



# ***OPERATING INSTRUCTIONS***

***CUSTOMER: DUPONT DE NEMOURS***

***MODEL: CL 0-300***

***Serial number: 201 003 0***

***VOLTAGE: 400 V / 50Hz / 3Ph + N + G***

***ORIGINALLY PRINTED  
ON: 12/04/2011***

This document is the English translation of the referenced BIA Climatic Chamber originally provided to DuPont in 2011. Please excuse any grammatical errors as a result of translation. If any discrepancies are found, the original French document takes precedence.

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## ***WARRANTY***

Thank you for purchasing a BIA climatic chamber.

We have built it according to the accepted standards of excellence, and it has been carefully tested before being shipped to you. In order to use it to its fullest extent, we invite you to follow the instructions provided in this document.

If, despite all our efforts, a problem should arise during normal usage, the appliance has a 12 months warranty from date of original acceptance, covering spare parts (return by yourself)

# ***DECLARATION OF CONFORMITY***



The manufacturer:

**BIA**  
**Z.A Les Boutries**  
**8, rue de l'Hautil**  
**78700 CONFLANS STE HONORINE - FRANCE**

Declares that the following equipment:

***Model: CL 0-300***

***Serial number: 201 0030***

Is in compliance with the directives

89/392/EEC amended by 93/68 EEC  
89/336/CEE  
73/23/CEE

and with the applicable relevant standards.

Made out in Conflans Ste Honorine, on 12/04/2011

F. NAMOUN  
Director



# 1. Installation

## 1.1. *Incoming check*

If need be, a quick check of the climatic chamber should allow you to make the feedback to the carrier in case of shipping related damage.

For loading and unloading purposes, we recommend that you use a fork-lift truck.

For large climatic chambers provided with frames featuring angles, the tip of the forks should be placed under an angle.

**IT IS ABSOLUTELY FORBIDDEN TO USE LIFTING BLOCKS OR HOISTING SLINGS**, which would otherwise damage the controls of the climatic chamber.

## 1.2. *Location*

Provide for necessary space around the climatic chamber in order to carry out the required maintenance operations.

## 1.3. *Electric connections*

Make sure that the main connection voltage is the same as the voltage mentioned on our manufacturer's identification plate.

The guarantee applies when the mains voltage fluctuations do not exceed  $\pm 5\%$  of the rated voltage.

The incoming lines shall be able to provide the required power for the climatic chamber without any drop in voltage.

The power cable is two meters long. We do not provide the plug-in outlet due to the wide variety of models used.

**The yellow / green wire is the earth cable.**

**Wire marked 1 is Neutral**

## **1.4. Water connection**

### **1.4.1. Condensation water**

Condensates either from inside the tank or from defrosting the refrigerating tubes, or from emptying the humidifier and its standby tank, are channeled to a discharge pipe located behind the climatic chamber. This pipe has no mark on it. It shall be connected to a discharging hole.

### **1.4.2. Humidification pipe water**

Deposit of scale in the piping system is the main cause of malfunction of this related sub-system. We therefore recommend that you use distilled water or, failing that, de-mineralized water, but not de-ionized water.

The standby tank is filled either automatically by the pressurized piping system (<3 bars), or manually.

The supply pipe in the automatic mode is identified by the label « EAU DEMI ».

For the automatic filling operation, the standby tank is located in the lower part of the control cabinet.

Draining the humidification piping system is carried out using « quick taps » located on the discharge pipes inside the control cabinet.

No energy is required for draining the whole system.

The piping system must be drained in case of frost, or when the system is moved, or if the climatic chamber is not used for an extended period of time.

### **1.4.3. Cooling water**

The connections input/output are done on the back of the unit, using coupling unions 15/21. Adhere to the reference mark registered on piping.

Water, free from particles higher than 500 µm, must be provided under a pressure higher than 2 bars. The temperature should not exceed 25°C. The power rejected is 5,3Kw

The unit is equipped with a pressure-controller valve which controls the water flow according to the real needs for the unit.

### **1.4.4. Measuring the humidity**

Capacitive probe VAISALA, model HMT337

## 2. Procedure

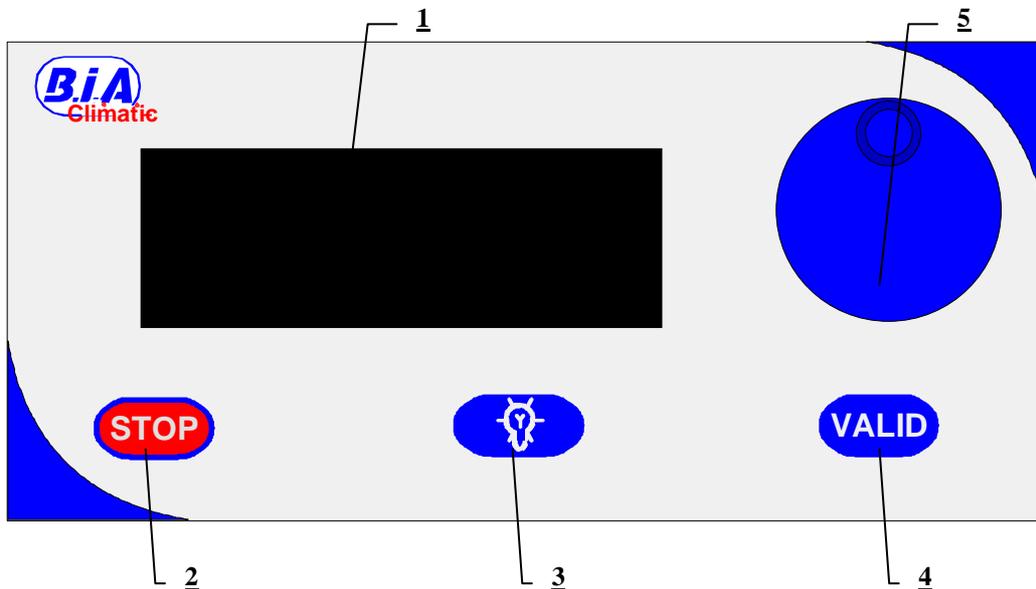
- Connect the climatic chamber to a 400 V / 50Hz / 3Ph+N+G, 12A mains power supply.
- Fill the standby tank through its filler hole located on the left side of the climatic chamber or connect the distilled water pipe to a pressurized supply.
- Switch the I/O control to I position.
- Display the set points for temperature and humidity. For that purpose, refer to paragraph « Controller  ».

**Warning: burning hazards.**

**It is strongly recommended to use gloves when handling test specimens inside the climatic chamber.**

## 3. The controller

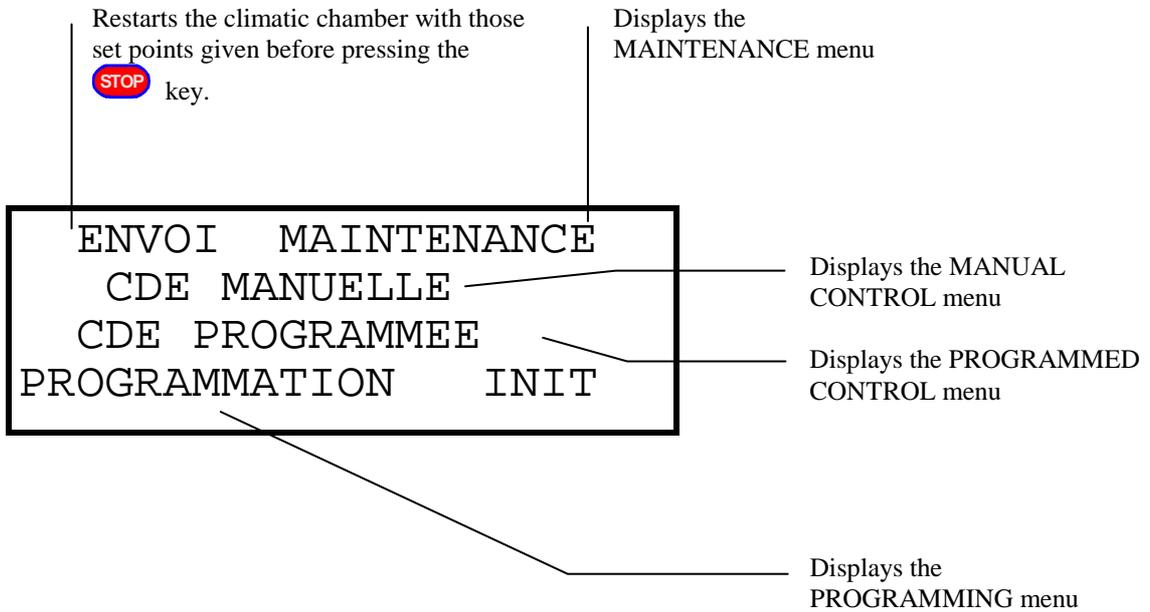
### 3.1. Control Panel



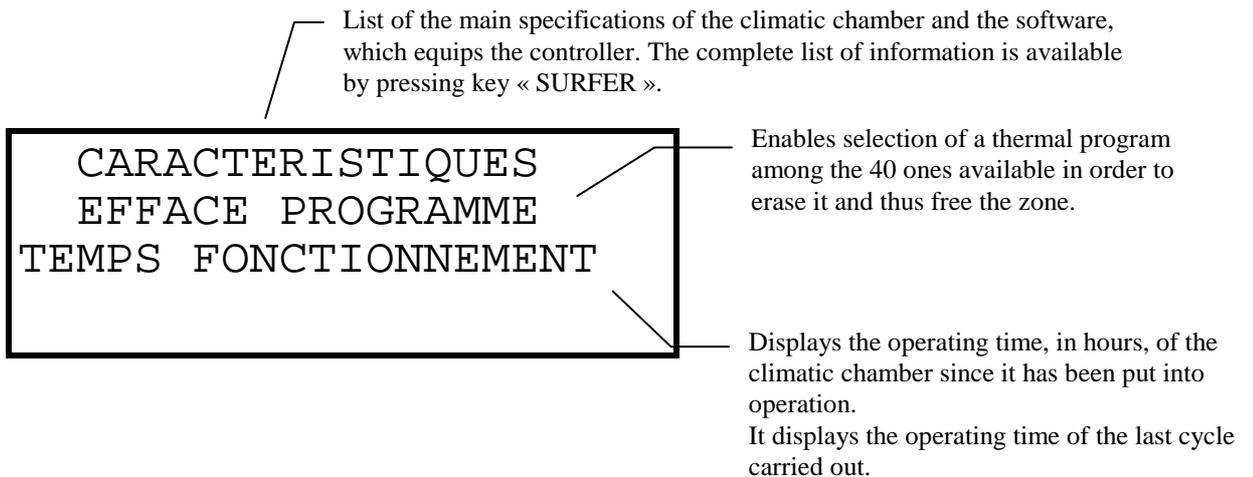
- 1 Field featuring 4 lines of 20 characters.  
This displays the menus or the data relating to the climatic chamber control.
- 2  Key      It aborts the current processing and displays the main menu.  
It stops the climatic chamber.
- 3  Key      It turns the light inside the climatic chamber on and off.
- 4  Key      In a menu type screen page you can, it selects the function which blinks.  
In a parameter-setting screen page, it validates the value of the field which blinks and goes to the next field.
- 5 « SURFER » key      In a menu type screen page, it scans the fields of this menu.  
In a parameter-setting screen page, it enables adjustment of the values, the units, or the state of the relays.

## 3.2. Menu tree structure

### 3.2.1. MAIN Menu



### 3.2.2. MAINTENANCE Menu



### 3.2.3. MANUAL CONTROL Menu

The screenshot shows a control interface with the following elements:

- CONSIGNE** followed by three asterisks, a comma, a degree symbol, the letter C, two asterisks, and a percent sign. A callout points to the degree symbol and C, indicating the temperature set point.
- R-----** followed by a dashed line. A callout points to this field, indicating the humidity set point.
- DEPART** followed by a dashed line. A callout points to this field, indicating an option for 4 NF / NO type relays.

Callout for Temperature set point: Temperature set point. Modification of the value with key « SURFER » when symbol °C blinks. Press key **VALID** to confirm the value and go to the next field.

Callout for Humidity set point: Humidity set point. Modification of the value with key « SURFER » when symbol % blinks. Press key **VALID** to confirm the value and go to the next field.

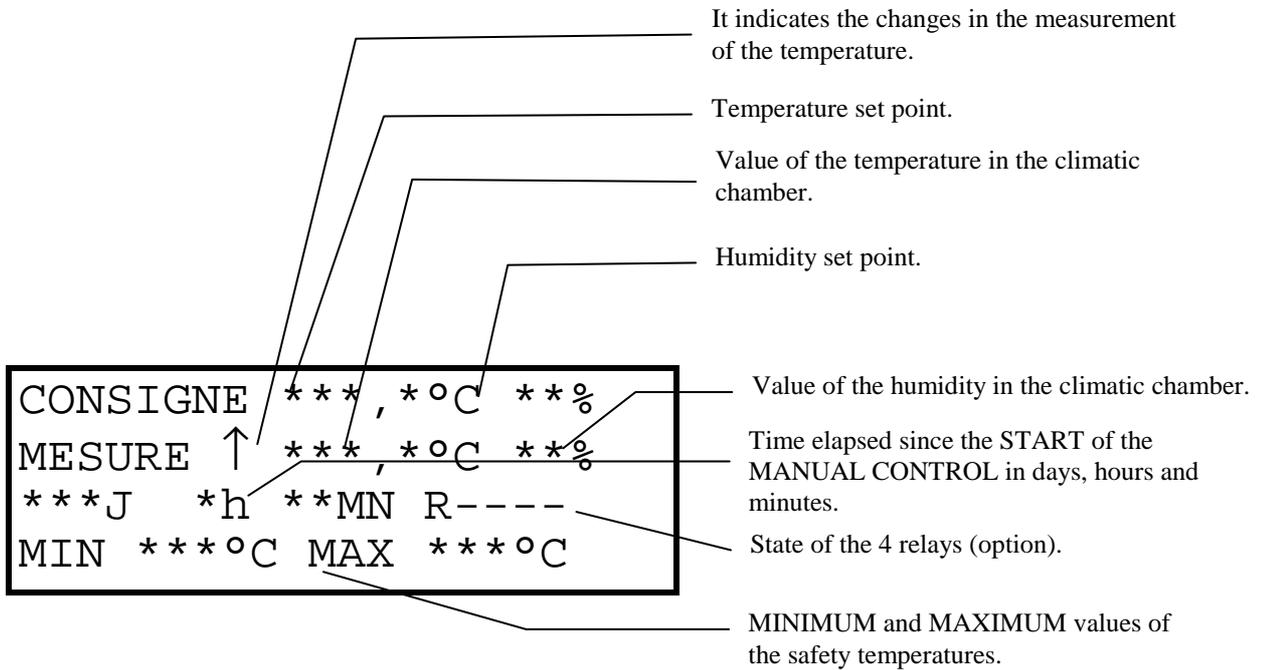
Callout for Option: Option 4 NF / NO type relays. The state of the blinking relays can be modified using key « SURFER ». Symbol — corresponds to contact C R of the interface box. A number corresponds to contact C T of the interface box. The order of the relays is 1234. Press key to **VALID** the state of the relays and go to the next relay or next field.

Press key **VALID** to:

- Start the climatic chamber.
- Go to the control screen page of the manual control.
- Reset the cycle counter.

Modify START with CANCEL using key « SURFER » in order to correct the set points.

### 3.2.4. MANUAL CONTROL Screen Page



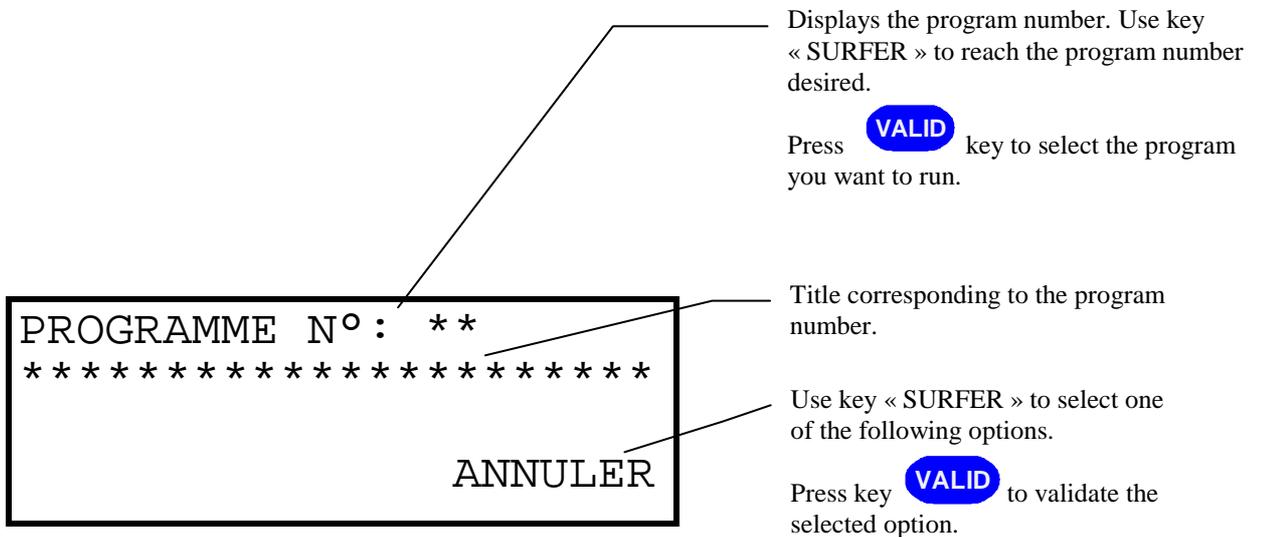
You can change the set points in terms of °C, % and R by pressing the **VALID** key.

When modifying the set points, the climatic chamber operates according to the previous set points.

After around 10 seconds without any action on the controller, this device will take into account the set points displayed.

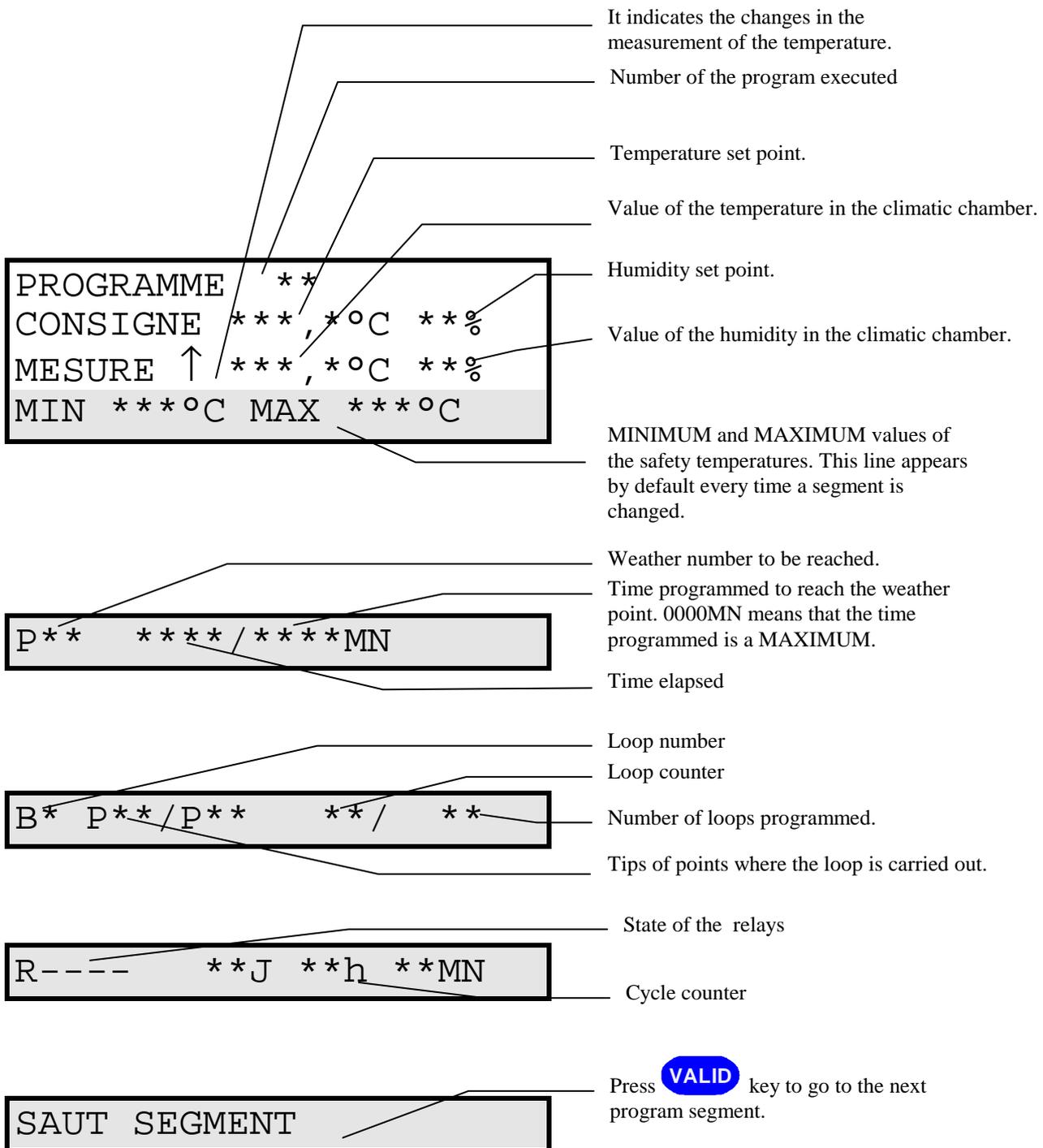
This function does not reset the cycle counter.

### 3.2.5. PROGRAMMED CONTROL Menu



CANCEL: returns to program number for another selection.  
IMMEDIATE EXECUTION: triggers off the selected program, and displays the PROGRAMMED CONTROL screen.  
DIFFERED EXECUTION: displays the data acquisition screen in view of a differed program execution. The selection is made in terms of day, hour and minute.

### 3.2.6. PROGRAMMED CONTROL Screen Page



The value of the shaded lines varies according to the SCROLLING value entered in the CUSTOMISATION menu, which can be reached through INIT.

If the SCROLL is NO: the shaded lines can be reached using key « SURFER ».

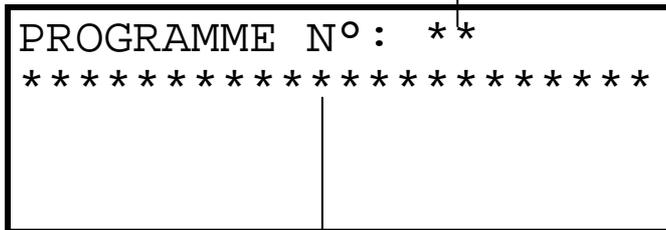
If the SCROLL is YES: the shaded lines appear automatically one after the other every 5 seconds.

### 3.2.7. PROGRAMMING Menu

Displays the program number. Use key « SURFER » to reach the program number desired.

Press **VALID** key to select the title of the program.

Press **VALID** key until the program number no longer blinks in order to reach the PROGRAM ENTRY menu.



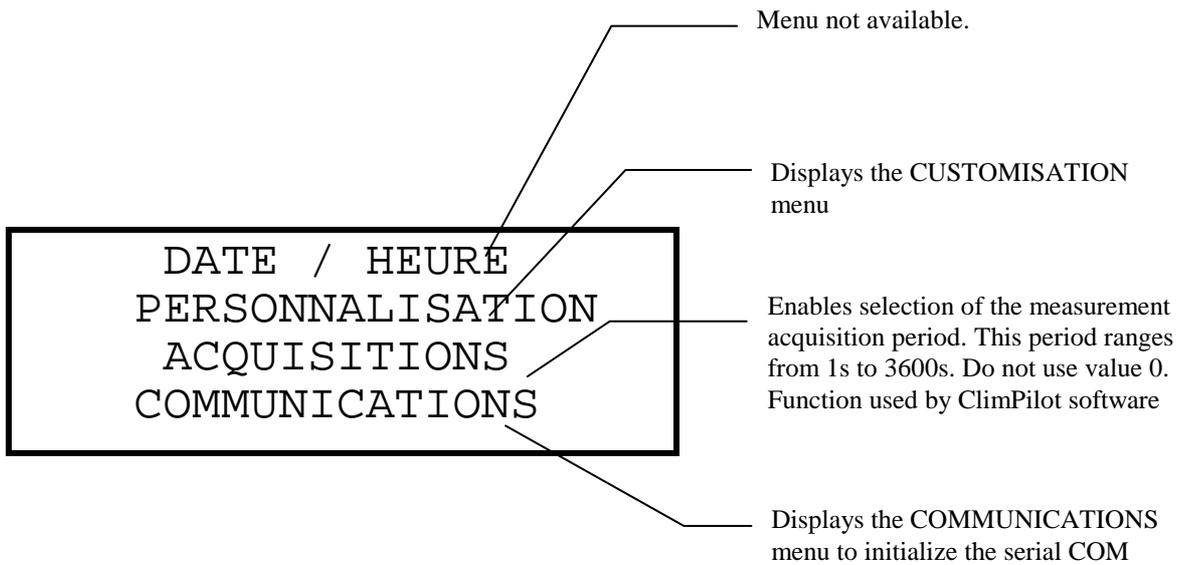
Title corresponding to the program number.

Press **VALID** key to change the character in the title.

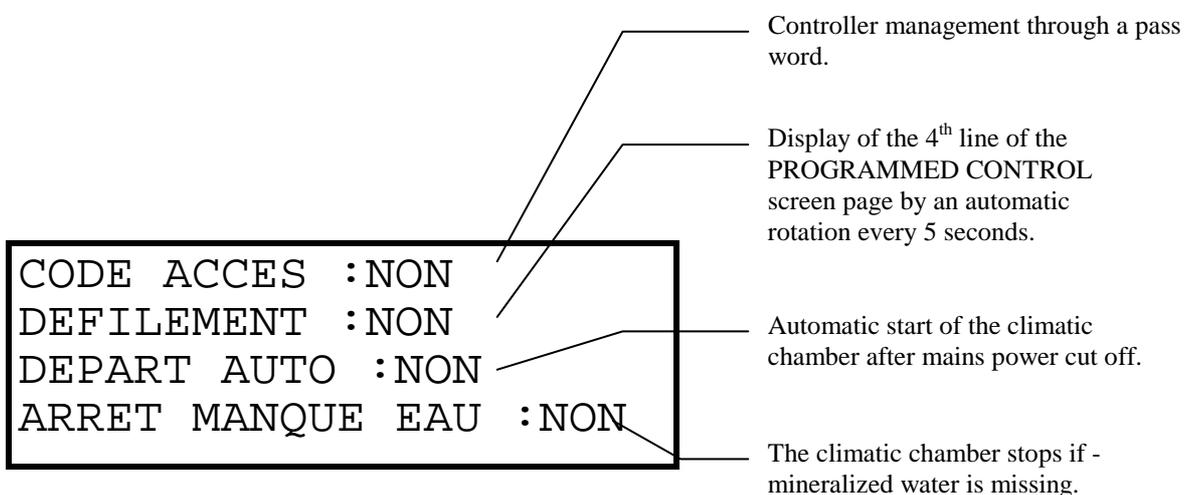
Keep **VALID** key pressed until the program number blinks in order to finish the entry of the title.



### 3.2.9. INIT Menu



### 3.2.10. CUSTOMISATION Menu



Use key « SURFER » to make the required line blink. Validate this line using **VALID** key and use « SURFER » key to display YES or NO. Validate once more.

At the end of this screen page, another screen page appears, giving you the possibility to adjust the controller at given temperature and hygrometry standards.

Use **STOP** key to go back to the MAIN menu.

### **3.3. Messages**

#### **DEFAUT SONDE TEMPERATURE**

The control sensor and the safety sensor measure a difference in temperature of over 3°C.

#### **DEFAUT SEUIL TEMPERATURE**

The safety sensor measures a temperature, which is beyond the MINIMUM and MAXIMUM interval.

#### **DEFAUT SUIVI RAMPE**

The change in the temperature measurements does not respect the change in set points.

#### **DEFAUT H.P.**

Triggering of the H.P. pressure meter.

#### **DEFAUT COMPRESSEUR 1**

Triggering of the circuit breaker located in the electric circuit of the compressor's fan.

#### **DEFAUT VENTILATEUR**

Triggering of the circuit breaker located in the electric circuit of the tank's fan.

#### **DEFAUT CONDENSEUR**

Triggering off the circuit breaker located in the electric circuit of the condenser's fan.

When one of these messages appears, contact our Service Department in order to validate the error.

## **4. Maintenance**

### **4.1. *General maintenance***

In normal conditions of use, the only maintenance required consists in regularly making sure that the finned condenser which cools the refrigerating unit is clean. Using a vacuum cleaner allows you to remove dust, which is detrimental to the system efficiency. You can reach the condenser through the machine RH panel.

To make sure the system operates in humid conditions correctly, you must check the cleanness of the wick, which is used for carrying out psychrometric measurements. The quality of distilled or de-mineralized water shall remain constant (no alga or impurities).

Should the climatic chamber not be used for an extended period of time in the humidity mode, we recommend that the piping system be drained completely.

### **4.2. *Calibration***

We recommend that you check once a year the calibration of the measuring chains.

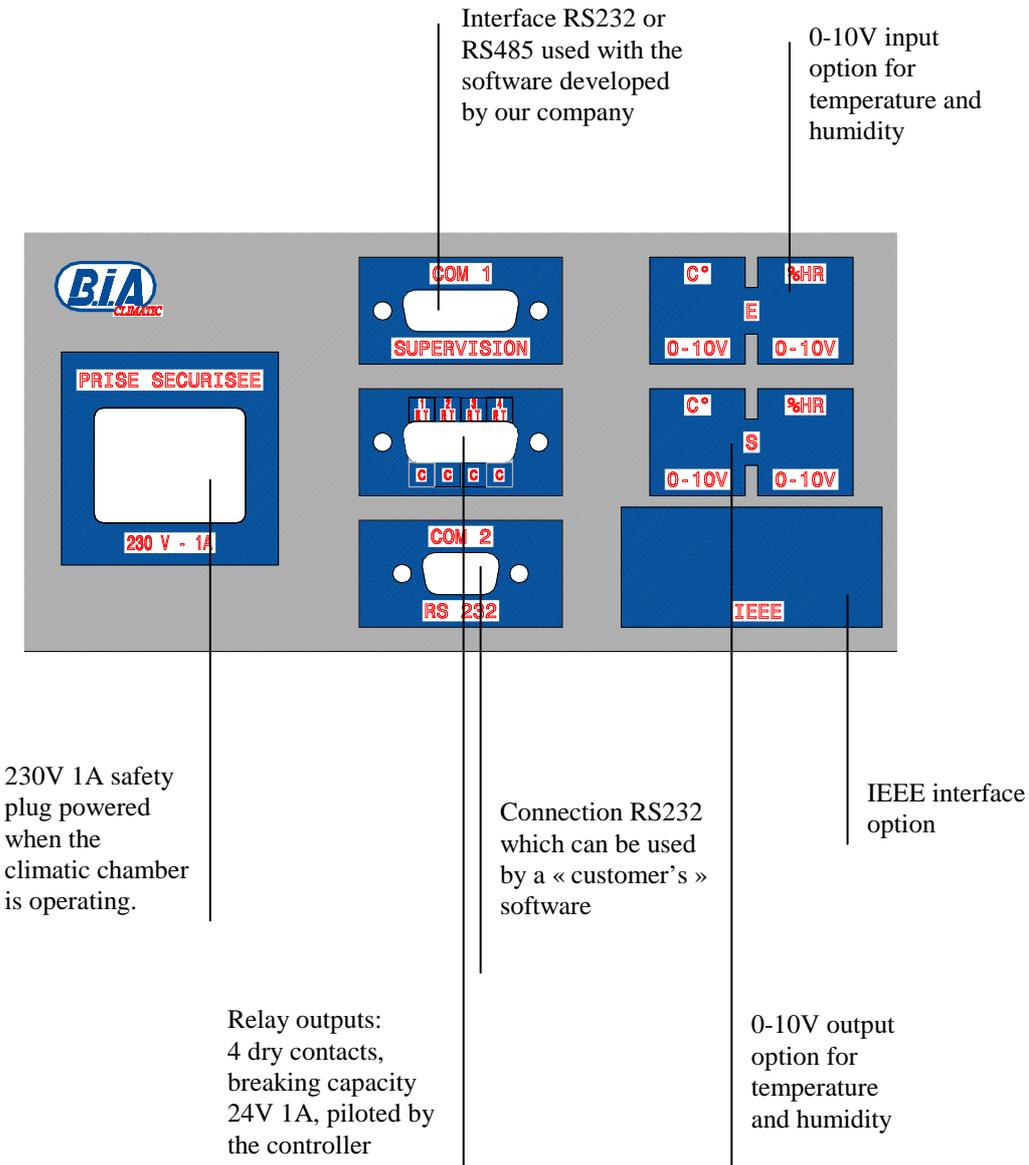
To check the calibration of the controller, replace the temperature sensor with a known fixed resistor having an accuracy of at least 0.1%. Refer to a conversion table for a PT100 sensor to know the temperature value.

Use a resistor of same rating and accuracy to connect it instead of the sensor used for measuring the degree of humidity. The humidity value measured by the controller shall be 100%.

In actual practice, you just have to calibrate the temperature of the climatic chamber directly. It has the advantage of taking into account the complete measuring chain. For that purpose, you have to have a calibrated measuring chain. The calibration can be carried out at various points, and the measurement is made after temperature stabilization for 30' to 45'.

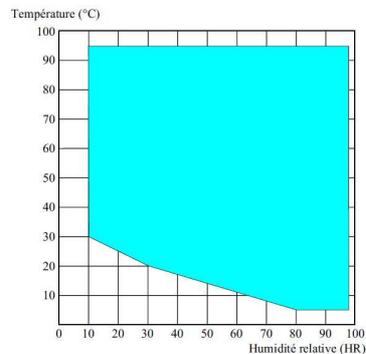
This calibration can be carried out by our company or by any other adequately equipped company or test laboratory.

# 5. User interfaces



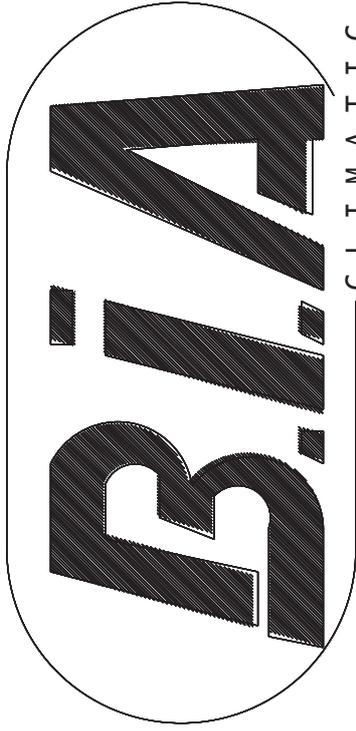
## 6. Technical specifications

- Volume 3000 liters
- Internal dimensions (W x D x H) : 1200 x 1400 x 1800 mm
- External dimensions (W x D x H) : 1480 x 2655 x 2100 mm
- Weight: 1800kG
  
- Temperature range: 20°C to +100°C
- Stability at one point in time:  $\pm 0,3^{\circ}\text{C}$  to  $\pm 0,5^{\circ}\text{C}$
- Useful volume homogeneity:  $\pm 2^{\circ}\text{C}$
  
- Humidity range: from 8°C to 98°C between 15% to 98% (following the chart below).
- Relative humidity resolution: 1%HR
- Stability at one point in time:  $\pm 2\%$  HR ...  $\pm 3\%$  HR
- Capacitive probe



- The time to go from ambient temperature to 85°C / 95%RH is 120minutes.
- Water condenser (flow rate: 0,7 m<sup>3</sup>/h, pressure: 2 bars mini and power rejected: 5,3 kW)
- Internal light
- 1 shelf: load 120Kg
- 2 porthole diameter 100mm
- Emergency push button

## 7. Electric files



C L I M A T I C

À	MODIFICATIONS	J M A	Dessine	Etudie	Dep
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Plans a consulter  
Remplace Plan :

Designation  
complementaire

# DU PONT DE NEMOURS

CLIMATIC CHAMBER HOT/COLD/HUMIDITY : CL 0-300

LE DIEDRE	FORMAT	ECHELLE	INDICE	PLANCHE
	NXA3		A	I / 37
BIA CLIMATIC			No PLAN	201_003_0

Ce plan est la propriété de la société indiquée ci-dessus et ne peut être reproduit ou communiqué sans l'autorisation de cette dernière

Realisateur XELEC

Nom : B.I.A.

Adresse : ZA LES BOUTRIES 8 RUE DE L'HAUTILL  
78700 CONFLANS STE HONORINE  
TEL : 01-34-90-22-22

**SOMMAIRE**

No Folio	Titre_G	Titre_2	Indice	Date	Visa
1	CL 0-300	CARACTERISTIC	A	26/04/11	L.AMORIN
2	CL 0-300	DISTRIBUTION 24VCC-230VAC-COMPRESSOR	A	26/04/11	L.AMORIN
3	CL 0-300	HEATING	A	26/04/11	L.AMORIN
4	CL 0-300	HUMIDITY	A	26/04/11	L.AMORIN
5	CL 0-300	FAN	A	26/04/11	L.AMORIN
6	CL 0-300	WATER PUMP	A	26/04/11	L.AMORIN
7	CL 0-300	PRESSURE SENSOR	A	26/04/11	L.AMORIN
8	CL 0-300	CAPACITIVE PROBE	A	26/04/11	L.AMORIN
9	CL 0-300	CONVERTER	A	26/04/11	L.AMORIN
10	CL 0-300	DISTRIBUTION 230VAC ET 24VCC	A	26/04/11	L.AMORIN
11	CL 0-300	DIGITAL INPUTS PLC	A	26/04/11	L.AMORIN
12	CL 0-300	DIGITAL INPUTS PLC	A	26/04/11	L.AMORIN
13	CL 0-300	DIGITAL OUTPUTS PLC	A	26/04/11	L.AMORIN
14	CL 0-300	DIGITAL OUTPUTS PLC	A	26/04/11	L.AMORIN
15	CL 0-300	ANALOG I/O PLC	A	26/04/11	L.AMORIN
16	CL 0-300	INTERFACE - RELAY	A	26/04/11	L.AMORIN
17	CL 0-300	DISPLAY	A	26/04/11	L.AMORIN
18	CL 0-300		A	26/04/11	L.AMORIN
19	CL 0-300	WIRES NUMBERS	A	26/04/11	L.AMORIN
20	CL 0-300	TERMINAL BLOCK	A	26/04/11	L.AMORIN
21	CL 0-300	XTEH TERMINAL BLOCK	A	26/04/11	L.AMORIN
22	CL 0-300	TERMINAL BLOCK	A	26/04/11	L.AMORIN
23	CL 0-300	XTHR TERMINAL BLOCK	A	26/04/11	L.AMORIN
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31	CL 0-300	XTRES BLOCK	A	26/04/11	L.AMORIN
32	CL 0-300	MATERIAL	A	26/04/11	L.AMORIN
33	CL 0-300	NOMENCLATURE ELECTRIQUE	A	26/04/11	L.AMORIN
34	CL 0-300	NOMENCLATURE ELECTRIQUE	A	26/04/11	L.AMORIN
35	CL 0-300	NOMENCLATURE ELECTRIQUE	A	26/04/11	L.AMORIN

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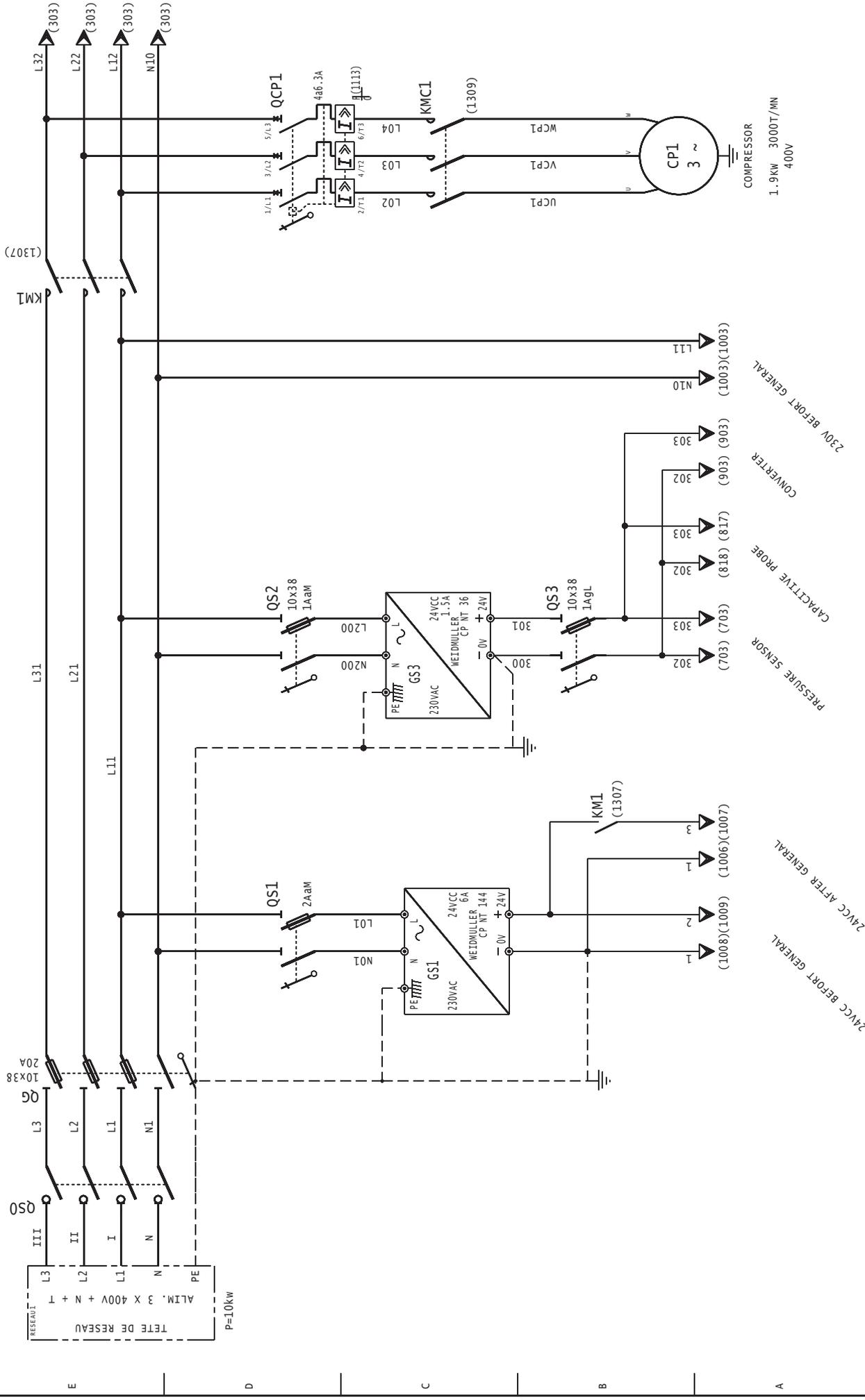
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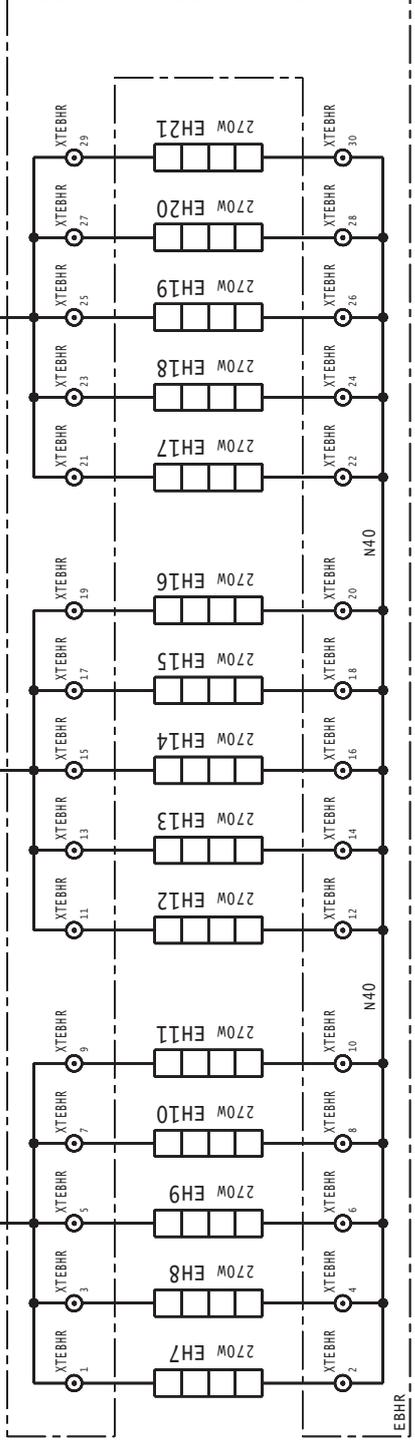
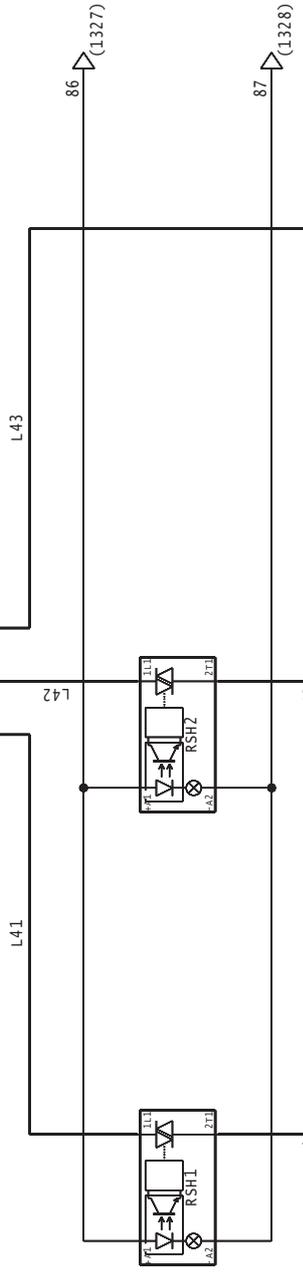
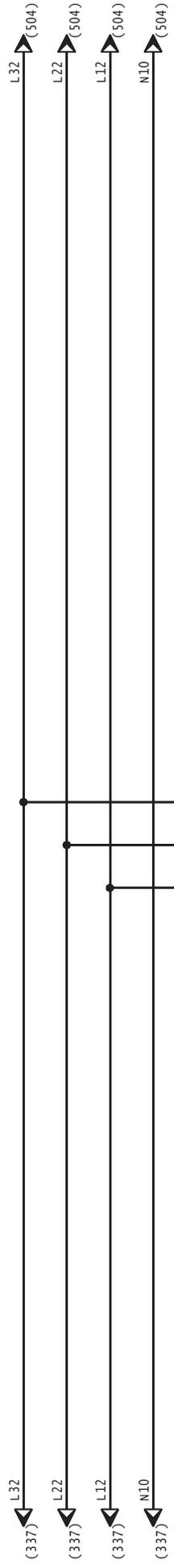
## CL 0-300

### DISTRIBUTION 24VCC-230VAC-COMPRESSOR

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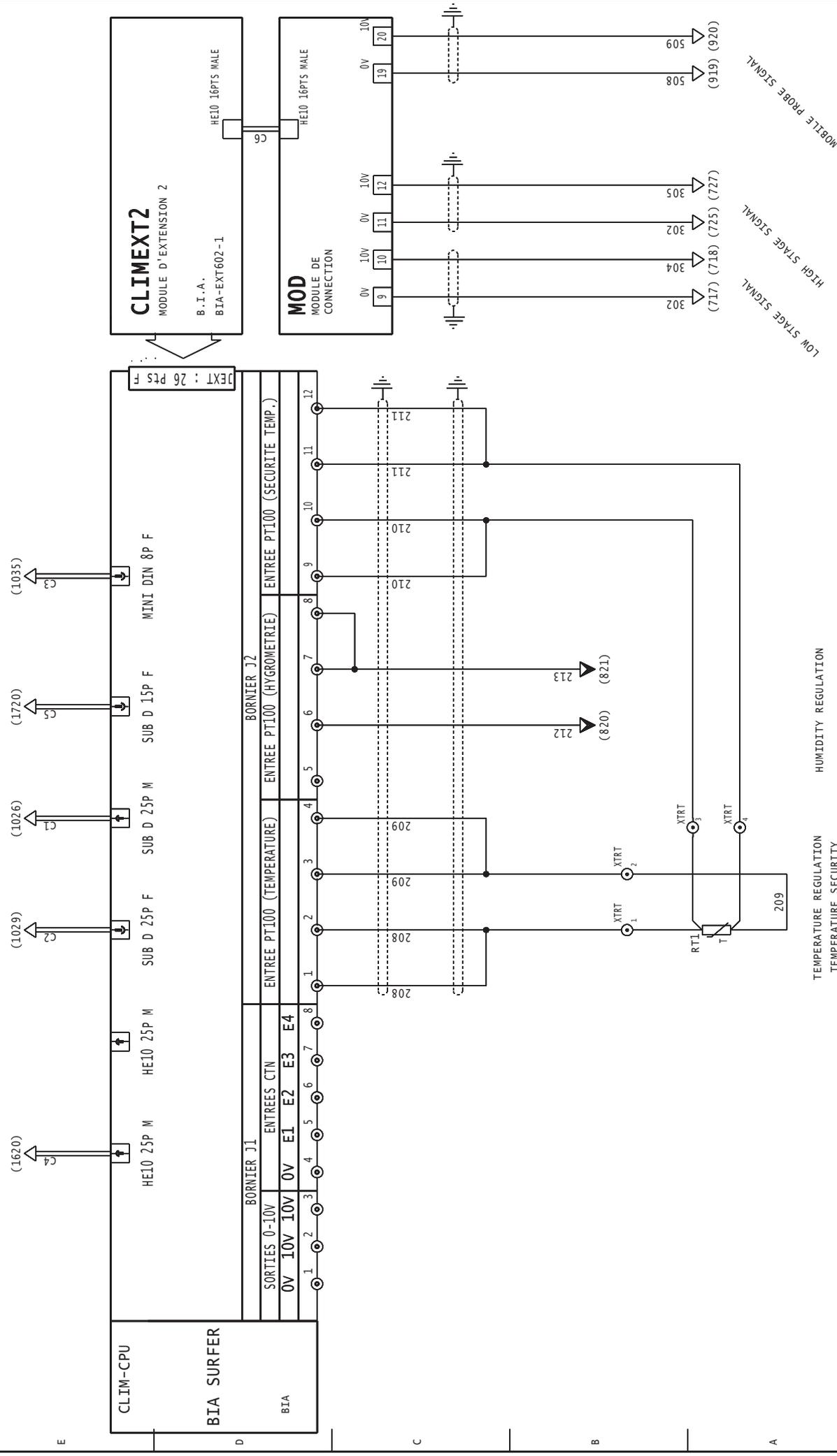
















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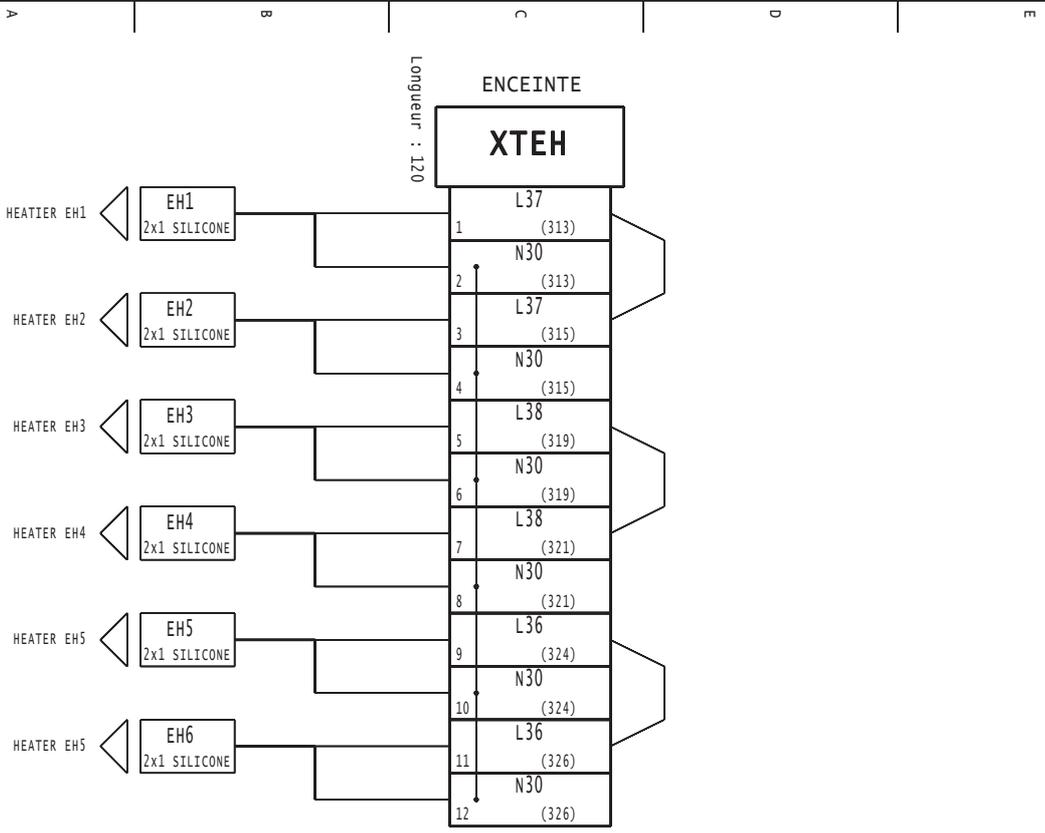
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**CL 0-300**  
**XTEH TERMINAL BLOCK**



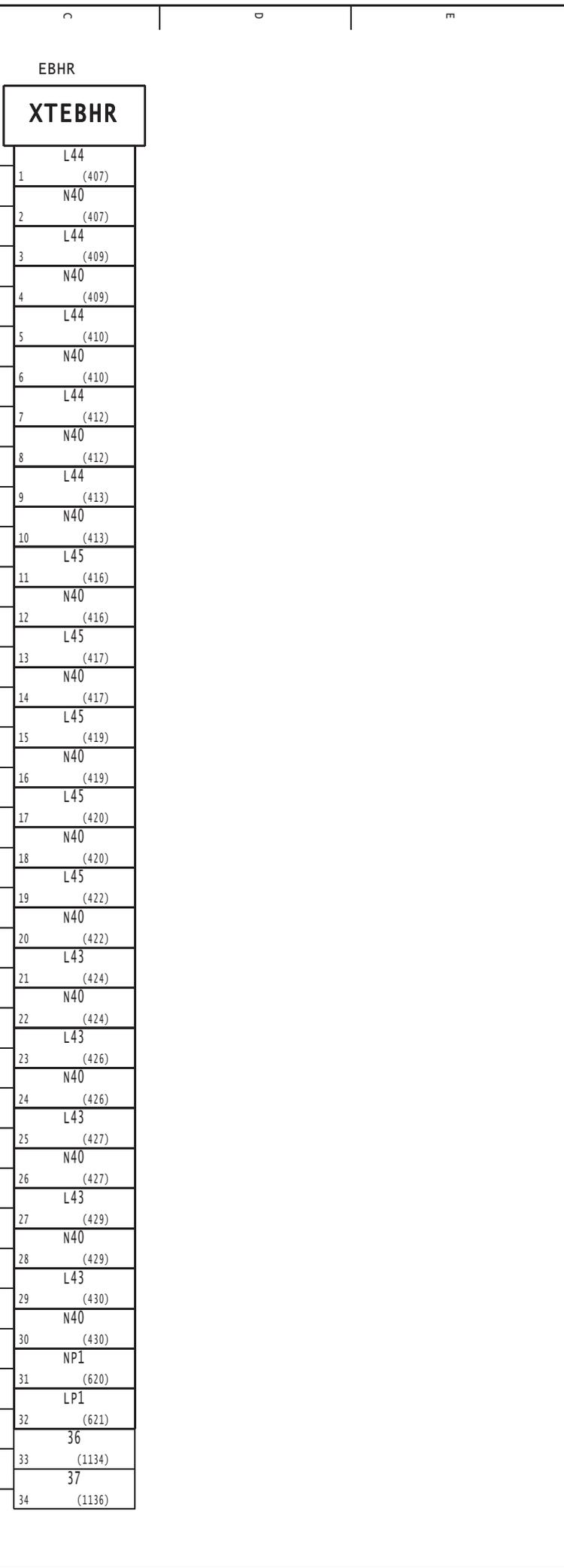
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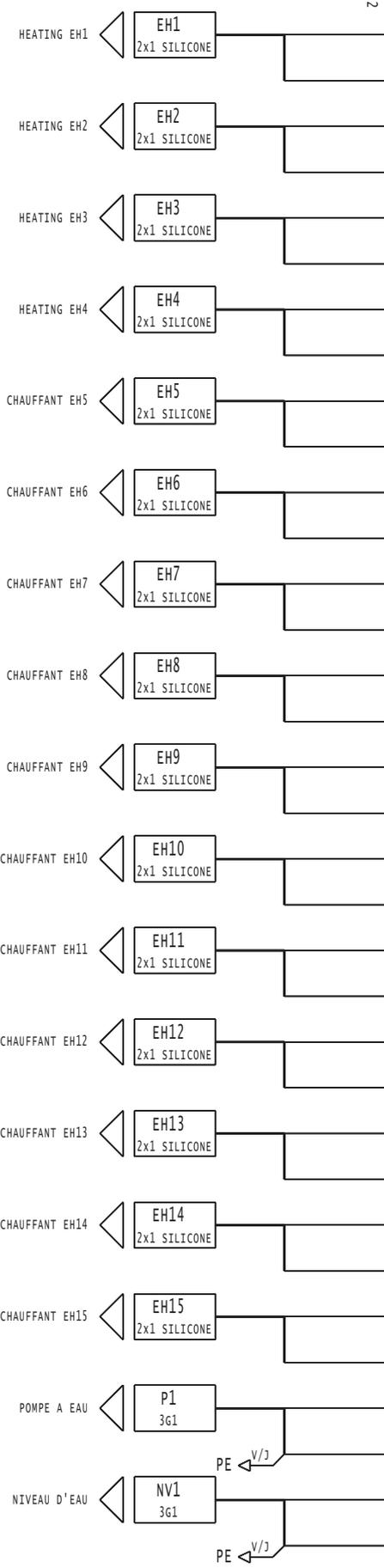


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