
  - Disable, Compressors & Heaters
  - Disable, Compressors
  - Disable, Heaters
  - Disable, Cooling
  - Disable, Heating
  - Fault contact, Humidifier
  - Free, for BMS

Logical Output Board (4 outputs: 0 frozen, 4 customized)
B 1 to 4 - Customized (choose, for each input (4) between those 5 possibilities)
  - Alarm, Filters
  - Alarm, Blower
  - Alarm, Compressors
  - Alarm, Heaters
  - Free, for BMS

HUMIDITY CONTROL OR TCB

Logical Output Board (4 outputs: 0 frozen, 4 customized)
B 1 to 4 - Customized (choose, for each input (4) between those 5 possibilities)
  - Alarm, Filters
  - Alarm, Blower
  - Alarm, Compressors
  - Alarm, Heaters
  - Free, for BMS

Logical Input Board (4 outputs: 0 frozen, 4 customized)
B 1 to 4 - Customized (choose, for each input (4) between those 7 possibilities)
  - Disable, Compressors & Heaters
  - Disable, Compressors
  - Disable, Heaters
  - Disable, Cooling
  - Disable, Heating
  - Fault contact, Humidifier
  - Free, for BMS

Analogue Input Board (4 outputs: 0 frozen, 4 customized)
B 1 to 4 - Customized (choose, for each input (4) between those 4 possibilities)
  - Override room temp set point 0-10°C (0-10V)
  - Override fresh air set point 0-100%
  - Free temperature (NTC probe)
  - Free relative humidity (4-20mA)

CONTROL VARIABLES

A: Frozen Input / Output
B: Customized Input / Output
PRINCIPLE SKETCHES

BCD : Condenser coil
BEC : Hot water coil
BEV1 : Evaporator coil
BT12 : Blower temperature sensor
B14 : Hot water coil antifreeze thermostat
B41 : Compressor -MG1 high pressure safety switch
B42 : Compressor -MG2 high pressure safety switch
B51 : Compressor -MG1 low pressure safety switch
B52 : Compressor -MG2 low pressure safety switch
B61 : HP switch control for defrost
B62 : HP switch control for defrost

CA : Check valve
DT : Thermostatic expansion valve
FD : Filter drier
MC1 - MC2 : Condenser - MC1 - MC2 fan motor
MG1 - MG2 : Compressor
MG1 - MG2 : Contactor
MS1 : Blower fan motor MS1
VAM : Manual check valve
VRM : Manual control valve
YV2 : Hot water 3-way valve

BHK-020-025

BCK-020-025
## REFRIGERATION

<table>
<thead>
<tr>
<th>FAULT</th>
<th>POSSIBLE CAUSE AND SYMPTOMS</th>
<th>SOLUTION</th>
</tr>
</thead>
</table>
| Refrigerant charge too low | Measure the superheat and sub-cooling:  
Good if 5°C<SC<10°C and  5°C<SH<10°C  
Bad if SC>10°C and SH too Low  
Check superheat adjustment and charge unit (a leak check must be carried out) | |
| In Heat Pump Mode the temperature difference between T outdoor and Tevap, (Dew) is too high 5°C < Delta T < 10°C excellent  
10°C < Delta T < 15°C acceptable  
15°C < Delta T < 25°C too high | If too high check the coils are clean or check coil internal pressure drop between the liquid line and the suction line  
Good if < 3bar  
Too high if > 3bar (coil blocked) | |
| Refrigeration circuit blocked in distribution | Stop the fan and create icing of the coil.  
Check all circuits freeze evenly across the whole surface of the coil  
If some parts of the coil do not freeze this could indicate a problem with the distribution | |
| Liquid line drier blocked. High temperature difference between inlet and outlet of the drier | Change filter drier | |
| Contaminant in the expansion valve | Attempt to free the valve adjusting element by freezing the valve and then heating the thermostatic element. Replace the valve if necessary | |
| Expansion valve not adjusted properly | Adjust the expansion Valve | |
| Ice plug in the expansion valve. | Heat the main body of the valve. If the LP increases and then decreases gradually, empty the circuit and replace the drier. | |
| Incorrect insulation of the thermostatic bulb of the expansion valve | Superheat too low: adjust superheat  
Move the thermostatic element along the pipe  
Insulate the Thermostatic element of the valve | |
| Low Pressure Switch cut out point too high | Check the cut out pressure of the Low Pressure switch: It must be 0.7+/- 0.2bar and must closes at 2.24 +/- 0.2 bar | |
| LP cut out due to not enough defrost on heat pumps | Adjust the CLIMATIC settings to extend the defrost cycles or shorten the time between defrosts | |
| Incorrect Airflow rates | Heat pump mode :  
Check the filter before the indoor coil  
measure and estimate the airflow rate increase the speed of the fan  
Cooling mode :  
Check the condenser fan (Amps) | |
| Moisture or contaminants in the system | Summer operation  
Several hours after the unit has stopped, check the correspondence between the measured pressure and the outdoor temperature | |
## REFRIGERATION

<table>
<thead>
<tr>
<th>FAULT</th>
<th>POSSIBLE CAUSE AND SYMPTOMS</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP PROBLEMS AND HP CUT OUTS</td>
<td>Moisture or contaminants in the system</td>
<td>If the circuit pressure is higher (&lt;1bar) than the saturated pressure corresponding to the measured outdoor temperature, there is possibility that some contaminants are present in the system. Reclaim the refrigerant, and vacuum the circuit (Ensure very low and slow vacuum for R407c) Recharge the unit</td>
</tr>
<tr>
<td></td>
<td>Condenser coil is obstructed</td>
<td>Check the condenser coil and clean is necessary</td>
</tr>
<tr>
<td></td>
<td>Recycled Hot Air</td>
<td>Check clearance around the condenser</td>
</tr>
<tr>
<td>Strong variations of pressure (2 to 3 bar) Thermostatic Expansion Valve &quot;hunting&quot;</td>
<td>Incorrect adjustment of the expansion valve</td>
<td>Refer to LP problems and LP cut out section</td>
</tr>
<tr>
<td></td>
<td>Low refrigerant charge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Filter drier obstructed with gas bubbles at the expansion valve inlet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moisture in the system</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very high superheat, very hot compressor</td>
<td>Open the superheat adjustment on the expansion valve. Check the pressure drop on the filter drier in the suction line</td>
</tr>
<tr>
<td></td>
<td>Four Way reversing valve possibly blocked, abnormal noise from the valve, low LP and increasing HP</td>
<td>Check operation of the valve by going through cycle inversions. Change if necessary. Refer to LP problems</td>
</tr>
</tbody>
</table>

### INDOOR FAN BLOWER

<table>
<thead>
<tr>
<th>FAULT</th>
<th>POSSIBLE CAUSE AND SYMPTOMS</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>High amps on action Fan motor</td>
<td>Pressure drop in the ducting installation too low.</td>
<td>Reduce the rotation speed of the fan. Measure and estimate the airflow and pressure and compare with the specification from customer.</td>
</tr>
<tr>
<td>High amps on reaction Fan motor</td>
<td>Pressure drop in the ducting installation too high</td>
<td>Reduce the rotation speed of the fan. Measure and estimate the airflow and pressure and compare with the specification from customer.</td>
</tr>
<tr>
<td>Unstable running and high vibration</td>
<td>Fan jumping from one operating point to the other.</td>
<td>Change rotation speed of the fan.</td>
</tr>
</tbody>
</table>
## OUTDOOR AXIAL FAN

<table>
<thead>
<tr>
<th>FAULT</th>
<th>POSSIBLE CAUSE AND SYMPTOMS</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heat Pump mode:</strong> Circuit breaker open</td>
<td>High Amps due to a low voltage from the main supply</td>
<td>Check the voltage drop when all components are running. Change the circuit breaker for one with a higher rating.</td>
</tr>
<tr>
<td></td>
<td>High amps due to freezing of the coil</td>
<td>Check the adjustable amps on the motor starter. Adjust the defrost cycle set points.</td>
</tr>
<tr>
<td></td>
<td>Flexy: Water ingress in the motor connection box</td>
<td>Change the component</td>
</tr>
</tbody>
</table>

## ELECTRIC HEATER

<table>
<thead>
<tr>
<th>FAULT</th>
<th>POSSIBLE CAUSE AND SYMPTOMS</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Temperature trip out on electric heater</strong></td>
<td>Low airflow rate</td>
<td>Measure and estimate the airflow and pressure and compare with the specification from customer.</td>
</tr>
<tr>
<td></td>
<td>Incorrect position of the Klixon</td>
<td>Check that the Klixon is positioned in the airflow, relocate Klixon if necessary. Check that there is no heat transfer from the Klixon support.</td>
</tr>
</tbody>
</table>

## ELECTRIC HEATER

<table>
<thead>
<tr>
<th>FAULT</th>
<th>POSSIBLE CAUSE AND SYMPTOMS</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water found in the ventilation section</strong></td>
<td>Cooling mode: Water carried away from the coil because of excessive airflow and speed on the coil.</td>
<td>Estimate the airflow rate and check the speed is lower than 2.8 m/s</td>
</tr>
<tr>
<td></td>
<td>Low air pressure in the compartment due to a high airflow rate or a high pressure drop before the fan</td>
<td>Check filter Reduce airflow rate</td>
</tr>
<tr>
<td><strong>Water ingress in the filter compartment</strong></td>
<td>Check seals around the ventilation section.</td>
<td>Check the door seal Check for the presence of silicone seals in the corners of the door and at the bottom of the refrigeration section bulkhead.</td>
</tr>
<tr>
<td></td>
<td>Water ingress through a leaking fresh air hood or when running 100% fresh air</td>
<td>Check the seals and flanges in the fresh air hood Reduce the airflow rate if necessary</td>
</tr>
</tbody>
</table>
Rooftops are generally placed on the roof but can also be installed in technical rooms. These units are very robust but a minimum regular maintenance is required. Some moving parts in the units can suffer from wear and tear and must be checked regularly (belts). Other parts can get clogged by dirt carried in the air (filters) and must be cleaned or replaced.

These units are designed to produce cooled or heated air through the use of a refrigeration vapour compression system, it is therefore imperative to monitor the refrigeration circuit operating pressures and check the pipe-work for leaks.

The table below, details a possible maintenance plan, including the operations to be carried out and the periodicity at which they must be accomplished. It is recommended to follow such a plan to keep a rooftop unit in good working order. Regular maintenance of your rooftop will extend its operating life and reduce operating faults.

<table>
<thead>
<tr>
<th>Symbols and Legend:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>∆</td>
</tr>
</tbody>
</table>

**NOTE:**

- Times are given for information purpose only and may vary depending on the unit size and type of installation.
- Coil cleaning must be carried out by qualified personnel using appropriate methods that won't damage the fins or the tubes.
- It is recommended to keep a minimum stock of common replacement parts in order to be able to carry out regular maintenance operations (i.e. filters). You can contact your local Lennox representative which can assist you in establishing a parts list for each type of equipment.
- The access ports to the refrigeration circuits **MUST** be leak checked every time gauges are connected to the service ports.
<table>
<thead>
<tr>
<th>TASK</th>
<th>OPERATING MODE</th>
<th>MONTHLY</th>
<th>QUARTERLY</th>
<th>6 MONTHLY</th>
<th>YEARLY B4 WINTER</th>
<th>ESTIMATED TIME (mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean or replace filters: Disposable, or metal frame.</td>
<td>Replace filters with new ones if disposable. Vacuum clean or blow the dirt. Wash and dry carefully. Replace media if necessary. Blocked filter will reduced the performance of the unit. THE UNIT MUST NOT OPERATE WITHOUT FILTERS.</td>
<td>0</td>
<td></td>
<td></td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Visual check of the oil level</td>
<td>Visually check the oil level through the sight glass on the side of the compressor casing</td>
<td>0</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Position check of the compressor crankcase heater.</td>
<td>Check the heating resistance is fitted properly and tight around the compressor body.</td>
<td>0</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Belt tension check.</td>
<td>Check belt tension (Info in IOM) Replace belt if necessary.</td>
<td>0</td>
<td></td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Centrifugal fan bearings check</td>
<td>Isolate unit from the main power supply; Push the fan wheel manually and check for abnormal noises. Bearings are lubricated for life but may need replacement after 10000 hours</td>
<td>0</td>
<td></td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Check absorbed Amps</td>
<td>Check absorbed Amps on all three phases; compare with the nominal value given in the electrical wiring diagram.</td>
<td></td>
<td>Δ</td>
<td></td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Check Smoke detector</td>
<td>Start the unit. Trigger the smoke detector by moving a magnet around the detector head. Reset unit and control.</td>
<td></td>
<td>Δ</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Check Climatic control, set-points and variables</td>
<td>Refer to the commissioning sheet; Check all set points are set according to this document.</td>
<td></td>
<td>Δ</td>
<td></td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Check clock settings</td>
<td>Check the time and date of the control</td>
<td>0</td>
<td></td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Check the position and tightness of refrigeration components</td>
<td>Check systematically all connections and fixings on the refrigeration circuit. Check for oil traces, eventually a leak test should be conducted. Check operating pressures correspond to the ones indicated on the commissioning sheet</td>
<td></td>
<td>Δ</td>
<td></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Check Airflow rate safety switch (if fitted).</td>
<td>Shut down supply fan. The fault must be detected within 5 seconds.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check freeze protection on HWC</td>
<td></td>
<td></td>
<td>Δ</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Check three way valve on HWC</td>
<td>Increase room set-point 10°C above the actual room temperature. Check operation of the piston. It must move away from the valve head. Reset the control.</td>
<td></td>
<td>Δ</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Check economiser actuator operation</td>
<td>Check all fixings and transmission. Stop the unit using the control. The fresh air damper must closes. Start the unit the fresh air damper should open</td>
<td></td>
<td>Δ</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Check refrigeration 4way valve</td>
<td>With the unit running in cooling mode increase the room set-point temperature by 10°C. The unit should switch to heat pump mode. Reset the control.</td>
<td></td>
<td>Δ</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Check tightness of all electrical connec-</td>
<td>Power down the unit and check and tighten all screws, terminal and electric connections, taking a particular attention to the power lines and low voltage control wires</td>
<td></td>
<td>Δ</td>
<td></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>TASK</td>
<td>OPERATING MODE</td>
<td>MONTHLY</td>
<td>QUARTERLY</td>
<td>6 MONTHLY</td>
<td>YEARLY B4 WINTER</td>
<td>ESTIMATED TIME (mm)</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------</td>
<td>-----------</td>
<td>-----------</td>
<td>------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Check HP / LP safety switches</td>
<td>Install manifold gauges on the circuit to be checked. Shut down the axial fans and wait for the HP switch to shut down the compressor: 29bar (+1 / -0) auto-reset 22bar (+ - 0.7) Reconnect fans. Switch off the centrifugal supply fan and wait for the LP switch to cut out: 0.5bar (+ - 0.5) reset 1.5bar (+0.5).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Check outdoor fans and fan guards</td>
<td>Check the fan blades conditions and all fan guards and protections</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check position of all sensors</td>
<td>Check the good positioning and operation of all sensors</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check and clean if necessary all fresh air grilles</td>
<td>Check the fresh air grilles (if fitted). If dirty or damaged, remove them from unit and clean with high pressure water cleaner. Refit on unit once clean and dry.</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check indoor and outdoor coils, clean if necessary</td>
<td>Visually check the coils for dirt. If not too dirty, cleaning with a light brush may be enough (WARNING: Fins and copper tubes are very fragile! Any damage WILL reduce the performances of the unit). If very dirty, deep industrial cleaning is required using de-greasing agents. (External contractors must be called).</td>
<td>0</td>
<td>1h if cleaning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check electric heater element for excessive corrosion</td>
<td>Isolate the unit; Pull the electric heater out of the heater module box and check the resistances to traces of corrosion; Replace resistance as required;</td>
<td>0</td>
<td>1h if replacement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check anti-vibration mountings, for wear and tear.</td>
<td>Visually check anti-vibration mountings on compressors and centrifugal fan. Replace if damaged.</td>
<td>0</td>
<td>1h if replacement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check refrigeration circuit for traces of acid in the oil</td>
<td>Take a sample of oil from the refrigeration circuit.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Δ</td>
</tr>
<tr>
<td>Check Glycol concentration in the HWC circuit</td>
<td>Check the glycol concentration in the pressurised water circuit. (a concentration of 30% gives a protection down to approx. -15°C) check the circuit pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Δ 30</td>
</tr>
<tr>
<td>Check defrost cycle with 4-way valve inversion.</td>
<td>Switch the unit to heat pump mode. Change the set point to obtain the standard defrost mode and reduce the cycle time to the min value. Check the operation of the defrost cycle.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Δ 30</td>
</tr>
<tr>
<td>Gas burner module check for corrosion</td>
<td>Pull out the burner to access the tubes (refer to Gas burner section in the IOM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Δ 30</td>
</tr>
<tr>
<td>Sweeping and cleaning the gas burner</td>
<td>Clean the in-shot burners and the blower wheel lightly with a brush. Sweep the flue and flue box. Wipe-off the dust from the housing of the motor. Clean combustion air inlet louvers Pull-out baffles from the tubes, sweep the tubes CHECK FLUE BOX GASKET</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Δ 30</td>
</tr>
<tr>
<td>Gas supply pressures / connections checks</td>
<td>refer to Gas burner section in the IOM for details</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Δ 15</td>
</tr>
<tr>
<td>Gas regulation valve settings</td>
<td>refer to Gas burner section in the IOM for details</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Δ 30</td>
</tr>
<tr>
<td>Check gas burner safety switches</td>
<td>refer to Gas burner section in the IOM for details</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Δ 30</td>
</tr>
</tbody>
</table>
CERTIFICATION

N° QUAL/2001/15834b

LENNOX FRANCE
DIVISION DE LGL FRANCE

CONCEPTION, FABRICATION ET CESSION INTERNE DE ROOF TOP ET CENTRALES DE TRAITEMENT D’AIR.

DESIGN, MANUFACTURING AND INTERNAL TRANSFER OF ROOF TOP AND AIR HANDLING UNITS.

2, rue Lavoisier  ZI de Longvic  BP 60  F-21602 LONGVIC CEDEX

AFAQ certifie que pour les activités et les sites référencés ci-dessus toutes les dispositions mises en œuvre pour répondre aux exigences requises par la norme internationale :

AFAQ certifies that all the arrangements covering the above mentioned activities and locations are established to meet the requirements of the international standard :

ISO 9001 : 2000

ont été examinées et jugées conformes. have been examined and found conform.

2003-01-24

Le Président du Comité de Certification
The President of the Certification Committee

Le Directeur Général d’AFAQ
The Managing Director of AFAQ

Le Représentant de l’Entreprise
On Behalf of the Firm

C. GUERIN
O. PEYRAT
E. MOUTON


*Testing verification de AFAQ to the above-mentioned standard of its operations. This document is for information purposes only. For accurate information, the only official source is the AFAQ certificat database at http://www.afaq.org

AFAQ - 136, AVENUE ARTISTE BRIAND - BP 60 / F-92264 MALRAUX CEDEX FRANCE

Page 100 - IOM / ROOFTOP BALTIC Series - 0803 - E
DECLARATION DE CONFORMITE DU CONSTRUCTEUR
Annexe
à la Directive européenne « Equipement sous pression » 97/23/CE,

CE CONFORMITY DECLARATION
As defined by
« Pressure equipment » Directive 97/23/EC,

LGL France SA, ZI Les Meurières – 69780 Mions – France

La société sousignée certifie sous sa seule responsabilité que l’ensemble de nos fabrications de
roof top dénommés par les types suivants :
The company hereby declares, under its own responsibility, that the entire roof top range which
designations are :

FCA FHA FGA FDA FCK FHK FGK FDK
FXA FXK
BCK BHK BGK BDK

Qui contiennent des fluides frigorigènes classés en groupe 2 (R22 et R407C),
Which are containing refrigerating fluids classified in group 2 (R22 et R407C),

Sont conformes aux dispositions de la Directive « Equipements sous pression » 97/23/CE
Is in compliance with the requirements of « Under pressure equipments » directive, 97/23/EC :

Catégorie Category : II
Module d’évaluation Evaluation Module : D1
Organisme notifié Notified body : Bureau VERITAS
17 bis, place des reflets – La DEFENSE 2 – 92400 Courbevoie.

Sont conformes aux dispositions de la Directive - Are in compliance with the requirements of
« Machines », 98/37/CE - « Machinery », 98/37/EC

Ces produits sont fournis avec un marquage de conformité.
The products are provided with a marking of conformity.

Date : 22 Mai 2003 / May 22\textsuperscript{th} 2003

E. MOUTON
Directeur du site de Longvic
CERTIFICAT DE DROIT D'USAGE DE LA MARQUE NF (LICENCE)

La Société : EINSECUR
Le 27/05/2003
INSECUR
15, rue du Général Négrier
78800 HOUILLES

Date de fin de validité :
31/03/2004

MODIFICATIONS

N° DROIT D'USAGE
DAD 013 J0

Correspondant C.N.M.I.S. SAS
José CAMPO
Tél : 61 52 89 00 48
Fax : 61 45 63 40 63

N° Dossier C.N.M.I.S. SAS
03 03 18

Conformité aux normes :
NF S 61-961 de Septembre 2000

Est autorisé à apposer la marque NF sur le matériel désigné ci-après :

Désignation technique du matériel :
Détecteur Autonome Déclencheur

Désignation commerciale :
LOTUS 1 W2C

Caractéristiques certifiées :
Type II
2 TYPE E4
(Les autres caractéristiques sont reportés dans les rapports d'essai)

Élément sensible :
Voir liste des matériels associés

Ce matériel fonctionne avec :
DÉ 03 01 76 du 14 Mai 2003 (Fiche Technique N° 1441)

Références et date des rapports d'essais :
Voir rapports/références ci-dessus

Fonctions supplémentaires :

N.B : Cette décision dispense le titulaire de la présentation des Procès Verbaux d'essai (Incluant les rapports d'essais) de conformité aux normes du matériau ci-dessus.

PARIS, le 11 juin 2013
Par mandat d'AFNOR CERTIFICATION
La C.N.M.I.S. SAS

Le Directeur Général
Denis CLUZEL

Ce certificat annuel et remplacé sont certificat matérielle, sa date de validité est confirmée sous réserve des contrôles effectués par AFNOR CERTIFICATION et de la C.N.M.I.S. SAS qui peuvent prendre toute sanction conformément aux Règles Générales de la marque NF et au Règlement 2075. Ce certificat est valable que les produits désignés sont certifiés conformément au référentiel technique du Règlement 2075 et que le système qualité de l'entreprise a été évalué selon ce même Règlement. Il s'engage à se conformer à la C.N.M.I.S. SAS quant à la conformité réglementaire de l'installation d'auto-les produits directs de ce certificat seront utilisés.
PROCÈS-VERBAL DE CLASSEMENT
DE RÉACTION AU FEU D'UN MATÉRIAU

Prévu à l’Article 88 de l’Arrêté du Ministère de l’Intérieur du 30 juin 1983,
modifié par l’arrêté du 28 août 1991
Laboratoire pilote agréé du Ministère de l’Intérieur (arrêté du 05/03/59, modifié)

N° 96.43170

Valable 5 ans à compter du 15/09/1997

Matériau présenté par : la Société ISOVER SAINT GOBAIN
Les Miroirs
18 avenue d’Alsace
92096 COURBEVOIE

Marque commerciale : CLIMAVEH 274 Panneau NU ou PRIMITIF 2 V M0

Description sommaire :
Feutre rigide en laine de verre (fibres de verre liées
par une résine synthétique thermosoufflable)
révélé sur la face apparente d'un voile de verre noir,
et sur l'autre face d'un voile de verre jaune pâle,
rendoré par des fils de verre.
Epaissir total : 25 mm

Nature de l’essai : Essai par rayonnement
Mesure du Pouvoir Calorifique Supérieur

Classement : MO

Durabilité du classement (Annexe 22) : Non limitée a priori

Le classement indiqué ne préjuge pas de la conformité des matériaux commercialisés aux échantillons soumis aux
essais et ne saurait en aucun cas être considéré comme un certificat de qualification tel que défini par la loi. Cette
conformité peut être attestée par les certificats de qualification reconnus par le ministère chargé de l’industrie, et
clairement par la marque NF - Réaction au Feu.

Champs/Marne le : 15 septembre 1997

Le technicien responsable de l’essai

Dina FAUCHE

Le chef du laboratoire Réaction au Feu

Guy TOUCHAIS

Sont seules autorisées les reproductions intégrales du présent procès-verbal de classement ou de l’ensemble procès-verbal de
classement et rapport d’essais annexé.

PARIS - MARNE-LA-VALLÉE - GRENOBLE - NANTES - SOPHIA ANTIPOLIS
CENTRE SCIENTIFIQUE ET TECHNIQUE DU BÂTIMENT
84, avenue Jean-Jaurès - Champs-sur-Marne - BP 2 - F-77221 Vernois-le-Vicomte Cedex 2
Tel : 33 01 04 08 92 27 ou 04 08 94 12 - Fax : 33 01 04 08 57 75
PROCÈS-VERBAL DE CLASSEMENT
DE RÉACTION AU FEU D'UN MATÉRIAU

Prévue à l'article 88 de l'Arrêté du Ministre de l'Intérieur du 30 juin 1983,
modifié par l'arrêté du 28 août 1991
Laboratoire pilote agréé du Ministère de l'Intérieur (arrêté du 05/02/99, modifié)

N° RA01-1042

Valable 5 ans à compter du 9 novembre 2001

Matériau présenté par : La Société I BELTEX NY
Marnichopluwerweg 51
8780 MULLEHEIKE
BELGIQUE

Marque commerciale : 1200

Description sommaire :
Médiocre isolant composé de 100% fibres polyester, ignifugées en partie.
Largeur : 1000
Méthode d'essai : 10 - 140 - 200 et 300 g/m².
Épaisseurs minimales : 10 - 4 - 20 et 25 mm. Couleurs : Blanc.

Nature de l'essai :
Essai au Flammé Électrique
Essais Complémentaires

Classement :
M1 - Fabriqué pour une gamme d'épaisseurs de 10 à 25 mm.

Durabilité du classement (Annexe 22) : Non limitée a priori (flamme non répétitive), compte tenu des critères résultant des essais dursants dans le rapport, d'essai N° RA01-1042 annexe.

Le classement indiqué ne préjuge pas de la conformité des matériaux commercialisés aux échantillons soumis aux essais et ne constitue en aucun cas un document équivalent à un certificat de qualification tel que défini par la loi. Cette conformité peut être vérifiée par les certificats de qualification renouvelés par le ministère chargé de l'industrie, et notamment par le marquage NF. Réalisé au feu.

Champs/Marne le : 9 novembre 2001

Le technicien responsable de l'essai : Le chef du laboratoire Réaction au Feu

Nicolas ROURE
Martial BONHOMME

Sont seules autorisées les reproductions intégrales du présent procès-verbal de classement ou de l'ensemble procès-verbal de classement et rapport d'essai annexés.

PARIS - MARNISSI - AVENUE GÉRARD F. NANTES - QUATRE ANTIPOLIS
CENTRE SCIENTIFIQUE ET TECHNIQUE DU BÂTIMENT
94, AVENUE MOUSSON - CHAMPAGNE-LES-RECHERS - 77700 NOISY-DEVIL (77700)
PROCÈS-VERBAL DE CLASSEMENT
DE RÉACTION AU FEU D'UN MATÉRIAU

Prévu à l'article 88 de l'Arrêté du Ministère de l'Intérieur du 30 juin 1983,
modifié par l'arrêté du 28 août 1991
Laboratoire pilote agréé du Ministère de l'Intérieur (arrêté du 05/02/59, modifié)

N° RA00-461

Valable 5 ans à compter du 17 octobre 2000

Matériau présenté par : La Société SAINT GOBAIN ISOVER FRANCE
Les Miroirs
18 avenue d' Alsace
92400 COURBEVOIE

Marque commerciale : CLIMAVER 202 - FIB-AIR ISOL

Description sommaire :
Feutre en laine de verre (fibres de verre liées par une résine thermorétractable) revêtu
sur une face d'une feuille d'aluminium renforcée d'une grille de verre. Le complexe
aluminium est contrecollé à l'aide d'une colle polyéthylène.
Épaisseur : 25 à 50 mm. Masse volumique nominale de la laine de verre : 30 kg/m³

Nature de l'essai : Essai par rayonnement avec joint simulé suivant
avis CECMI en date du 08 avril 1993.
Mesure du Pouvoir Calorifique Supérieur

Classement :

M0

Durabilité du classement (Annexe 22) : Non limitée

Le classement indiqué ne prélude pas de la conformité des matériaux commercialisés aux échantillons soumis aux
essais et ne saurait en aucun cas être considéré comme un certificat de qualification tel que défini par la loi. Cette
conformité peut être attestée par les certificats de qualification reconnus par le ministère chargé de l'industrie, et
notamment par la marque NF - Réaction au Feu.

Champs/Marne le : 17 octobre 2000

Le technicien vérificateur

Bruce LE MADEC

Le Chef du laboratoire Réaction feu
responsable de l'essai

Martial BONHOMME

Sont seules autorisées les reproductions intégrales du présent procès-verbal de classement ou de l'ensemble procès-verbal de
classement et rapport d'essais annexé.
AFNOR CERTIFICATION, après examen et vérifications, certifie que l’appareil :
AFNOR CERTIFICATION, after examination and verifications, certifies that the appliance:

- **Fabriqué par :** LENNOX FRANCE
  
  Manufactured by
  
  Z.I. LONGVIC
  
  BP 60
  
  F-21602 LONGVIC CEDEX

- **Marque commerciale et modèle(s) :**
  
  Trade mark and model(s) :
  
  LENNOX
  
  BG-B20 – BG-B33 – BG-C20
  
  BG-C46 – BG-D33 – BG-D60

- **Genre de l’appareil :**
  
  Kind of the appliance :
  
  MODULE DE CHAUFFAGE POUR
  
  CLIMATISEURS DE TOITURE (B22)
  
  GAS AIR HEATER UNIT FOR ROOF TOP (B22)

- **Désignation du type :**
  
  Type designation:
  
  BG-B20

<table>
<thead>
<tr>
<th>Pays de destination</th>
<th>Pressions (mbar)</th>
<th>Catégories</th>
</tr>
</thead>
<tbody>
<tr>
<td>DK-SE-IT</td>
<td>20</td>
<td>I2H</td>
</tr>
<tr>
<td></td>
<td>37</td>
<td>I3P</td>
</tr>
<tr>
<td>SE</td>
<td>20 ; 50</td>
<td>I2E ; I3P</td>
</tr>
<tr>
<td>DE</td>
<td>20/25 ; 37</td>
<td>I2EB ; I3P</td>
</tr>
<tr>
<td>GB-ES-PT-CH</td>
<td>20 ; 28-30/37</td>
<td>I2H3P</td>
</tr>
<tr>
<td>NL</td>
<td>25 ; 37/50</td>
<td>I2L3P</td>
</tr>
<tr>
<td>FR</td>
<td>20/25 ; 37</td>
<td>I2Er3P</td>
</tr>
</tbody>
</table>

est conforme aux exigences essentielles de la directive "Appareils à gaz" 90/396/CEE (29/06/1990).

is in conformity with the essential requirements of the "Gas appliances" directive 90/396/EEC (29/06/1990).

CERTIGAZ

Le Directeur Général

Yannick ONFROY

Paris le : 1er juillet 2003
EC DECLARATION OF CONFORMITY

ATTESTATION D'APPROBATION DE SYSTEME DE QUALITE
CERTIFICATE OF QUALITY SYSTEM APPROVAL

N° CE-PED-D1-LNX001-02-FRA-Rev.A

BUREAU VERITAS S.A., agissant dans le cadre de sa notification (numéro d'organisme notifié 0062), atteste que le système de qualité appliqué par le fabricant pour la production, l'inspection finale et les essais des équipements sous pression identifiés ci-après, a été examiné selon les prescriptions du module D1 de l'annexe III de la directive "Equipements sous pression" n° 97/23/CE et est conforme aux dispositions correspondantes de la directive.

BUREAU VERITAS S.A., acting within the scope of its notification (notified body number 0062), attests that the quality system operated by the manufacturer for production, final inspection and testing of the pressure equipment identified hereunder has been examined against the provisions of annex III, module D1, of the Pressure Equipment directive n° 97/23/EC, and found to satisfy the provisions of the directive which apply to it.

Fabricant (nom) / Manufacturer (name): LENNOX France (Division de LGL France)

Adresse / Address:
Site de LONGVIC
2, rue LAVOISIER BP60
21602 LONGVIC CEDEX

Marque commerciale / Trade mark: LENNOX

Description des équipements: Climatiseurs autonomes de toitures « ROOFTOP »

Identification des équipements concernés (liste en annexe le cas échéant):
Identification of equipment concerned (list attached where necessary):

Cette attestation est valable jusqu’au ....
This certificate is valid until....

14 JUIN 2005

Le maintien de l'approbation est soumis à la réalisation par le Bureau Veritas des audits, essais et vérifications selon le contrat signé par le fabricant et le Bureau Veritas.
The approval is conditional upon the surveillance audits, tests and verifications to be carried out by Bureau Veritas as per the provisions stated in the agreement signed by both the manufacturer and Bureau Veritas.

Cette attestation est présumée nulle et le fabricant supportera seul les conséquences de son utilisation, si les assurances - données par le fabricant lors de la demande d'intervention - en matière (a) d'application de son système qualité approuvé, (b) de conformité de son équipement au type et (c) d'inspection et d'essais des produits finis se révèlent inexacts et, de manière générale, si le fabricant ne respecte pas l'une ou l'autre des obligations mises à sa charge par la directive n° 97/23/CE du 29 mai 1997 telle que transposée dans le(s) droit(s) national(aux) applicable(s).
This certificate shall be deemed to be void and the manufacturer shall alone bear any consequences pursuant to its use, where the manufacturer fails to comply with its undertakings as per the agreement in respect of (a) implementation of the approved quality system, (b) conformity of the equipment with the type and (c) inspection and tests on the final product, and generally where the manufacturer fails in particular to comply with any of his obligations under directive nr 97/23/EC of 29 May 1997 as transposed in the applicable law(s).

Etabli à / Made at: LYON
Le / On: 26 JUIN 2003
Signé par / Signed by: A.RELIGIEUX

Code d'enregistrement / Registration code: 2003/2905/P

La présente attestation est soumise aux Conditions Générales de Service de Bureau Veritas jointes à la demande d'intervention signée par le demandeur.
This certificate is subject to the terms of Bureau Veritas General Conditions of Service attached to the agreement signed by the applicant.
ANNEXE à l'attestation d'approbation de système de qualité
Annex to the certificate of quality system approval

N° CE-PED-D1-LNX001-02-FRA-Rev A

Liste des équipements concernés
List of the concerned equipment

Désignation des familles de produit standard

<table>
<thead>
<tr>
<th>Gammes</th>
<th>Modèles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexy (fluide R22) : FCA, FHA, FGA, FDA</td>
<td>050-060-070-085-100-120-140-160-190</td>
</tr>
<tr>
<td>Flexy (fluide R407C) : FCK, FHK, FGK, FDK</td>
<td>060W-070W-085W-100W-120W-140W-160W-190W</td>
</tr>
<tr>
<td>Flexy à condensation à eau : FCK, FHK, FGK, FDK</td>
<td>025-030-035-040-055-070-085-100-110-140-170</td>
</tr>
<tr>
<td>Flexy « 4 volets » : FXA, FXK</td>
<td>020-025-030-035-040-045-050</td>
</tr>
<tr>
<td>Baltic R407C : BCK, BHK, BGK, BDK</td>
<td></td>
</tr>
</tbody>
</table>

Désignation des familles de produit spéciaux

<table>
<thead>
<tr>
<th>Gammes</th>
<th>Modèles</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCA, FHA, FCK, FHK</td>
<td>200-250-300</td>
</tr>
<tr>
<td>FXK</td>
<td>200</td>
</tr>
</tbody>
</table>

© BUREAU VERITAS S.A., 2001
http://www.bureauveritas.com/ped
GERMANY: LENNOX DEUTSCHLAND GmbH
Tel: + 49 69 42 09 79 0
Fax: + 49 69 42 09 79 40
E-mail: info.de@lennoxdeutschland.com

BELGIUM,
LUXEMBOURG: LENNOX BENELUX N.V./S.A.
Tel: + 32 3 633 30 45
Fax: + 32 3 633 00 89
E-mail: info.be@lennoxbenelux.com

SPAIN: LENNOX REFAC S.A.
Tel: + 34 915 40 18 10
Fax: + 34 915 42 84 04
E-mail: marketing@lennox-refac.com

FRANCE: LENNOX FRANCE
Tel: + 33 1 64 76 73 23
Fax: + 33 1 64 76 35 75
E-mail: marketing.france@lennoxfrance.com

UNITED KINGDOM,
IRELAND: LENNOX INDUSTRIES Ltd
Tel: + 44 1604 599400
Fax: + 44 1604 594200
E-mail: ukmarketing@lennoxind.com

NETHERLANDS: LENNOX BENELUX B.V.
Tel: + 31 33 2471 800
Fax: + 31 33 2459 220
E-mail: info@lennoxbenelux.com

POLAND: LENNOX POLSKA Sp. z o. o.
Tel: + 48 22 832 26 61
Fax: + 48 22 832 26 62
E-mail: info@lennoxpolska.pl

PORTUGAL: LENNOX PORTUGAL Ltda.
Tel: + 351 22 998 33 70
Fax: + 351 22 998 33 79
E-mail: info@lennoxportugal.com

CZECH REPUBLIC: LENNOX JANKA a.s.
Tel: + 420 2 510 88 111
Fax: + 420 2 579 10 393
E-mail: janka@janka.cz

RUSSIA: LENNOX DISTRIBUTION MOSCOW
Tel: + 7 095 246 07 46
Fax: + 7 502 933 29 55
E-mail: lennox.dist.moscow@mtu-net.ru

SLOVAKIA: LENNOX SLOVENSKO s.r.o.
Tel: + 421 7 44 87 19 27
Fax: + 421 7 44 88 64 72
E-mail: lennox.slovensko@lennox.sk

UKRAINE: LENNOX DISTRIBUTION KIEV
Tel: + 380 44 219 23 23
Fax: + 380 44 213 14 21
E-mail: jankauk@uct.kiev.ua

OTHER EUROPEAN COUNTRIES,
AFRICA,
MIDDLE-EAST: LENNOX DISTRIBUTION
Tel: + 33 4 72 23 20 14
Fax: + 33 4 72 23 20 28
E-mail: marketing@lennoxdist.com

Due to Lennox's ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability.
Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury.
Installation and service must be performed by a qualified installer and servicing agency.