THE VACUTRONIC MICROPROCESSOR

ES-EMV VACUUM DRY KILNS

1. Vacutronic system

The dryer has a computer capable of curing - second by second - throughout the entire drying process.
The dedicated software regulates all the drying phases according to the type of wood we want to treat, the thickness of the planks and the initial and final humidity.
Thanks to this system, the following parameters are constantly checked during the drying cycle:

- Moisture of the material being dried;
- Moisture of the air and the temperature during the pre-heating, vacuum and final balancing phases;
- Operating vacuum value.

Vacutronic is used for all the dryers we produce, and therefore, not all the functions are always active.

ONLY THE FUNCTIONS PRESENT IN THE DRIER ARE ACTIVE

FIGURE 1

Selection keys

↑↓	The vertical arrows select the questions on the display
←→	The horizontal arrows select the replies to the Vacutronic
Q	Permits return to the start of programming and data setting
M1 M4 M2 M5 M3 M6	Permit control of the wood humidity probes
ON/OFF	To switch the drier on or off

Pilot lights

ON	Drier operating
OFF	Drier stopped
1	Vacuum pump
2	Electric heating (if present)
3	Hot water circulation pump (if present)
4	Mixing valve closing (if present)
5	Mixing valve opening (if present)
6	Humidifier water solenoid valve (if present)
7	Re-entry air solenoid valve in the external condenser
8	Rotating switchman side 1 (if present)
9	Rotating switchman side 2 (if present)
10	Air re-entry valve
11	Humidifier water electric resistance (if present)
12	Condensation circuit (if present)
13	Not connected
14	Not connected

2. Programming the Vacutronic

1. Switch on the Vacutronic using the main switch on the electrical board and wait a few moments until the device auto-calibrates itself.

VACUTRONIC VX.xx AUTO-CALIBRATION IN PROGRESS

The number following VX indicates the model. Remember to mention it when requesting an intervention or information.
NOTE: if your Vacutronic has a varying different from the 5.07 version, some functions can be absent or different. In this case you can always update your Vacutronic calling the assistance department of our company.

2. At the end of auto-calibration, the main page appears on the display, divided into 4 command lines: the first always indicates the current status of the drier (or any error messages): the drying parameters are indicated on the other three.

VACUTRONIC OFF DU xx TL xx TR xx TU xx UC xx US xx TI xx VA xxxx VI xxxx A

where:

Vacutronic off	Indicates the status of the drier at every moment. NOTE: this command line also displays error messages
DU	Indicates the humidity difference between the heart and surface of the plank. NOTE: if the value 0 appears, this means that the humidity difference is acceptable and therefore the cooling system if present (fans for air cooled dryers or refrigeration solenoid valve for water cooled dryers) starts to work; if the value 1 appears, the humidity difference is outside the tolerated values and therefore the humidifier system starts to work (humidifier) if present.
TL	Indicates the wood temperature in degrees °C NOTE: apart from indicating the real temperature value of the wood, it can assume the following meanings: - NC (not connected) if there is an interruption on the cable or on the sensor.

	- CC if a short circuit arises on the cable or on the sensor.
TR	Indicates the drier heating temperature in degrees °C NOTE: apart from indicating the real heating temperature of the drier, it can assume the following meanings: - NC (not connected) if there is an interruption - CC if a short circuit arises
TU	Indicates the temperature of the drier humidifier water in degrees °C NOTE: apart from indicating the real value of the humidifier water, it can assume the following meanings: - NC (not connected) if there is an interruption - CC if a short circuit arises If the plant doesn't have the humidifier or it has a steam generator, we install a resistance sample than gives a symbolical indication of temperature which stays fixed during the time.
UC	Indicates average, central humidity % value of the active probes
US	Indicates the average, surface humidity % value of the active probes Some dry kilns have probes connected only to the centre of wood in drying. In this case the Vacutronic show as superficial moisture that of the central probes.
TI	Indicates the temperature foreseen by the drying program selectioned in degrees °C
VA	Indicates the vacuum value inside the drier (current vacuum)
VI	Indicates the values set by the program (set vacuum)
A	Vacuum pump activity in deicer ON cycle

Pressing once the key ← you replace the first line with a series of indication:

- The letter on the left indicates the vacuum dry kiln's condition, that is to say:

A = Vacuum dry kiln OFF
B = Defrosting phase (it is put in activity only if at the starting up of the vacuum dry kiln, the wood temperature to dry is lower than 10°C. The Vacutronic put into action the only heating keeping-it fixed at 20°C.
C = Drying phase
D = Final cooling phase
E = End cycle wait phase (it checks the final moisture)
F = First vacuum phase
G = Preheating phase
H = Drying pause phase
I = Discontinuous vacuum phase 1(ON time vacuum in discontinuous cycle)
J = Discontinuous vacuum phase 2(OFF time vacuum in discontinuous cycle)
K = Discontinuous vacuum phase 3(Re-entry air time in discontinuous cycle)
L = Discontinuous vacuum phase 4
P = Nonexistent table
Q = Error probes
R = Wood temperature alarm (this alarm go off if the wood temperature is 15°C higher that the Ti temperature foreseen by the program)
S = Cycle ending

- TB = It indicates the electrical boiler temperature if this apparatus is installed; if not it has a fixed symbolic value.

- CL = It indicates the hot water temperature arriving in the vacuum dry kiln from an external generator. If this connection is absent will appear symbolic value.

- TC = It indicates the temperature of the condensers inside the machine if these have been installed. In the case they are absent will appear a symbolic value.

N.B. In the easier plants, where some functions are not present, such as the condensers, the steam generator, the connection to the external hot water, the relative temperature probes will be at a symbolical fixed value.

ATTENTION:

The drier may have a different number of humidity probes (the first three connected directly to the Vacutronic and the others connected via expansion boards), but only the first six are significant for the purposes of the drying process. The LEDs illuminated on the front of the Vacutronic indicate how many probes are managing the drying process, but not which ones.

It is possible however, to read the humidity values of each probe at any moment and to define which to consider as significant and which to discard.

In any event, avoid conducting the drying with humidity probes giving abnormal values.

For more information, see the chapter n. 17.

3. Press the following key ↓ once:

FINAL HUMIDITY SELECTION 10 % (5% |90%)

Set the final % humidity value desired for the drying.

☞NOTE:
The Vacutronic is programmed to stop the cycle when all the probes that control the moisture have a slope of 1/10 under the desired final moisture.
Example: If you have 3 probes and you have required an 8% of final moisture, the vacuum dry kiln will stop only when the 3 probes have a value inferior or equal to 7.9%.

4. Press the following button once: ↓

WOOD GROUP SELECTION GR. 1 thickness. < 40

Set the group of the type of wood to be dried with its thickness on the basis of the indications in the "Wood type classification" tables.

☞NOTE:
A determinate drying table corresponds to each of the 9 settings available.
In case of first drying or first drying of a new essence, use Test Table if present.

5. Press the following key once ↓:

MAX. DIFFERENCE BETWEEN DRYING T. AND WOOD T.
0 °C (0 |30°C)

Set 0 if you want the program to use the selected drying table data. (In this case, the heating temperature is obtained by adding together the wood temperature value and the respective Delta T °C belonging to the same column of the selected drying table)
Set any other value if you want the drying program to be performed with a different Delta T °C than the one indicated in the selected drying table. (In this case, the heating temperature is obtained by adding together the wood temperature and the Delta T °C set).
In case of drying process driven by discontinuous vacuum program, you must program always a Delta T higher that 6°C, but we don't advice to exceed 15°C.

☞ **NOTE:**
By Delta T °C, we mean the difference in °C between the heating temperature and the wood temperature.
If we set a number different to zero, we exclude the Delta T °C of the selected drying table for all the wood temperature values: the one chosen by the operator replaces it instead.
The temperature difference between heating and the wood always remains constant and equal to the Delta T °C set.
This piece of data then has priority over the default value present in the selected drying table.

☞**NOTE:**
Delta T°C conditions the heat transmission to the wood. Elevated Delta T, higher than 5°C allows heating wood more quickly. We don't advice to exceed 10°C in case of dryings with continuous vacuum.

The first time you use the vacuum dry kiln or when you treat a new essence you must program 1°C.

6. Press the following key once: ↓

TIME FOR A 1 °C RISE DURING PRE-HEATING 0 min (0 |200 min)

To define the time in minutes, from 1 to 200, during which the heating temperature is kept constant during the pre-heating phase.
During the pre-heating phase, the temperature rises by one degree at constant time intervals as long as the set value, independently of the temperature of the wood. Pre-heating ends when the temperature reached is the same as that of the set program, corresponding to the average central humidity value of the wood during drying. If 0 is set, pre-heating is eliminated.
For oak and chestnut wood with thickness lower than 40 mm, you must program 1°C each 60'; for thickness higher than 40 mm, you must program 1°C each 120'.

☞ **NOTE:**
If 0 is set, the pre-heating phase is not performed and the T1 temperature set is the one foreseen by the program for the average central humidity value of the wood being dried.
Use 0 only if the plant must be re-started because of an interruption so that the wood would not be cooled.
If during the preheating phase there could be a temperature difference between TL (Wood heart temperature) and TI (programmed temperature) higher that 6/7°C, it's advisable to modify the slope time of 1°C in preheating phase increasing it.
To make this change you need to:
- **Put the Vacutronic on OFF**
- **Make the changing increasing the slope time of 1°C in preheating phase**
- **Reduce the initial humidifying time (point 14) of preheating time already passed.**

7. Press the following button once ↓

TIME TABLE SELECTION NONE

In this program section it is possible to select one of the 9 time tables which the user can define at will, to perform drying on the basis of time. Tables are not supplied with the initial programming.

☞NOTE:
At point 4, it is always indispensable to select the wood group and its thickness, because the central and surface wood moisture being dried, the Δt between the wood temperature (the one foreseen by the time table) and the drier T1, and the final central humidity required for cycle end, are controlled on the basis of this table and the value 0 at points n. 6 and n. 10 because the Vacutronic don't make whether the preheating phase, whether the first vacuum phase.
NOTE:
If no time table is available, set this programming item to "NONE".
If you choose a time table, this drying mode then has priority over the previous ones (maximum difference between the drier temperature and the wood temperature - point 5 page 05, temperature rise of 1°C during pre-heating - point 6 page 06).

ATTENTION:
It is not possible to program time tables in the Vacutronic memory, unless a Personal Computer is used.

7.1 In the case you have selected a PCX program with the message "table not valid" or a time table always with the message "not valid" and you have confirm it pressing Q, giving ON to the Vacutronic starting, can happen 2 situations:

a) The Vacutronic blocks itself in the "auto-gauging in progress" position

1) Using the key ↓, find the position where the "table not valid" is selected.
2) Using the horizontal keys ←→ select a valid table or any table.
3) With the key ↑ return to the position "Auto-gauging in progress" position.

4) Press the key ON/OFF to make the message "vacutronic OFF" appearing.
5) Program again the Vacutronic and press "Q"

Now your Vacutronic is OK.

b) The Vacutronic blocks itself in the "error table" position:

1) Using the key ↓, find the position where the "table not valid" is selected.
2) Using the horizontal keys ←→ select a valid table or any table.
3) With the key ↑ return to the position of the main display
4) Press the key "ON/OFF" so that appear the message "Vacutronic OFF"
5) **Program again the Vacutronic and press "Q"**

8. Press the following key once: ↓

WOOD TYPE SELECTION 1 (1 |4)

To set the type of wood to be dried on the basis of the information given in the "Wood type classification" paragraph.

9. **Press the following key once ↓:**

MAXIMUM WOOD TEMPERATURE 70°C (1 |99°C)

To set the maximum temperature value (as a safety value) which the wood must not exceed. During the drying process, the value set has priority over the one foreseen by the program.
In the case of oak and chestnut wood with a thickness of 40-60 mm, you must program 60°C; with thickness higher than 60 mm, you must program 55°C.

10. **Press the following key once ↓:**

MAXIMUM SELECTION	VACUUM
-xxx mmHg.	

To define the maximum operating vacuum.

Program with the ← → keys

- **ES Dryers** - 660 mmHg.***** if they have water vacuum pump
  - 500 mmHg if they have oil vacuum pump
  (INDIPENDENTLY FROM THE ALTITUDE WHERE THE MACHINE IS PLACED)

***** This value is correct for machines located at a height of between 0 and 400 m. above sea level. For higher locations set:
640 from 400 – 700 m.
620 from 700 – 1000 m.
600 for heights > 1000 m.

- **EMV Dryers** - 500 mmHg if they have water vacuum pump
  - 400 mmHg if they have vacuum pump lubricated with oil

In case of small vacuum dry kilns, where a resistance that gives a fixes value replaces the Jumo vacuum sensor, program a maximum vacuum value of 400.

11. **Press the following key once: ↓**

MAXIMUM COOLING TIME 05:00 (00:01 |12:00)

To define the maximum cooling time.
By cooling time, we mean the time interval from when the desired humidity is reached to the end of the Vacutronic drying cycle to OFF. For plants with condensers, they start working to reduce the wood temperature (see point 8-7)
This time is always respected also if the conditions of the point B-7 weren't realized.

12. **Press the following button once: ↓**

US CONTROL WITH AVERAGE VALUE 0

This determines if the humidifier command must use the average values of the humidity probes or the value of the probe selected with the highest difference between the central and surface humidity.

0: the absolute values of the single probes are used.
1: the average central and surface humidity is used which appears on the main page.

13. **Press the following key once ↓:**

SELECT THE MINIMUM CONDENSER TEMPERATURE
30°C (1 |99°C)

To define a minimum threshold temperature for the condensers when active: If you press:

- 0°C in this case Vacutronic does not have any minimum temperature limit to respect

- From 1°C to 99°C the Vacutronic stops the condensers when the set temperature is reached and starts them as soon as the temperature returns to rise.

☞ **NOTE:**
The condensers start to work only after the preheating phase and if DU = 0.
(DU = difference between central moisture and surface moisture).

If during the drying phase the difference between the surface moisture and the central moisture becomes too higher with reference to the values foreseen by the program, DU (difference between central moisture and surface moisture) goes on 1 and the condensers (if installed) stopped themselves and the vaporized (if present) goes in action after a break of some minutes.

14. **Pressing once the keys ↓:**

INITIAL HUMIDIFICATION
00:00 H (0-100 H)

ATTENTION: not all the plants are provided with steaming system.
It allows making the steaming system active during the preheating initial phase, also if the moisture difference between the centre and the surface of the tables doesn't request it. If the programmed time is longer during the preheating phase, the activity of the steaming system continues until the end of the programmed time and on the display remains the message "preheating". The use of this option is advisable for woods such as chestnut, oak, cherry-wood; it is not advisable for clear wood such as ash, maple, beech-wood and birch.

If you desire that the dry kiln make some intermediate humidifying phases during the drying cycle (also if the moisture difference between surface probes and central probes doesn't require it), you must follow the following steps:
- Put the Vacutronic on OFF
- Run the programmed program and at the voice "Slope time of 1°C in preheating phase" set up 1 minute.
- Continue with reading the program until the point "Initial humidifying" and program the desired time (never less of 2 hours).
- Press Q to memorize the changes
- Put the Vacutronic on ON

☞ **NOTE:**
If you want to avoid re-entry air in the machine when the Vacutronic is on OFF, you must plug the opening of the re-entry air solenoid valve.

15. **Pressing once the keys ↓:**

WOOD MINIMUM TEMPERATURE
X°C (0-99 °C)

In the initial programming always program 0°C.
The programming of a different temperature from 0°C have to be done only when the Vacutronic is on "ON" position and the dryer is in drying cycle.
In case of slowing down or blockage of moisture drop of the wood in drying, program a temperature resultant from the sum between "TI" temperature shown on the display plus a value between 5°C and 10°C.
NEVER GO OVER 10°C.
The programming of higher values than those indicated could cause the intervention of the Wood Temperature Alarm (point no. 17 of the instruction manual).
To eliminate the alarm it's necessary to program again the Wood Minimum Temperature at 0°C, start again the drying and once the eventual pre-heating is finished, program a new Wood Minimum Temperature respecting the 10°C indicated before.

16. **The following wording appears:**

PROBE ALARM
DU? TL? TR? TU?
UC xx US xx TI xx
VA? VI-xx

This indicates that either one of the probes present for reading the various temperatures necessary for the Vacutonic operation or the vacuum sensor is out of service.
The following initials appear in the place of the numerical value:

CC: probe short circuit
NC: probe interrupted

ATTENTION:
In the event of probe alarms when all the probes present on the main display give a correct indication, it is necessary to check the temperature probes whose indication does not appear on the main display.
To perform the check, follow this procedure:

- Press the ← key for a few seconds
- The following message will appear

x TBxx CLxx TCxx
DUx TLxx TRxx TUxx
UC xx US xx TI xx
VA xx VI-xx

X: status of the drier (see table)
TB: electrical boiler temperature
CL: hot water temperature arriving from outside
TC: temperature of the condensers

Also for these probes the indication may be:
CC: probe short circuit
NC: probe interrupted

☞**NOTE:**
The probes concerning functions, which are not presents in the plant, give fictitious fixed values.

Press the ← key once to return to the main page.

☞NOTE:

When the following wording appears

PROBE ALARM

The Vacutronic blocks all the functions without passing to the OFF position.
It is necessary to repair the probe or the cable to remove the fault.
Only when the CC or NC disappears from the display and a temperature value reappears with the Vacutronic release the various functions: use the main switch to switch of the current and then switch it back on again to activate the auto-calibration function and to return to normal operation. Remember to re-start the cycle with a new pre-heating phase and therefore by passing from the OFF position, in the case where the machine has remained stopped for several hours causing the wood being dried to cool.

17. **Appearance sentence:**

ERRORE TABELLA DUx TLxx TRxx TUxx UC xx US xx TI xx VAx VI-xxx

It indicates that it has been inserted a drying table not vaild and it has confirmed for error. It could be one of the 9 "empty" tables available in the wood group selection menu (pt. 4), or one of the 9 "empty" tables in the time table selection menu (pt. 7). They are empty memory spaces available to charge new personalized drying tables which are accessible through connection with a computer and its communication software.

☞ATTENTION

In case of Table Error, the Vacutronic cannot work and it could not exit from the phase of Autocalibration. Press ↓ to verify that this kind of error is really present and check if you are at point 4 or 7.

To correct this error, follow the following procedure:

- if the Vacutronic were not in auto-calibration switch off and switch back on the electric framework to put the card in that phase.
- Press ↓ until you reach the page where is present the not valid table.
- Correct the error with ← or → and exit from the menu pressing ↑ until the Vacutronic won't be back in Auto-calibration.
- Wait the end of Auto-calibration and press ↓ until you reach the page where is still present the not valid table.
- Correct twice the error with ← or → and exit from the menu pressing "Q".

18. **Following writing appears:**

WOOD T ALARM
DU? TL? TR? TU?
UC xx US xx TI xx
VA? VI-xx

This indicates that the temperature of the wood has exceeded the set temperature required by the program by 15°C, and for this reason the Vacutronic blocks all the functions without passing from the OFF position.

Before re-starting the system, check the correct operation of the 4-way motorised valve or the electric boiler, if present.

19. **Humidity probes**

Each probe has detection at the centre and the surface of the sample.
Press button M1 once.

HUMIDITY PROBES AS %						
1	2	3	4	5	6	UM
xx	xx	xx	xx	xx	xx	Cxx
xx	xx	xx	xx	xx	xx	Sxx

As indicated in point 1, the Vacutronic can control up to a maximum of twelve probes. Each probe has an identification number.
As mentioned in point 1, the Vacutronic can only use six probes to manage the drying program.The six probes used are the ones that appear on the display when the M1 button is pressed.

ATTENTION:
Buttons M1-M2-M3-M4-M5-M6 identify the six positions available on the display, and not the probes. Therefore, button M1 found on the bottom left may correspond to any of the probes connected.

HUMIDITY PROBES %						
x	x	x	x	x	x	UM
y	y	y	y	y	y	UC
z	z	z	z	z	z	US

X: probe identification number
Y: value of the humidity read at the centre of the sample
Z: value of the humidity read at the sample surface
By pressing the following button: →

xx	xx	xx	xx	xx	xx	zz
xx	xx	xx	xx	xx	xx	zz
xx	xx	xx	xx	xx	xx	zz
xx	xx	xx	xx	xx	xx	zz

Probes 1-2-3-4-5-6 are shown in the first two lines, from the left to the right.
Probes 7-8-9-10-11-12 are shown in the third and fourth line. The 7th value is the average of these six probes.
By pressing the → button, we return to the display of the probe values expressed as a percentage.

To select the probes we want to use to perform the drying, press M1 for a few seconds until the identification number of the probe flashes: use the ←→ buttons to select the desired probe. Now, press M1 to confirm. If accepted, the flashing should stop.
Now proceed with the other positions M2, M3, M4, M5, and M6.

☞ **NOTE:**
It is possible to select the same probe in several positions.

19. **Status legend.**

A = OFF vacuum dry kiln.
The functions 4-7-10 are active

B = Defrosting
The functions 2-3-4-5-7-8-9 are active according to the program.
If the vacuum pump antifreeze cycle is present also the function 1 is active.

C = Drying
All the functions are active according to the program.

D = Cooling
The functions 2-3-4-7-8-9-10-12 are active according to the program.
If the vacuum pump antifreeze cycle is present also the function 1 is active.

E = End cycle wait
All the functions are active according to the program

F = First vacuum
The functions 1-3-4 are active

G = Preheating
All the functions are active according to the program excepting the 12.

H = Drying pause
All the functions are active according to the program + the function n. 10.

I = Discontinuous vacuum 1
All the functions are active according to the program, excepting the number 7 and 10 that are blocked on OFF and the function n. 1 that is blocked on ON.

J = Discontinuous vacuum 2
All the functions are active according to the program, excepting the numbers 1-7-10 that are blocked on OFF.

K = Discontinuous vacuum 3
All the functions are active according to the program, excepting the numbers 1 and 7 that are blocked on OFF and the number 10 that is blocked on ON.

L = Discontinuous vacuum 4
All the functions are active excepting the number 10 that is blocked on OFF and the numbers 1 and 7 that work only the vacuum pump antifreeze cycle is present.

P = Tables error
See chapter 7-1 B

Q = Probes error
See chapter 15

R = Wood temperature alarm
See chapter 16

S = Cycle ending

VACUTRONIC TECHNICAL PROGRAMMING

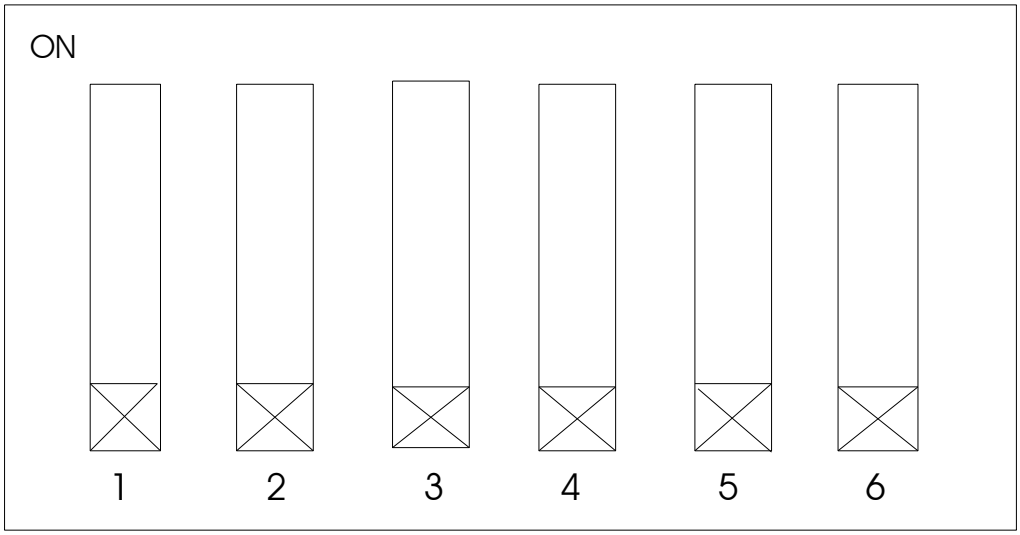
RESERVED FOR THE TECHNICAL PERSONNEL

All the operations described as follows must be performed with the Vacutronic in the OFF position

N.B: The Vacutronic may be used to control both dryers fitted with a heating plate, models of the ES range and for ones with internal ventilation - models of the EMV range.

A - ACCESS TO THE TECHNICAL PROGRAMMING

Micro-switches are fitted to the back of the boards.



In normal conditions, switches 1-2-5 must always be positioned to OFF.
Switches 3-4-6 can be positioned either to ON or OFF.

A-1 SWITCH 1

By positioning switch 1 to ON, we access the programming menu, which permits the programming of the Vacutronic for the type of dryer to command. ES or EMV.

A-2 SWITCH 2

By positioning switch 2 to ON, when switch 1 is also ON, it is possible to load a new version of the Vacutronic VX.XX program, by connection through a suitable interface to a PC which has Edb software.

A-3 SWITCHES 5-6

Free of function the n. 5.
The n. 6 must be placed always on ON.
It must be placed on OFF when you dry wood that have to rest white as much as possible, such as maple and ash woods.

A-4 SWITCHES 3-4

When several machines, (up to a maximum of 4) are connected to the same PC, these micro-switches, in the 4 possible combinations, identify the single machines.

MACHINE no.1	micro-switches 3 and 4 to OFF
MACHINE no.2	micro-switches 3 to ON and 4 to OFF
MACHINE no.3	micro-switches 3 to OFF and 4 to ON
MACHINE no.4	micro-switches 3 and 4 to ON

B – PROGRAMMING MENU WITH SWITCH TO ON

B-1 Press the following: ↓

FAN TIME ON XMIN. (1 |99min)

Program a value of 10 minutes using the ← → keys.
In the case of ES dryers without internal fans, set 5 minute.

B-2 Press the following key: ↓

FAN OFF TIME 1 min. (1 |180min)

Program 1 minute for the EMV dryers and 180 minutes for the ES ones, using the ← → keys.

B-3 Press the following key: ↓

AIR RE-ENTRY TIME ON X min. (1 |99min)

Program with the ← → keys

ES dryers: 30 minutes
EMV dryers: 35 minutes

B-4 Press the following key: ↓

AIR RE-ENTRY OFF TIME X min. (1 |180min)

Program with the ← → keys
ES dryer: 1 minute
EMV dryer: 1 minute

B-5 Press the following key: ↓

VACUUM SENSOR
CORRECTION FACTOR
xxx 0 mmHg

To make the adjustment, it is necessary to close the hatch on dryer, place the system under a vacuum and use the ← → keys to make the adjustment until the "X mmHg" value corresponds to the one indicated by the hand type vacuum gauge.
As reference value use –550 mmHg.

B-6 Press the following key: ↓

VACUUM SENSOR
HYSTERESIS
50 (50) mmHg (5 |200mmHg)

Using the ← → keys, regulate the vacuum oscillation up and down with respect to the vacuum value set in point 2.2. We recommend setting 50 mmHg for the ES and EMV with vacuum pump lubricated with water.
Set 180 mmHg for ES and EMV with vacuum pump lubricated with oil.

B-7 Press the following key ↓

SELECT THE CYCLE END
TEMPERATURE
xx °C (1 |99°C)

Using the ← → keys, we regulate the temperature at which we want to cool the raw material to before the system gives the cycle end.
We recommend setting a temperature of between 50 and 55°C.

B-8 Press the following key: ↓

SELECT THE HUMIDIFIER WATER TEMPERATURE
xx °C (1 |99°C)

Program the temperature at which we want to operate with the internal steam generator using the ← → keys.
We recommend setting a temperature of between 55°C and 60°C.

B-9 Press the following key: ↓

SELECT HUMIDIFIER WATER CYCLE TIME
Xmin.. (1 |10min)

Using the ← → keys, program a time of 1 or 2 minutes.
This is the time required for filling the vaporiser tank with water, when the level in the same has fallen below the minimum level. For dryers with a capacity of less than 6 cubic metres, set 1 minute whilst for larger systems set 2 minutes.

B-10 Press the following key: ↓

SELECT CYCLE END DELAY
XX:xx h. (00:01 |04:10)

Use the ← → keys to set the delay time for the cycle end once the higher central humidity value selected has reached the final humidity value set at point 3.
This time must not be less than 1 hour and 30 minutes.
Longer times are set if the power supply voltage of the system is subject to frequent variations.

B-11 Press the following key: ↓

CLIENT WATER DELTA TEMPERATURE
xx °C (1 | 99°C)

Use the ← → keys to program the reduction of hot water supplied by the customer with respect to that required by the program as "TI", without the Vacutronic switching from heating with hot water supplied from the outside, to the electric boiler heating the system is supplied with.
If the system is connected to an external source for hot water production, set a temperature of 20°C.
Do not set higher values to prevent excessive boiler cooling.
With systems fitted with an electric boiler, or heating with electrical resistances set a value of 0°C.

B-12 Press the following key: ↓

DISCONTINUOUS VACUUM START MOISTURE
x % (0 | 99%)

Using the ← → keys, program 3% in the case of ES dryers with heating plates and EMV dryers.
In the case of EMV dryers is almost always preferable operating with a discontinuous vacuum; so it is necessary to program a value of 70%.

☞NOTE:
Vacuum dry kilns with discontinuous vacuum cycle are faster but they consume more. You must value what you desire to do.
In the case of EMV vacuum dry kilns without interior condensers and with water vacuum pump, it is necessary to program always and only 70%.

B-13 Press the following key: ↓

DISCONTINUOUS CYCLE
VACUUM ON TIME
X min (0 |200min)

Using the ← → keys, program 5 minutes in the case of ES and EMV dryers with oil vacuum pump and a value of between 25 and 45 minutes in the case of ES and EMV with water vacuum pump.

B-14 Press the following key: ↓

DISCONTINUOUS CYCLE
VACUUM OFF TIME
x min (0 |200min)

Using the ← → keys, program 180 minutes for ES and EMV dryers with oil vacuum pump and a value of 15 minutes for ES and EMV dryers with water vacuum pump.

B-15 Press the following key: ↓

DISCONTINUOUS CYCLE AIR
RE-ENTRY TIME
0 min (0 |200min)

Using the ← → keys, program 30’ minutes in the case of ES dryers with heating plates and a value of 40 minutes for EMV dryers.
It very important that at the end of this time the pressure inside the vacuum dry kiln is arrived at 0 mmHg.

B-16 Press the following key: ↓

- **Vacuum dryers provided with <u>oil vacuum pump</u>**

ANTIFREEZE CYCLE VACUUM ON TIME x min (0 |50min)

Using the ← → keys, program 2-5 minute, both for ES and for the EMV.
It's very important that the vacuum inside the machine continues to rise gradually towards the Vi + hysteresis value.

- **Vacuum dryers provided with <u>water vacuum pump</u>**

Using the ← → keys, program 1' both for ES and EMV dryers.

B-17 Press the following key: ↓

ANTI-FREEZE VACUUM OFF TIME x min (1 |50min)

Using the ← → keys, program 20 minutes, both for the ES and for the EMV that have vacuum pump lubricated with water; program 5 min., both for the ES and the EMV that have vacuum pump lubricated with oil.

☞**NOTE:**
The settings in points B-16 and B-17 are used both to prevent the water used for cooling the vacuum pump from freezing and mainly to evacuate the steam produced at the interior of the dry kiln and keep the drying process active.

B-18 Press the following key: ↓

ON TIME OIL VACUUM DRYING x min

If the vacuum pump is lubricated with water, program 0.
If the vacuum pump is lubricated with oil, program 15 min.
That activity is used to eliminate the eventual presence of condensed water in the lubrication oil of the pump. During this time the vacuum pump is in activity and the re-entry air valve in the external condenser is opened.
This time must be always at least 10 minutes longer than the "vacuum OFF time, deicer cycle".

B-19 Press the following key: ↓

PRE-HEATING WITH VACUUM 0

0= Pre-heating with decreasing vacuum: the vacuum pump will not intervene to maintain the set vacuum.
1= Pre-heating with a vacuum: the vacuum pump will intervene to maintain the set vacuum. **ONLY USE FOR WHITE LENGTHS SUCH AS MAPLE AND ASH.**
2= Pre-heating with decreasing vacuum; the vacuum pump will not intervene to maintain the set vacuum. Superficial moisture = central moisture. It isn't necessary connect the probes to take the superficial moisture.
3= Pre-heating with vacuum; the vacuum pump will intervene to maintain the set vacuum. Superficial moisture = central moisture. It isn't necessary connect the probes to take the superficial moisture.

B-20 Press the following key: ↓

CYCLE PAUSE
0 HOURS

It serves to intercalate some hours of heating at atmospheric pressure.
Using the ← → keys, program 1 hour for the ES dry kiln and 2 hour for the EMV dry kiln.
Program 0 if the dry kiln is programmed to work with discontinuous vacuum".
In case of maple and ash drying with moisture higher than 40%, program 0 hours for ES dryers only if the vacuum pump sucks from the bottom of the machine.

B-21 Press the following key: ↓

ON TIME CYCLE
X HOURS

It is used to indicate whenever you must do the stop cycle.
Program 23 hours both for ES and for EMV; reduce to 12 hours if you must dry sawdust fresh material.

B-22 Press the following key: ↓

TEST TABLE				
UC%	TL	US%	DT	POS
XX	XX	XX	X	X

The test table is used to check if the program in the Vacutronic memory corresponds effectively to the one chosen and therefore set at point 4 in the main menu.
Using the ← → keys, it is possible to select the 20 program positions.

Pos. 0 corresponds to the maximum central humidity of the wood being dried

Pos. 19 corresponds to the minimum central humidity of the wood being dried

B-23 Press the following key: ↓

TIME TEST TABLE		
HH	TE	POS
XX	XX	X

The time test table is used to check if the program in the Vacutronic memory effectively corresponds effectively to the one chosen and therefore set at point 7.
Using the ← → keys, it is possible to select the 20 program positions.

Position 0 corresponds to the initial one with which program execution is begun.
Position 19 corresponds to the one in which the program execution ends if the drying has not already been stooped because the final desired temperature has been reached

B-24 Press the following key: ↓

OUTPUT TEST
VACUUM PUMP
OUTPUT 1
OFF

Using the buttons ← → it is possible to select 16 outputs (commands). To test the ones used by the program, use the ON/OFF button.
In this way, it is possible to individually check the good operation of all the services such as the pumps, solenoid valves, fans, etc.

B-25 Press the following key: ↓

DIGITAL INPUT TEST
0 0 0 0 0 0

Here, we can check the connection of the level inputs that arrive to connector J3 of the power board. O = contact open; 1 = contact closed.

ATTENTION:
To modify one or more parameters, the Vacutronic must be placed on OFF. Every time you modify one of the parameters, always confirm with button Q if you want the change to remain in the memory. The confirmation is given position by position.

Agg. tabelle 15.01.09

ESSENZA ESPECIE BOIS WOOD SPECIES HOLZART ESENCIA	MIN. TEMP. °C	MAX TEMP. °C	GRUPPO LEGNO GROUPE BOIS WOOD GROUP HOLZGRUPPE GRUPO MADERA			TIPO LEGNO TYPE BOIS WOOD TIPE HOLZTYP TIPO MADERA
			20-40 mm	40-60 mm	60-90 mm	
ABETE	75	75	1	1	1	3
ABURA	60	75	1	1	1	2
ACAJOU BASSAM	50	75	1	1	2	3
ACERO	40	65	2	2	2	3
AFROMOSIA	60	80	1	1	1	1
AGATHIS	60	70	2	2	2	3
AGBA	60	80	1	1	1	3
AKAZIE	40	55	3	3	3	3
ALAMO	45	62	2	2	2	3
ALDER	45	62	1	1	2	3
ALSTONIA	45	67	2	2	2	3
ANDIROBA	40	63	1	2	2	3
ANIEGRE	40	65	1	2	2	2
ANGELIQUE’	40	63	1	2	2	3
APITONG	40	60	2	2	3	3
ARAUCARIA	45	62	1	2	2	2
ASH	40	58	2	2	3	3
ASPEN	45	62	1	1	2	3
AULNE	45	67	1	1	2	3
AZOBE’	40	58	2	2	2	3
BAHIA	40	63	1	2	2	2
BALAU	40	63	2	2	1	3
BALSA	45	74	1	1	1	3
BALSAMO	40	60	2	2	3	3
BANAK	40	63	1	2	2	3
BASSWOOD	40	63	1	1	1	2
BEECH	40	65	2	2	2	2
BETE’	50	74	1	1	1	2
BETULLA	50	75	1	1	1	3
BILINGA	50	75	1	1	1	3
BINTANGOR	40	58	2	2	3	2
BIRCH	40	57	2	2	2	3
BIRKE	40	57	2	2	3	3
BIRNBAUN	40	57	2	2	3	2
BLEISTIFTZEDER	40	60	1	1	2	3
BOSSE’	50	75	1	1	1	3
BOULEAU	45	70	2	2	2	3
BUCHE	40	65	2	2	2	2
CAMPHORWOOD	40	65	2	2	3	3
CAOBA	45	70	1	1	2	3
CASTAGNO	40	65	3	3	3	3
CATIVO	35	58	3	3	3	3
CEDAR COMMON	50	75	1	1	1	3
CEDAR, WESTRN RED	50	75	1	1	2	2
CEDRO (PINACEAE)	45	65	2	2	2	2
CHARME	45	65	2	2	3	3
CHATAIGNER	40	65	3	3	3	3
CHENE	35	58	3	3	3	3
CHERRY	40	60	2	2	3	3
CHESTNUT	40	60	2	2	3	3

ESSENZA ESPECIE BOIS WOOD SPECIES HOLZART ESENCIA	MIN. TEMP. °C	MAX TEMP. °C	GRUPPO LEGNO GROUPE BOIS WOOD GROUP HOLZGRUPPE GRUPO MADERA			TIPO LEGNO TYPE BOIS WOOD TIPE HOLZTYP TIPO MADERA
			20-40 mm	40-60 mm	60-90 mm	
CILIEGIO	45	60	2	2	3	3
CIPRESSO	40	65	1	1	2	3
CIRMOLO	45	65	1	1	2	3
COIGUE	45	60	2	2	3	2
COURBARIL	45	60	1	2	2	2
DIBETOU	45	70	2	2	2	4
DOUGLAS FIR	70	75	1	1	1	3
DOUSSIE'	50	70	2	2	2	2
EBANO	40	55	2	3	3	2
EBENE D' AFRIQUE	50	55	2	2	3	2
EBONY, AFRICAN	50	55	2	2	3	2
EICHE	40	55	3	3	3	3
ELM	40	57	2	2	3	3
ENCINO	35	55	3	3	3	3
EPICEA	70	75	1	1	1	3
ERABLE	45	60	1	2	2	3
ESCHE	40	55	2	2	3	3
EUCALYPTUS GLOBULUS	40	55	2	2	3	3
EUCALYPTUS SALIGNA	40	55	2	2	3	3
EUCALYPTUS VIMINAL.	40	55	2	2	3	3
FAGGIO	40	65	2	2	2	2
FERNANSANCHEZ	45	57	2	2	2	3
FIR	65	70	1	1	1	3
FRAKE'	50	65	2	2	2	3
FRAMIRE'	40	63	2	2	2	2
FRASSINO	40	62	2	2	2	3
FRENE	40	62	2	2	2	3
FROMAGER	55	70	1	1	1	3
GRIGNON FRANC	40	57	2	2	3	3
GUATAMBU	40	57	2	2	3	3
GUAYACAN	45	60	2	2	2	2
GUM	45	60	2	2	2	3
HEMLOCK	60	68	1	1	2	3
HETRE	40	57	2	2	2	2
HICKORY	50	70	2	2	3	2
IATANAZA	60	70	2	2	3	3
IMBUIA	45	60	2	2	3	4
INCIENSO	45	60	2	2	3	3
INTSIA	45	65	2	2	2	3
IPE	40	58	2	2	3	2
IROKO	55	70	2	2	2	2
JARRAH	40	60	3	3	3	3
JATOBA	40	60	2	3	3	3
JELOTUNG	55	73	1	1	1	3
KAPUR	40	57	2	2	3	3

ESSENZA ESPECIE BOIS WOOD SPECIES HOLZART ESENCIA	MIN. TEMP. °C	MAX TEMP. °C	GRUPPO LEGNO GROUPE BOIS WOOD GROUP HOLZGRUPPE GRUPO MADERA			TIPO LEGNO TYPE BOIS WOOD TIPE HOLZTYP TIPO MADERA
			20-40 mm	40-60 mm	60-90 mm	
KASTANIENHOLZ	40	60	2	2	3	3
KEMPAS	40	60	2	2	2	3
KERUING	40	58	2	2	3	3
KHAYA GRANDIFOLIA	40	60	2	2	2	3
KHAYA IVORIENSIS	40	60	2	2	2	3
KIEFER	50	70	1	1	2	3
KIRSCHBAUM	45	60	2	2	2	3
KOSIPO	45	60	2	2	2	3
KOTIBE'	45	60	2	2	2	3
KOTO	45	60	2	2	3	2
KRABAK	45	62	2	2	2	2
KWILA	45	62	2	2	2	3
LARCH	50	68	2	2	2	3
LARICE	50	68	2	2	2	3
LAVAN RED	40	58	2	2	3	2
LAVAN WHITE	40	59	2	2	2	3
LAUREL, CHILEAN	45	60	2	2	2	3
LENGA	45	60	2	2	2	3
LIMBA	50	60	2	2	2	3
LIMBALI	50	58	2	3	3	3
LINDE	45	58	2	2	3	2
LOCUST, BLACK	45	55	3	3	3	3
LOURO	40	52	2	2	3	3
MAHOGANY, AFRICAN	45	57	1	2	2	3
MAKORE'	55	70	1	2	2	3
MANSONIA	55	75	1	1	1	2
MAPLE, HARD	50	75	1	1	1	3
MELEZE	50	68	1	2	2	3
MENGKULANG	55	65	2	2	2	3
MERANTI DARK RED	50	70	2	2	2	3
MERANTI LIGHT RED	50	70	1	2	2	2
MERBAU (KWILA)	50	70	2	2	3	3
MERISIER	45	60	2	2	3	3
MERSAWA	50	68	2	2	2	2
MOABI	40	62	2	2	2	2
MOGANO	35	57	1	2	2	3
MOVINGUI	35	56	2	2	2	3
MUTENYE	35	57	2	2	2	2
NIANGON	50	70	2	2	2	2
NOCE	50	70	2	2	2	3
NOYER	50	70	2	2	2	3
NUSSBAUM	50	70	2	2	2	3
NYATOM	45	65	2	2	2	1
OAK, EUROPEAN	40	55	3	3	3	3
OAK, RED AMERICAN	40	60	2	3	3	2
OAK, WHITE AMERICAN	40	55	3	3	3	2
OBECHE	65	65	1	2	2	2
OKOUME'	50	65	1	2	2	2
OLIVE TREE	40	55	3	3	3	2

ESSENZA ESPECIE BOIS WOOD SPECIES HOLZART ESENCIA	MIN. TEMP. °C	MAX TEMP. °C	GRUPPO LEGNO GROUPE BOIS WOOD GROUP HOLZGRUPPE GRUPO MADERA			TIPO LEGNO TYPE BOIS WOOD TIPE HOLZTYP TIPO MADERA
			20-40 mm	40-60 mm	60-90 mm	
OLIVER	40	55	3	3	3	2
OLIVENHOLZ	40	55	3	3	3	2
OLMO	45	60	2	2	3	3
ONTANO	60	75	1	1	1	3
ORME	45	60	2	2	3	3
PADOUK	55	70	2	2	2	2
PALISANDER	45	60	2	2	3	2
PALISSANDRE	45	60	2	2	3	2
PALISSANDRO	45	60	2	2	3	2
PAPPEL	50	65	2	2	2	3
PAU AMARILLO	45	60	2	2	2	2
PAU MARFIM	45	60	2	2	2	2
PEAR	50	65	2	2	3	2
PENCIL CEDAR	60	70	1	2	2	3
PERO	50	65	2	2	3	2
PEROBA	45	60	2	2	2	3
PEUPLIER	55	60	2	2	2	3
PIN MARITIME	55	70	1	2	2	3
PIN CORSE (LARICIO)	55	70	2	1	2	3
PINE EASTERN AMERICAN	55	68	1	2	2	3
PINE ELLIOTTII	55	70	1	1	2	3
PINE, HOOP	55	70	1	1	2	3
PINE RADIATA (INSIGNIS)	55	70	1	1	2	3
PINE SWEDISH	60	70	1	1	2	3
PIN SYLVESTRE	60	70	1	1	2	3
PIOPPO	60	70	2	1	2	3
PITCH PINE	60	70	1	2	2	3
PLATANO	55	65	2	2	2	3
PORIER	50	60	2	2	3	3
POPLAR	50	65	2	2	2	3
PRADOO	45	60	2	2	3	3
QUEBRACHO BLANCO	45	60	2	2	3	2
RAMIN	40	55	2	2	2	2
RAULI	45	57	2	2	2	2
REDWOOD (SEQUOIA)	45	60	1	1	2	3
ROBINIA	40	55	3	3	3	3
ROVERE	40	55	3	3	3	3
ROSEWOOD, INDIAN	40	60	2	2	2	2
RUBBERWOOD	45	60	2	2	2	3
SALICE	50	65	1	2	2	2
SAMBA	60	70	1	2	2	2
SAPELI	40	60	2	2	3	3
SAPIN	60	65	1	1	2	3
SAPIN EPICEA	60	65	1	1	2	3
SAQUI - SAQUI	55	65	1	2	2	3
SEPETIR	50	62	2	2	2	3
SEQUOIA	50	63	1	1	2	2
SERAYA, DARK RED	50	65	2	2	2	3
SERAYA LIGHT RED	50	65	2	2	2	2

ESSENZA ESPECIE BOIS WOOD SPECIES HOLZART ESENCIA	MIN. TEMP. °C	MAX TEMP. °C	GRUPPO LEGNO GROUPE BOIS WOOD GROUP HOLZGRUPPE GRUPO MADERA			TIPO LEGNO TYPE BOIS WOOD TIPE HOLZTYP TIPO MADERA
			20-40 mm	40-60 mm	60-90 mm	
SERAYA WHITE	45	60	1	2	2	3
SICOMORO	45	60	1	2	2	3
SIPO	40	55	1	2	2	4
SPRUCE	55	65	1	1	2	3
TALI	40	55	2	2	3	2
TATAJUBA	40	55	2	2	3	3
TAUN	40	55	2	2	3	3
TEAK	55	72	1	1	1	2
TEPA	55	72	1	1	1	3
TIAMA	50	65	2	2	3	3
TIGLIO	55	72	1	1	1	2
TILLEUL	55	72	1	1	1	2
TORNILLO	60	70	1	2	2	3
UTILE	60	70	1	2	2	4
VRAPITA’	50	60	2	2	3	3
VIROLA	50	60	2	2	3	2
WALNUT	45	58	2	3	3	3
WEDE	48	60	1	2	2	2
WENGE	40	60	2	2	2	2
WESTERN RED CEDAR	50	60	1	2	2	2
WILLOW	50	60	1	2	2	2
YANG	45	58	2	2	2	3
ZEBRANO	45	58	2	2	2	1
ZERRECHE	45	57	3	3	3	3

INSTALLING THE CONNECTION BETWEEN ONE OR MORE VACUTRONICS AND A PERSONAL COMPUTER

1 – Check that your PC has the Windows 95 program or a later version.

2 – Connect the various Vacutronics according to the enclosed scheme. Use a four wire + shielding cable of the telephone type, possibly with a single copper strand.

3 – Using the sixth switch located on the back of the Vacutronic, select the Vacutronic identification number (from 1 to 4). **Only use the micro-switches 5 and 6, whose four possible configurations identify the 4 Vacutronic that can be connected with the numbers from 1 to 4.**

4 – Insert the connector with seven outputs into the socket provided at one end of the interface.

5 – Insert the interface power supply to a 220 Volt socket. Make certain that the LED located inside the interface comes on.

6 – Connect the interface to the COM 1 or 2 port of your P.C., which must be switched off at that moment. If necessary, use an adapter plug between the COM and the interface.

7 – Switch on the PC.

8 – Open the computer resources.

9 – Create an “Edb” folder

10 – Transfer the entire content of the floppy disc - supplied together with the interface - into this folder.

11 – For convenience, we recommend creating an EDB icon on the desktop.

12 – Double click on the “Edb” folder to open it.

13 – Double click on the “ISVEPC” icon.

14 – Open the "Main" window and click on "FUNCTIONS" to open the options available.

15 – By clicking on "MONITOR" the page concerning the Vacutronic to which the P.C. is connected appears. If several Vacutronic are connected, the selection is made using the "WINDOW" option: - return to the "Main" window
- Select "WINDOW"
- Select the identification number of the desired Vacutronic.

16.1– The "monitor page for Vacutronic equipment permits the remote control of the Vacutronic connected. The page is divided into two areas:
- The left one, subdivided into 5 superimposed squares represents the situation at the moment.
- The one on the right, with a graph, permits reading of the historical log.

First square on the top left.
- "Insert notes": Permits the registration of the supplier-customer name of the wood being dried.
Permits observations about the wood to be recorded.
Permits checking the cycle used.

- **"**Data cancellation" button: permits the cancelling of the data read up to that moment.

- "Data memorisation" button: permits the filing of the data collected up to that moment, on the hard disc of your PC.

- "User configuration" button: permits access to the "drying configuration" programming - see point 16.1

- "Return to the main menu" button: for return to the "Main" window

- "Print table" button: permits printing the displayed process report.

- "Print graph" button: permits printing of the displayed page.

- "Lens" button: permits to amplify or to shrink the graph

- "ON" button: drying cycle start.

-"OFF" button: drying cycle interruption.

Second square on the top left.

-"STATUS": gives the current Vacutronic status

- Vacutronic OFF
- First vacuum
- Pre-heating cycle
- Drying cycle
- Cycle pause
- Errors
- Cooling cycle

Third square in the centre to the left.

- Supplies the data read by the temperature and vacuum probes and those required by the program.

Fourth square on the bottom left.

- Supplies the data read by the various probes that control the humidity of the wood being dried.

  The Vacutronic can be driven from a maximum of 6 moisture probes, but it can control from a minimum of 1 probe at a maximum of 12 probes.

  NOTE: The Vacutronic controls only n.3 probes directly; the remaining probes are controlled through some additional cards and every card controls n. 3 probes.

  EXAMPLE: to control n. 6 probes you need the Vacutronic + n. 1 additional card. To control n. 12 probes, you need the Vacutronic + n. 3 additional cards.

  The six probes that drive the dry kiln can be selected between the available, so it is possible to use the same probe for more position.

  To select the probe to use you must:

  - Select one of the numbered squares from 1 to 6, selecting it.
  - Select one of the 12 available probes, choosing between the probes that are really present.
  - Select again the square you selected before.

  NOTE: if you select a not connected probe, so with the 0% indication (whether as US, whether as UC) this one is calculated in the average computation

Fifth square on the bottom left.

- Supplies information about the current state of activity of the various devices of the dryer.

Right hand square.

- Permits examination of the historical log of the process in progress, moment by moment: activating or excluding the various probes displays their graphic trends.
  As in the graphic there aren't the temperature values in °C, moisture values in %, vacuum values in mmHg and you want to know the value, you must active the icon "Visualize graphic's instantaneous values".
  In that way will appear a table that indicate the values in the moment of your interest.

16.2- The "DRYING CONFIGURATION" window is divided into eight squares, three on the left and five on the right.

First square on the top left.

- Permit the setting of the final humidity.

Second square in the centre on the left.

- Permits the choice of the program to use, depending on the type of species and its thickness. Consult the tables shown in the instruction handbook for wood species classification.

Third square on the bottom left.

- Setting the characteristic data of the drying program as per the instruction handbook, "Vacutronic programming" chapter.

First square to the right, starting from the top.

- Possibility of choosing a time program: select the desired one: N.B. These programs are not supplied with the initial software, they must be written and memorised by the customer, according to acquired experience.

Second square to the right.

- Permits the selection of the type of species for humidity measurement.
  See point 8 of the Vacutronic programming chapter.

Third square to the right.

- Permits DU selection as the average or absolute value. See point 12 of the Vacutronic programming chapter.

Fourth square to the right.

- Permits the determination of the maximum operating vacuum. See point 10 of the Vacutronic programming chapter.

Fifth square to the right.

- "Transmission to the instrument" button: permits the transfer and memorisation of the programming set in the Vacutronic.

- "User configuration" button: permits the opening of the service configuration window. Access to this window is reserved exclusively to ISVE technical personnel and persons authorised by the same. If you wish to intervene, adhere to the instructions in the Vacutronic technical programming paragraph.
NOTE: some parameters could be modified only operating directly on the Vacutronic, so you must use this window only for the control.

- "Close window" button": permits the window to be closed.

17 – "Fmain" main window: this window has a main window and n.3 icons.

- "Drying analysis window" button": permits access to a dialogue window listing all the drying operations performed and memorised. **This represents the machine's historical log.**

- "Stored impregnations visualizing": permits access to a dialogue window where there is the list concerning the executed and stored impregnations.

- "Close window": permits window closing.

- "FUNCTIONS" menu: this has n.3 options

  - Drying timed programs (see part n. 18)

  - **Drying programs** (see part n. 18)

  - **Close,** permits to go out from the program

-"OPTIONS MENU": this has four options

- **COM setting** opens a dialogue window in which it is possible to select:
a) The serial port to use for the connection
b) The BAUD value, which must be 2400

- **Inserting the company name:** opens a dialogue window where it is possible to show your NAME and ADDRESS, so that they will appear in the printed reports of the cycles executed.

- **Memorisation time setting:** opens a window where it is possible to define every how many minutes data for memorisation is read. We recommend a time of 30 minutes for dry kilns and 5 minutes for impregnator.

- **Program transmission:** opens a window in which the programs available appear, with a code where:
- The first three letters refer to the type of system, for the **EVMXXXYY.MOT** dryers**.**
- The three numbers indicate the version, - the higher the number, the higher more up-to-date the version.
- The next two letters indicate the language:
  it = Italian
  in = English
  sp = Spanish
  te = German
  fr = French

- Select the programme
- Click on "open"
- After saving give OK and exit the "Vacutronic PC" window
- Click on "ISVE PC".

<u>NOTE</u> Saving a new programme can only be carried out after "cancellation programme".

- "**Cancellation programme**", open a window where it is possible to select the device (Vacutronic) the programme can be erased from. Once selected, give the OK and keep scrupulously to the instructions supplied by the PC.
If the operation is carried out correctly the word *"boot"* will appear on the Vacutronic display
NOTE the options "transmission programme" e "cancellation programme" must be carried out only with Vacutronic OFF and with DIP 1 and 2 positioned on ON.

WARNING: change of position of DIP n.2 must always be carried out with Vacutronic switched off "without electric power".

- "Language selection", open a window where it is possible to select the language to be used on the PC display. Once the OK has been given, exit from the programme and start again from the icon "Connection to ISVE PC".

- " **Configuration vacutronic**", see point C-16.

- "**Configuration language**", open the "Setting up translation" window. This window has 3 columns: the first column shows. All the displays of the PC have a reference number on the bottom line, starting from zero.
The second column shows the original wording present in the window in Italian.
The third column shows the wording present in the window in the language selected.
N.B. the software you have been supplied with is complete with four base languages: Italian, French, Spanish and English.
Should you wish to have the display in a different language, select the language you are not interested in and change the text in the column on the right with the text in the language you want; it is important to keep to the length of the text in Italian given in the column on the left so as not to modify the graphics of

the individual windows. When you reach reference number 12, remember to replace the word in the language discarded with the one in the new language.

- "**HELP**" menu: same indications as those in this booklet.

C-18- Setting up personalised programmes starting from the display "Vacutronic PC", where the icons referring to the connected Vacutronic dry kilns are shown.
Click the icon of the required Vacutronic using the right key of the mouse.
A small window will appear giving two options:

- **Programming Timing**: by clicking this option we open a window "timing drying programme" which displays a table for writing a simplified drying programme.
  The programme is configured as a table with 20 positions; for each position it is necessary to indicate:
  - The time in hours this configuration must last
  - The drier temperature (internal environment or heating plates)
  - The temperature of the internal condensers
  - The vacuum value required

  The table must be filled in from left to right and the Vacutronic will always follow it from left to right carrying out pre-heating according to how it has been programmed.
  WARNING: when a timing programme is used it is necessary to bear in mind that the Vacutronic will not carry out either the pre-heating or the initial vacuum phases, so the first positions of the table must be used to gradually increase the temperature.
  The use of these timing programmes is useful if the initial humidity, thickness and types of wood are always the same. Using this programme, written on the basis of acquired experience, drying times are certain, in fact the heating temperatures change based on the time and not on the drop in humidity. Once the programmes have been written they must be saved and then transferred to the Vacutronic. *We would like to point out that whereas you can write numerous timing programmes only 9 can be transferred and memorized in the Vacutronic and only one of these can be carried out.*
  To transfer the programmes to the Vacutronic, follow this procedure:
- Click on "open"
- Select the programme saved that you want to use
- Click on "open"
- Once the programme is open, check to see if it is the one you require, then click on the "transmission of programme to instrument" pushbutton.
- A dialogue window will open where it will be possible to choose one of the 9 available positions in which to insert the programme; then give the OK.
- After saving, go back to the "Vacutronic PC" window

- Close and re-open this window.
- Double click the icon of the machine where you have loaded the programme.
- Once the "monitor for Vacutronic equipment" window is open click on the " user configuration" pushbutton.
- Once the "drying configuration" window is open you will find a timing table displayed in the position you chose, your programme in fact, which will also be present in the direct programming of the Vacutronic.

  NOTE: We recommend coding the various programmes using not more than eight letters.
- We would also like to remind you that even when you use a timing programme, it is always necessary to select the group and the thickness, as in point 4, pre-heating taking it to 0 (point 6), the type of wood (point 8), final humidity (point 3) and the maximum vacuum taking it to 0 as well.
- Once the nine programmes have been stored in the Vacutronic and, should you wish to save another programme you have to sacrifice one of the nine programmes already present.
- If you wish to reset all the personalized stored programmes, follow this procedure:
- Remove electric power to the Vacutronic
  - Holding down the arrow pointing left, restore electric power.
    On the display the wording ***"reset tables"*** will appear**.**
- Press "Q"
- Switch off electric supply and then switch on again, after auto-calibration.
  The Vacutronic is ready.

- "**Drying programmes**", on clicking on this option, we open a "programming drying for dry kilns" window, which displays a table for writing a new programme. The parameters to set are:
- Centre humidity of the wood being dried
- Temperature of the wood being dried
- Surface humidity of the wood being dried
- Temperature difference

  The programme is similar to those present in the original software; this window enables the installation of a programme optimised for your requirements, that must, however, be installed in the Vacutronic replacing positions PC 1 and PC 9.
  To install follow the same procedure as for timing programming.

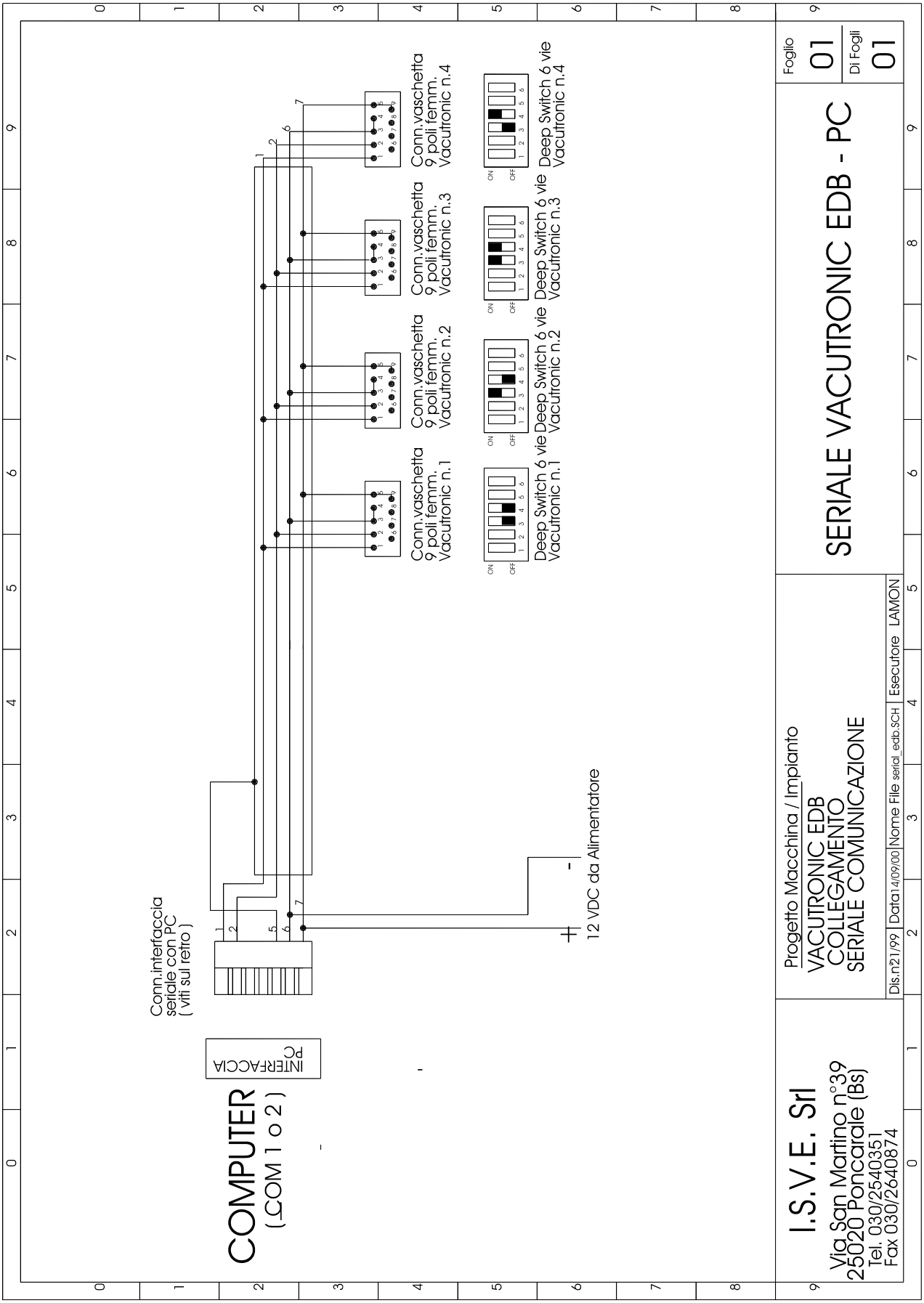
C-19- Virgin Vacutronics characterized by the word "***booth***" on the display. Install programme in compliance with point C-17.

ATTENTION

TO REGISTER THE DATA, THE VACUTRONIC MUST REMAIN CONNECTED FOR THE ENTIRE DURATION OF THE PROCESS TO YOUR PC WITH THE PAGE

VACUTRONIC EQUIPMENT MONITOR

OPEN, EVEN IF ONLY AS AN ICON


COMPUTER
(COM 1 o 2)
INTERFACCIA PC
Conn.interfaccia seriale con PC (vfi sul retro)
12 VDC da Alimentatore
Conn.vaschetta 9 poli femm. Vacutronic n.1
Conn.vaschetta 9 poli femm. Vacutronic n.2
Conn.vaschetta 9 poli femm. Vacutronic n.3
Conn.vaschetta 9 poli femm. Vacutronic n.4
Deep Switch 6 vie Vacutronic n.1
Deep Switch 6 vie Vacutronic n.2
Deep Switch 6 vie Vacutronic n.3
Deep Switch 6 vie Vacutronic n.4
ON
OFF
SERIALE VACUTRONIC EDB - PC
Foglio 01
Di Fogli 01
Progetto Macchina / Impianto
VACUTRONIC EDB
COLLEGAMENTO
SERIALE COMUNICAZIONE
Dis.n°21/99
Data 14/09/00
Nome File seriel_edb.SCH
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