VISION**100** THR

Use and maintenance manual

ENGLISH

READ AND KEEP

Rel. 8

Pego

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

1.1	GENERALITY

DESCRIPTION:

The **VISION100 THR** control allows the management of temperature and humidity in seasoning and storage environments and in industrial processes.

The system is composed of the 100N MASTER unit on which all electric connections are carried out and of the VISION100 THR control console equipped with LCD display for quick and complete information on the cold room status. It enables controlling cold, hot, ventilation, cold room light, humidification, air change, refreshments, dehumidification, defrosting, alarms. Up to five settable and customisable programs, each of seven phases.

APPLICATIONS:

- Seasoning and drying cells.
- Germination cells with day/night phases.
- Preservation cells with or without humidity control.

MAIN FEATURES:

- Back-lit LCD display.
- 7 state LED.
- Clock and calendar.
- Manual or automatic functioning.
- Up to a maximum of 5 completely customisable programs. Automatic management of 7 phases for each program. Simple programming and selection of set programs. More programs can be combined to exceed the limit of 7 phases.
- Possibility of excluding hot and humidity to manage only preservation cell with defrosting activation.
- Temperature with decimal point.
- Password for keys lock.
- Day/night cycle for germination plants with double setpoint.
- Dehumidification programming with cold or hot request.

PRODUCT IDENTIFICATION CODES   1.2

200VIS100THR   Temperature and humidity control for seasoning, preservation and industrial processes. Composed of VISION100 THR console and 100N MASTER.

OVERALL CLEARANCES   1.3

Dimensions in mm:

VISION100 THR

100N MASTER
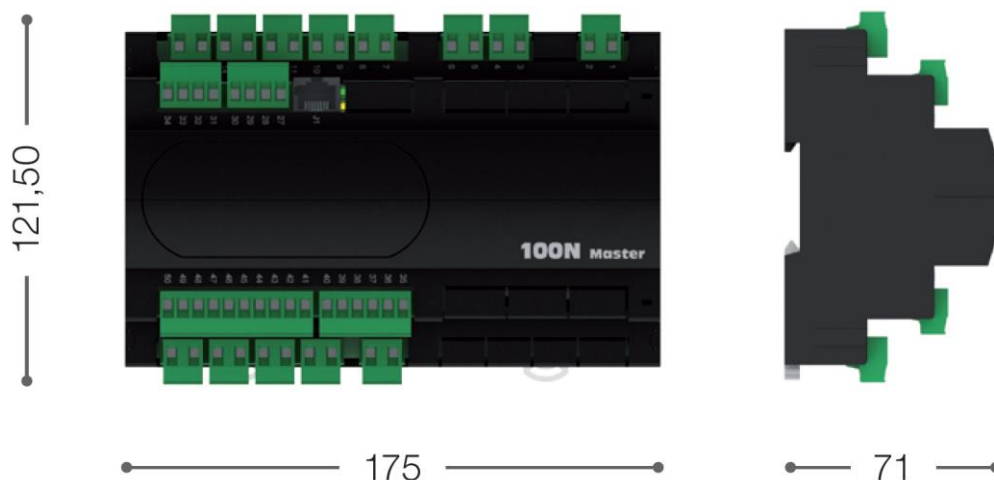
IDENTIFICATION DATA   1.4

The equipment described in this manual is provided with an identification data plate of the same placed on one side:

- Name of Manufacturer
- Equipment code
- Serial number
- Date of production
- Power supply voltage

Console/Master Data connection
J1
Description: **VISION 100 THR**
Code: **200VIS100THR**
S.N. : **24000000001**
MFG Date: **17/07/2024**
MADE IN ITALY   RoHS compliant

100N MASTER THR
MADE IN ITALY
RoHS compliant
Description: **VISION 100 THR**
Code: **200VIS100THR**
S.N. : **24000000001**
MFG Date: **17/07/2024**
P. Supply: 230Vac +/-10% 50-60Hz

CHAPTER 2: INSTALLATION

| **2.1** | **MAIN WARNINGS FOR THE INSTALLER** |

1. Install the device in places where the protection rating is observed and try not to damage the box when drilling holes for wire/pipe seats;

2. Avoid using multipolar cables in which there are conductors connected to inductive and power loads and signal conductors such as probes and digital inputs;

3. Do not fit power supply wiring and signal wiring (probes and digital inputs) in the same raceways or ducts;

4. Minimize the length of connector wires so that the wiring does not have a spiral shape;

5. All wiring must be of a cross-section suitable for relevant power levels;

6. Place a general protection fuse upstream from the electronic controller;

7. When it is necessary to extend the probes, the wires must have a cross-section of at least 1mm². The probes extension or shortening could alter the factory calibration; then check and calibrate through an external thermometer.

| **2.2** | **STANDARD EQUIPMENT FOR ASSEMBLY AND USE** |

For assembly and use, the electronic controller **VISION100 THR**, is equipped with:

• N. 2 temperature probes;

• N. 1 telephone plug cable;

• N. 1 user manual;

• N. 1 VISION100 console (200VISIONTHR);

• N. 1 100N MASTER (200100NMSTH1);

INSTALLATION

Fig. 1: Position the module 100N MASTER on the DIN guide and close the 2 lower hooks to lock it on the same.
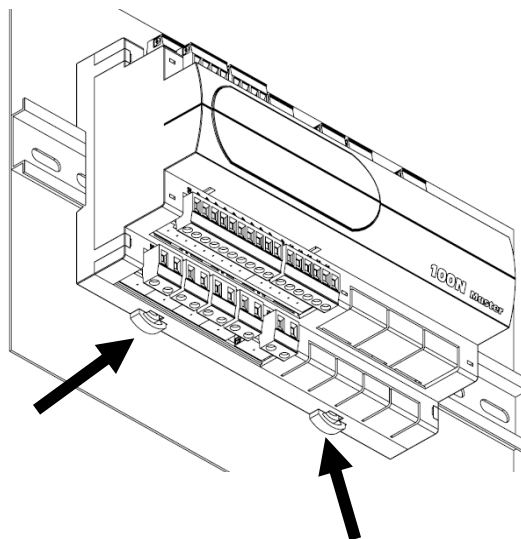
Fig. 2: Fix the **VISION THR** console using the two screws to be inserted in the slots underneath the keys frame.

Fig. 3: VISION THR console perforation template.
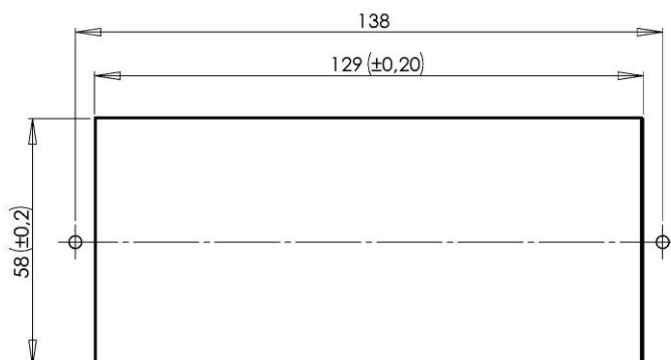
FUNCTIONS MANAGED BY VISION 100 THR | 2.4

- Temperature set and humidity set (neutral area) parameters adjustment and displaying.

- Stand-by state activation/deactivation.

- Probes alarms signal.

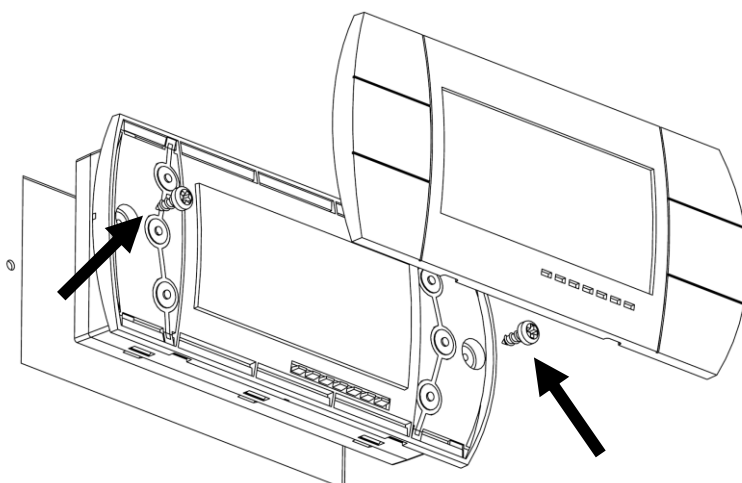- Air change control parameters adjustment.

- Defrosting parameters adjustment.

- Refreshments parameters adjustment.

- Fans parameters adjustment.

- Outputs state displaying.

- Simultaneous displaying of humidity and temperature value.

- Automatic programs management with automatic variation of temperature and humidity set in time.

- Clock function.

CHAPTER 3: TECHNICAL FEATURES

TECHNICAL FEATURES 3.1

Power supply	
Voltage	230 V~ ± 10% 50/60Hz
Max. absorbed power (electronic control only)	~ 8 VA
Climatic Conditions	
Work temperature	-5T50°C <90% R.H. non-condensing
Storage temperature	-10T70°C <90% R.H. non-condensing
Main Features	
Type of connectable probes (temperature)	NTC 10K 1%
Resolution (ambient temperature)	0.1°C
Probes reading precision (ambient temperature)	± 0.5°C
Reading range	-45 ÷ +45 °C
Humidity probe	analogical input 4-20 mA
Humidity probe reading precision	see humidity probe features
Humidity probe reading range	0-99 Hr%

Output features

Description	Installed relay	Board output features	Notes
Cold (output 3-4)	(Relay 30A AC1)	10A 250V~ (AC3) (2HP) (100000 cycles)	All outputs are contacts without voltage
9 outputs from 5 to 21 (see connections layout)	(Relay 16A AC1)	16A 250V~ (AC1)	

Dimensional features	
100N MASTER Dimensions	121.50mm x 71mm x 175mm (HxDxL)
VISION100 THR Dimensions (fitted)	70mm x 32mm x 158mm (HxDxL)
Mechanical and insulation features	
Display protection degree	IP65
Box material	Self-extinguishing ABS

4.1	WARRANTY TERMS

The **VISION100 THR** series electronic controls are covered by a 24-months warranty against all manufacturing defects as from the date indicated on the product ID code.

In case of defect the product must be appropriately packaged and sent to our production plant or to any authorized Service Center <u>with the prior request of the Return Authorization Number</u>.

Customers are entitled to have defective products repaired, spare parts and labor included. The costs and the risks of transport are at the total charge of the Customer.
Any warranty action does not extend or renew its expiration.

The Warranty does not cover:
- Damages resulting from tampering, impact or improper installation of the product and its accessories.
- Installation, use or maintenance that does not comply with the instructions provided with the product.
- Repair work carried out by unauthorized personnel.
- Damage due to natural phenomena such as lightning, natural disasters, etc…

In all these cases the costs for repair will be charged to the customer.

The intervention service in warranty can be refused when the equipment is modified or transformed.

Under no circumstances **Pego S.r.l.** will be liable for any loss of data and information, costs of goods or substitute services, damage to property, people or animals, loss of sales or earnings, business interruption, any direct, indirect, incidental, consequential, damaging, punitive, special or consequential damages, in any way whatsoever caused, whether they are contractual, extra contractual or due to negligence or other liability arising from the use of the product or its installation.

Malfunction caused by tampering, bumps, inadequate installation automatically declines the warranty. It is compulsory to observe all the instructions in this manual and the operating conditions of the product.

Pego S.r.l. disclaims any liability for possible inaccuracies contained in this manual if due to errors in printing or transcription.

Pego S.r.l. reserves the right to make changes to its products which it deems necessary or useful without affecting its essential characteristics.

Each new release of the Pego product user manual replaces all the previous ones.

As far as not expressly indicated, is applicable the Law and in particular the art. 1512 C.C. (Italian Civil Code).

For any controversy is elected and recognized by the parties the jurisdiction of the Court of Rovigo.

CHAPTER 5: DATA PROGRAMMING

CONTROL PANEL
5.1

State LED

FRONT KEYBOARD
5.2

❶ **PROGRAM START/STOP** (press for 5 seconds to select the program to be performed, press for 5 seconds to end a program in progress)
TIMER (by pressing the key once it displays remaining time of phase in execution)

❷ **UP**
MANUAL REFRESHMENT and DEFROSTING (activates both functions)

❸ **STAND BY** (plant ON/OFF, the program in progress keeps the remaining time count)

❹ **SET** ambient and humidity temperature (subsequent pressing alternate temperature and humidity)

5 **DOWN / MUTE ALARM / AIR CHANGE FORCING**

6 **COLD ROOM LIGHT**

| 5.3 | LED DISPLAY |

1 **PHASE 0 Advance/Dripping/Germination day phase**

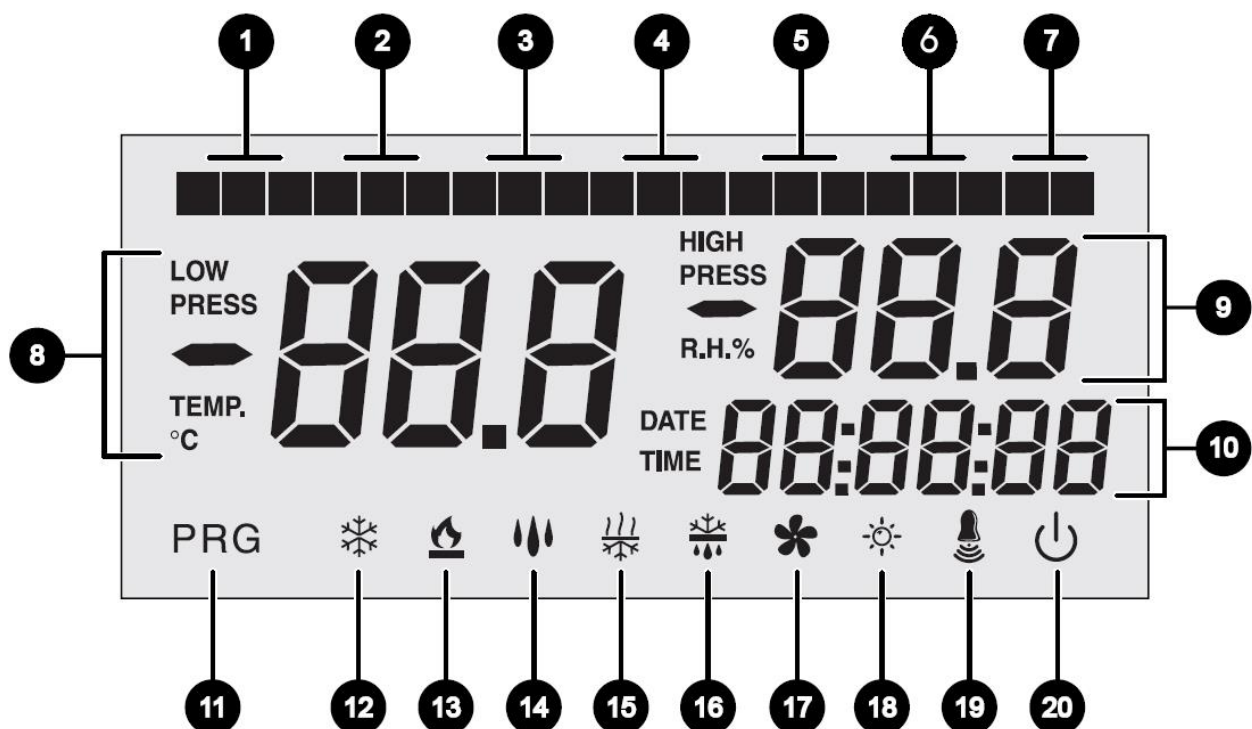**2** **PHASE 1 advancement**

3 **PHASE 2 advancement**

4 **PHASE 3 advancement**

5 **4** PHASE 4 advancement / Night PHASE germination

6 **5** PHASE 5 advancement

7 **R** Refreshment

8 ⟶ Parameters/ambient temperature value

9 ⟶ Ambient relative humidity value/parameters value/error codes

10 ⟶ Time/date/time parameters values/program in progress/timer

11 **PRG** Programming (control is in programming phase)

12 Cold (flashing if only called for dehumidification)

13 Hot (flashing if only called for dehumidification)

14 Humidification

15 Dehumidification

16 Defrosting

17 Fans (flashing during an air exchange)

18 Light (flashing if door switch is active)

19		**Alarm**
20		**Stand-by**

5.4	**GENERALITY**

For operator safety and practicality, the **VISION100 THR system** envisions two programming levels; the first for configuration of the, frequently amendable, **SETPOINT** parameters only, the second for programming and setting of the main parameters relating to the various board functioning modes. It's not possible to directly access the second level from first level programming, exit current programming first.

5.5	**SYMBOLS**

For practicality we will use the following symbols:

• (▲) the UP key that performs value increase functions and forcing of defrosting/refreshing;

• (▼) the DOWN key that performs value decrease, mute alarm and air change forcing functions.

5.6	**SETPOINT SETTING AND DISPLAYING**

1. Press the **SET key** to display the current **SETPOINT** value (alternatively, temperature and humidity).

2. Keeping the **SET key** pressed and pressing one of the (▲) or (▼) keys, the **SETPOINT** value can be amended.

Release the **SET key** to return to displaying the cell temperature; memorising of the made amendments will automatically happen.

FIRST LEVEL PROGRAMMING (User level) · 5.7

To access the first level configuration:
1. Keep the keys (⌃) and (⌄) pressed simultaneously for a few seconds until the first programming parameter appears on the display.
2. Release the keys (⌃) and (⌄).
3. Using the (⌃) key or (⌄) key, select the parameter to be amended.
4. After having selected the wanted parameter, it will be possible:
   - To display its setting by pressing the SET key.
   - Amend its setting by keeping the SET key pressed and by pressing one of the (⌃) or (⌄) keys. To exit the menu once the configuration values are set, simultaneously keep the (⌃) and (⌄) keys pressed for a few seconds, until the cold room temperature value appears again.
5. Memorisation of the amendments made to the parameters will happen automatically when exiting the configuration menu.

FIRST LEVEL PARAMETERS LIST (User Level) · 5.8

PARAMETER	MEANING	VALUES	DEFAULT
dtC	**HOT temperature differential** referred to main SETPOINT. It's expressed in absolute value and defines the temperature hysteresis for HOT referred to temperature SETPOINT.	(dtn+0.2) ÷ 10 °C	2,0 °C
dtF	**COLD temperature differential** referred to main SETPOINT. It's expressed in absolute value and defines the temperature hysteresis for COLD referred to temperature SETPOINT.	(dtn+0.2) ÷ 10 °C	2,0 °C
dtn	**NEUTRAL temperature area** referred to main SETPOINT. Cold and hot are not activated in neutral area; it symmetrically includes an upper part (hot) and a lower part (cold) respect to temperature SETPOINT.	dtF>dtn ÷ 0 °C dtC>dtn ÷ 0 °C	0,0 °C
dUU	**HUMIDIFICATION differential** referred to main SETPOINT. It's expressed in absolute value and defines the humidification hysteresis referred to humidity SETPOINT.	(dUn+1) ÷ 10 RH%	5 RH%
dUd	**DEHUMIDIFICATION differential** referred to humidity SETPOINT. It's expressed in absolute value and defines the dehumidification hysteresis referred to humidity SETPOINT.	(dUn+1) ÷ 10 RH%	5 RH%
dUn	**NEUTRAL humidity area** referred to main SETPOINT. Humidification and dehumidification are not activated in neutral area; it symmetrically includes an upper part (humidification) and a lower part (dehumidification) respect to humidity SETPOINT.	dUU>dUn ÷ 0 RH% dUd>dUn ÷ 0 RH%	0 RH%
d4	**Defrosting interval** (hours). d4=0 disables defrosting	0 ÷ 24 hours	0 hours
d5	**Defrosting maximum duration** (minutes)	1 ÷ 60 min	10 min
d6	**End defrosting setpoint**. Defrosting is not carried out if the temperature read by the defrosting probe is higher than value d6. (In case of faulty probe, timed defrosting is carried out)	-35 ÷ 45 °C	15°C

PARAMETER	MEANING	VALUES	DEFAULT
d7	**Dripping duration** (minutes) At the end of defrosting, the compressor and the fans remain still for the d7 set time, the defrosting icon flashes.	0 ÷ 10 min	0 min
F5	**Fans pause** after defrosting (minutes) Enables keeping the fans still for an F5 time after dripping. This time starts from the end of dripping. If dripping is not set, the fans pause at the end of defrosting.	0 ÷ 10 min	0 min
At1	**Minimum temperature alarm** Enables defining a minimum temperature value to the ambient. Below value At1, the alarm state will be signalled by the alarm icon flashing, the displayed temperature flashing and an internal buzzer acoustically signalling the existence of the anomaly. The alarm is signalled after the Ald time.	-45 ÷ At2-1 °C	-45°C
At2	**Maximum temperature alarm** Enables defining a maximum temperature value to the ambient. Above value At2, the alarm state will be signalled with the alarm icon flashing, the displayed temperature flashing and an internal buzzer acoustically signalling the existence of the anomaly. The alarm is signalled after the Ald time. The alarm does not suspend any defrosting in progress.	At1+1 ÷ 45 °C	+45°C
AU1	**Minimum humidity alarm** Enables defining a minimum humidity value to the ambient to be humidified. Below the AU1 value, the Eu alarm state will be signalled with the alarm icon flashing and the buzzer active. Silencing, the humidity and the alarm icon remain flashing. The alarm is signalled after the time (Ald).	1 ÷ AU2-1 RH%	1 RH%
AU2	**Maximum humidity alarm** Enables defining a maximum humidity value to the ambient to be humidified. Above the AU2 value, the Eu alarm state will be signalled with the alarm icon flashing and the buzzer active. Silencing, the humidity and the alarm icon remain flashing. The alarm is signalled after the time (Ald). AU2=99 does not signal the alarm.	AU1+1 ÷ 99 RH%	99 RH%
rA	**Air change enabling in real time** With rA=1 it is possible to set up to 6 air changes in real time during one day, through parameters rA1, rA2, rA3, rA4, rA5, rA6.	0 = Disabled 1 = Enabled	0
rA1 ... rA6	**Air change times programming** It is possible to set up to 6 times for the air changes. The previous value locks the subsequent one making them sequential.	00:00 ÷ 23:50	--
drA	**Air change duration**	0 ÷ 60 min	6 min
tEu	**Evaporator probe temperature display** (if dE =1 nothing is displayed)	temperature	read only

| **SECOND LEVEL PROGRAMMING (Installer level)** | **5.9** |

To access second level programming, keep the UP (▲), DOWN (▼) and LIGHT keys pressed for a few seconds.

When the first programming parameter appears, the system automatically switches to stand-by.

1. Using the (▲) key or (▼) key, select the parameter to be amended. After having selected the wanted parameter, it will be possible:

   • To display its setting by pressing the SET key

   • To amend its setting by keeping the SET key pressed and by pressing one of the keys (▲) or (▼).

2. Once configuration values have been set, to exit the menu press keys (▲) and (▼) simultaneously, keeping them pressed for a few seconds, until the cold room temperature value appears again.

3. The changes made to the parameters will be stored automatically upon exiting the configuration menu.

4. Press the STAND-BY key to enable the electronic control.

| **SECOND LEVEL VARIABLES LIST (Installer Level)** | **5.10** |

PARAMETER	MEANING	VALUES	DEFAULT
AC	**Door switch input state** (with door closed)	0 = normally open 1 = normally closed	0
Pc	**Main alarm digital input state** (9-18)	0 = normally open 1 = normally closed	0
F3	**Fans state when cold, hot, humidification and dehumidification are at a stand-still**	0 = Fans in continuous start 1 = Fans switched-off if cold, hot, humidification and dehumidification switched-off	1
F4	**Fans pause during defrosting**	0 = Fans working during defrosting 1 = Fans not working during defrosting	1
F6	**Evaporator fans activation for air recirculation**. The fans activate for a time defined by F7 if they have not started working for the F6 time. If activation time coincides with the defrosting time, end of defrosting is awaited. The speed of the fans (high/low) is the same as that selected for the phase in progress.	0 – 240 min 0 = (function not activated)	0 min

PARAMETER	MEANING	VALUES	DEFAULT
F7	**Evaporator fans activation duration for air recirculation.** Functioning time of fans for F6	0-240 sec	0:00:10
F8	**Fans speed during seasoning / preservation.** The value of this variable is amended based on the setting during the last phase of a performed program.	0 = High speed 1 = Low speed (only if rin=1)	0
Pr	**Refreshment period.** Interval between one refreshment and the subsequent one. Refreshment is a work pause where cold, hot, humidifies and dehumidifies are disabled.	0 ÷ 24 hours (at 10 min steps) 0 = Disabled	0 h
dr	**Refreshment phase duration.**	1 ÷ 240 min	120 min
rin	**K7 Multifunction relay function** choice. (clamps 15 - 16)	0 = Refreshment 1 = Fans low speed	0
Ald	**Signal delay and alarm display** time of minimum or maximum temperature or humidity.	(1 min ÷ 4 hours)	120 min
C1	**Minimum time between switch-off and subsequent compressor ignition.** It also stops the fans if they are not active for other functions	0...15 min	0
dEU	**Dehumidification mode selection** The separate dehumidification calls hot and cold only for temperature	0 = cooling 1 = heating 2 = separate dehumidification	0
EnU	**Humidification Enabling**	0 = disabled 1 = enabled	1
End	**Dehumidification Enabling**	0 = disabled 1 = enabled	1
Cat	**Ambient probe value correction**	-10,0 ÷ +10,0 °C	0,0°C
CaU	**Humidity probe value correction**	-20 ÷ +20 RH%	0 %
EnH	**Hot enabling**	EnH = 1 hot enabled EnH = 0 hot disabled	1
Hr	**Humidity management**	1 = humidity management enabled. 0 = humidity management disabled. The humidity probe can be disconnected without generating alarms. The display shows the evaporator probe in place of the humidity (if dE = 0).	1
dE	**Evaporator probe exclusion**	0 = probe present 1 = probe absent	1
d1	**Type of defrosting:** with cycle reverse (hot gas) or resistance. The compressor output is also activated with hot gas	0 = with resistance 1 = with hot gas	0
LSt	**Minimum value attributable to setpoint** of temperature	-45 ÷ HSt °C	-45°C
HSt	**Maximum value attributable to setpoint** of temperature	+45 ÷ LSt °C	+45°C

PARAMETER	MEANING	VALUES	DEFAULT
btF	**Differential** of temperature referred to Setpoint for **COLD LOCK**. It constitutes the SET-btF limit below which the cold call relay (3-4) and the Dehumidification relay (25-26) are disabled.	0 ÷ 20 °C 0 = Disabled	0
btC	**Differential** of temperature referred to Setpoint for **HOT LOCK**. It constitutes the SET+btC limit above which the hot call relay (5-6), the Humidification relay (11-12) and the Dehumidification relay (25-26) are disabled.	0 ÷ 20 °C 0 = Disabled	0
dEt	**Limit time for DEHUMIDIFICATION**. If the dehumidification request is not satisfied (reaching of humidity SET) within the time (dEt), the variable (dEO) is taken into consideration for the operation to be performed. Counting starts at every new dehumidification request.	(0 min ÷ 4 hours) (1 min steps) 0 = Disabled	0
dEo	Operation to be performed in case limit Timeout for dehumidification (dEt) intervenes. dEO = 0 an alarm signal (Ed) + buzzer + alarm relay is given. The alarm is displayed even when humidity set is achieved; it does not lock the normal functioning and once silenced, the dEt count re-starts. dEO = 1 a refreshment of the duration (dr) is launched and the timer relating to the interval (Pr), if present, is recharged.	0 = alarm only 1 = a refreshment is performed.	0
Ad	**Net address for connection to supervision system TELENET.**	0 ÷ 31	0
Aut	**Automatic cycles management or via TeleNET.** For managing the cycles via TeleNET to set Aut=1	0 = local cycles 1 = TeleNET management	0
Cg	**Seasoning or germination selection**	0 = seasoning cycles active 1 = germination day/night cycle active	0
CgA	Not used.	0	0
tg2	Not used.	0	0

PARAMETER	MEANING	VALUES	DEFAULT
P1	**Password:**type of protection. (Active when PA is different from 0).	0 = Total block. It's only possible to see the temperature and humidity set points. 1 = It blocks access in 1st and 2nd level programs. It blocks access to modify sprouting cycles and modify programs. 2 = It blocks access to the 1st and 2nd programming level. 3 = It blocks access to the 2nd programming level.	3
PA	**Protection password**	0 – 999 0 = Disabled	0
dMY	**Current date**	dd:mm:yy	
HMS	**Current time**	0:00...23:59	
reL	**release software**	indicates the software version	(read only)

5.11　AUTOMATIC PROGRAMS Pr1, Pr2, Pr3, Pr4, Pr5

To access the automatic programs parameters, keep keys 🕘 START/STOP and 🎛️ SET pressed for a few seconds (the function is active only if Cg=0).

1. Using key (▲) or key (▼) select the program to be amended. After having selected the program, press the SET key to display the parameters.

2. Using key (▲) or key (▼) select the parameter to be amended.

3. Amend the setting by keeping the SET key pressed and by pressing one of the keys (▲) or (▼).

4. Once configuration values have been set, to exit the menu press keys (▲) and (▼) simultaneously keeping them pressed for a few seconds, until the temperature value appears again.

5. Memorisation of the amendments made to the variables will happen automatically when exiting the configuration menu. Exiting from the menu happens spontaneously after an inactivity period or by simultaneously pressing keys (▲) and (▼) for a few seconds.

The following table represents any one of the Pr1, Pr2, Pr3, Pr4, Pr5 programs:

PARAMETER	MEANING	VALUES	DEFAULT
CIC	CIC=0 at the end of the last program phase (phase 5) it switches to manual. CIC=1 at the end of the last timed phase (phase 5) it returns to initial phase (phase 0). An infinite loop of the phases is therefore created. CIC=2 at the end of the last program phase (phase 5) it switches to the subsequent program.	0 = it ends the program and switches to manual. 1 = loop phases 2 = calls subsequent program	0
Sgt	**Phase 0 or dripping phase temperature setpoint**	-45,0 ÷ +45,0 °C	0,0°C
SgU	**Phase 0 or dripping phase humidity setpoint**	0...99 RH% 0 = disabled	60%
Sg	**Dripping enabling**	0 = normal functioning 1 = hot only enabled 2 = hot, cold only enabled	0
Sgr	**Refreshment**	0 = NO 1 = YES	0
vSg	**Dripping phase evaporator fans speed.** Amends the value of 2nd level variable (F8)	0 = High speed 1 = Low speed (only if rin=1)	0
tSg	**Dripping phase duration**	0:00...99:30 (at 30 min steps)	0:00
St1	**Phase 1 temperature setpoint**	-45,0 ÷ +45,0 °C	0,0°C
SU1	**Phase 1 humidity setpoint**	0...99 RH% 0 = Disabled	60
rn1	**Phase 1 refreshment**	0 = NO 1 = YES	0
v1	**Phase 1 evaporator fans speed.** Amends the value of 2nd level variable (F8)	0 = High speed 1 = Low speed (only if rin=1)	0
t1	**Phase 1 duration**	0:00...99:30 (at 30 min steps)	0:00
St2	**Phase 2 temperature setpoint**	-45,0 ÷ +45,0 °C	0,0°C
SU2	**Phase 2 humidity setpoint**	0...99 RH% 0 = Disabled	60%
rn2	**Phase 2 refreshment**	0 = NO 1 = YES	0
v2	**Phase 2 evaporator fans speed.** Amends the value of 2nd level variable (F8)	0 = High speed 1 = Low speed (only if rin=1)	0
t2	**Phase 2 duration**	0:00...99:30 (at 30 min steps)	0:00
St3	**Phase 3 temperature setpoint**	-45,0 ÷ +45,0 °C	0,0°C
SU3	**Phase 3 humidity setpoint**	0...99 RH% 0 = Disabled	60%
rn3	**Phase 3 refreshment**	0 = NO 1 = YES	0

v3	**Phase 3 evaporator fans speed.** Amends the value of 2nd level variable (F8)	0 = High speed 1 = Low speed (only if rin=1)	0
t3	**Phase 3 duration**	0:00...99:30 (at 30 min steps)	0:00
St4	**Phase 4 temperature setpoint**	-45,0 ÷ +45,0 °C	0,0°C
SU4	**Phase 4 humidity setpoint**	0...99 RH% 0 = Disabled	60%
rn4	**Phase 4 refreshment**	0 = NO 1 = YES	0
v4	**Phase 4 evaporator fans speed.** Amends the value of 2nd level variable (F8)	0 = High speed 1 = Low speed (only if rin=1)	0
t4	**Phase 4 duration**	0:00...99:30 (at 30 min steps)	0:00
St5	**Phase 5 temperature setpoint**	-45,0 ÷ +45,0 °C	0,0°C
SU5	**Phase 5 humidity setpoint**	0...99 RH% 0 = Disabled	60%
rn5	**Phase 5 refreshment**	0 = NO 1 = YES	0
v5	**Phase 5 evaporator fans speed.** Amends the value of 2nd level variable (F8)	0 = High speed 1 = Low speed (only if rin=1)	0
t5	**Phase 5 duration**	0:00...99:30 (at 30 min steps)	0:00
St	**Seasoning / preservation temperature setpoint**	-45,0 ÷ +45,0 °C	0,0°C
SU	**Seasoning / preservation humidity setpoint**	0...99 RH% 0 = Disabled	60%
tSC	**Seasoning/preservation end timeout**	0 ÷ 240 days	0
vSC	**Seasoning/preservation evaporator fans speed.** Amends the value of 2nd level variable (F8)	0 = High speed 1 = Low speed (only if rin=1)	0

5.12   GERMINATION DAY/NIGHT CYCLE

To access the day/night cycle parameters for germination lights it is necessary to:

1. Check that parameter Cg=1

2. Keep keys (▼) DOWN and LIGHT pressed for a few seconds.

3. Using key (▲) or key (▼) select the parameter to be amended.

4. Amend the setting by keeping the SET key pressed and by pressing one of the keys (▲) or (▼).

5. Memorisation of the amendments made to the variables will happen automatically when exiting the configuration menu. Exiting from the menu happens spontaneously after an inactivity period or by simultaneously pressing keys (▲) and (▼) for a few seconds.

PARAMETER	MEANING	VALUES	DEFAULT
tdS	**Day phase start time.** Germination lights active only during the day phase.	00:00 ÷ 23:50 (10 min steps)	0
tdE	**Day phase end time.** tdE can also be < of tdS; for example, a day phase can start at 10pm and end at 4pm of the following day.	00:00 ÷ 23:50 (10 min steps)	0
tt1	**t1 Temperature SET start time.**	00:00 ÷ 23:50 (10 min steps)	0
tt2	**t2 Temperature SET start time.**	00:00 ÷ 23:50 (10 min steps)	0
t1	**Temperature 1 SET.**	-45,0 ÷ +45,0 °C	0,0°C
t2	**Temperature 2 SET.**	-45,0 ÷ +45,0 °C	0,0°C

ELECTRONIC CONTROLLER VISION100 THR POWER ON

After having wired the electronic controller, apply voltage 230Vac; the control will immediately and simultaneously emit a sound for a few seconds and remain fully switched-on on the display.

5.13

COLD / HOT: AMBIENT TEMPERATURE MAINTENANCE

The cold and hot call is managed in neutral area depending on the set temperature setpoint (key 4) and on the temperature differentials (parameters dtC and dtF). The cold is activated upon exceeding of set + dtF and remains active until set is reached (with **5.14** dtn=0). The hot is activated below set - dtC and remains active until set is achieved (with dtn=0).

It's possible to set a "dead area" with dtn parameter that deactivates hot and cold when the temperature is between SET-dtn and SET+dtn.
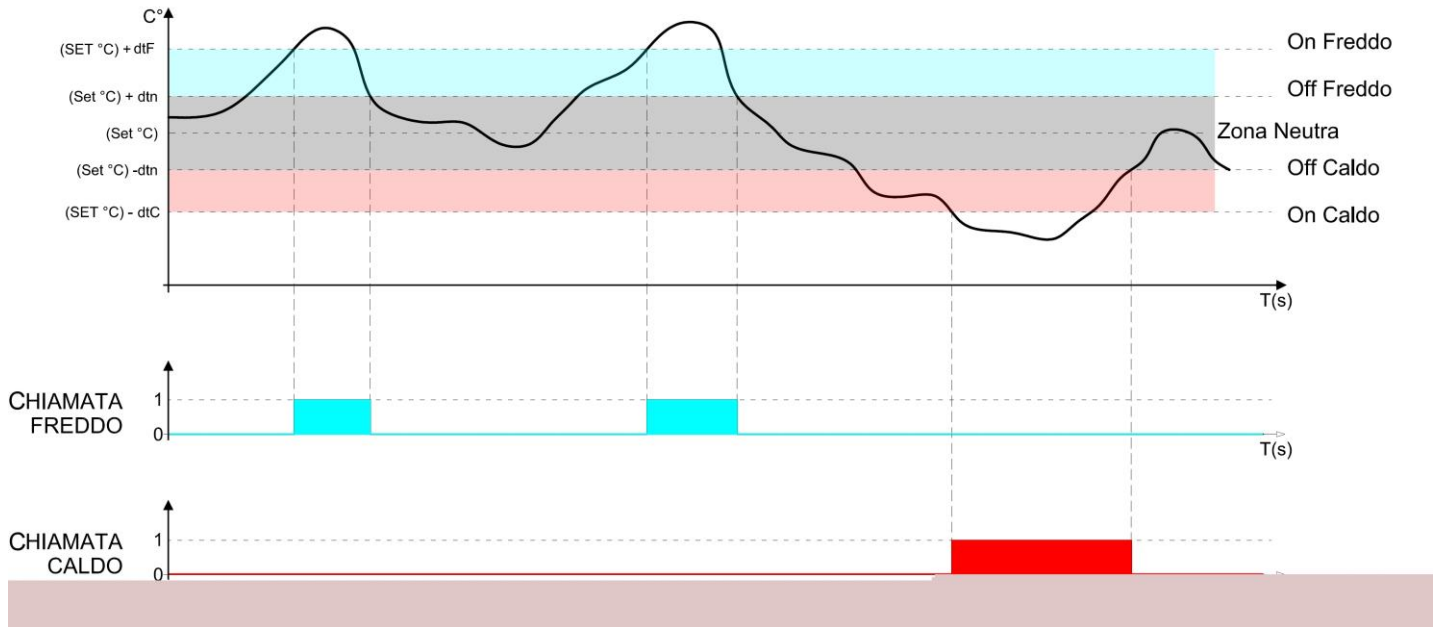
Parameter C1 introduces a delay between a switch-off and the subsequent re-activation of the cold. Hot can be deactivated with parameter EnH (EnH=0 disables the hot relay in all conditions).

5.15	HUMIDITY/DEHUMIDIFICATION: AMBIENT HUMIDITY MAINTENANCE

The humidity and the dehumidification calls are managed in neutral area depending on the set humidity setpoint (⌨ key 4) and by the humidity differentials (parameters dUU and dUd). Dehumidification is activated upon exceeding of set + dUd and remains active until set is reached (with dUn=0). Humidification is activated below set - dUU and remains active until set is reached (with dUn=0).

It is possible to set a "dead area" with parameter dUn that deactivates humidification and dehumidification when humidity is between SET-dUn and SET+dUn.

The humidity management can be excluded with parameter Hr.

Dehumidification only can be excluded with parameter End.

Humidification only can be excluded with parameter EnU.

There are three dehumidification modes (parameter dEU):

1. **Dehumidifies with the cold** (the cold is called to dehumidify, the hot is added only to maintain ambient temperature).

2. **Dehumidifies with the hot** (the hot is called to dehumidify, the cold is added only to maintain ambient temperature).

3. **Separate dehumidification** (only the dehumidification output activates but hot and cold are not called).

It's possible to give a maximum time for the dehumidification phase (parameter dEt) by signalling an alarm or forcing a refreshment (parameter dEo).

REGOLAZIONE UMIDITA'
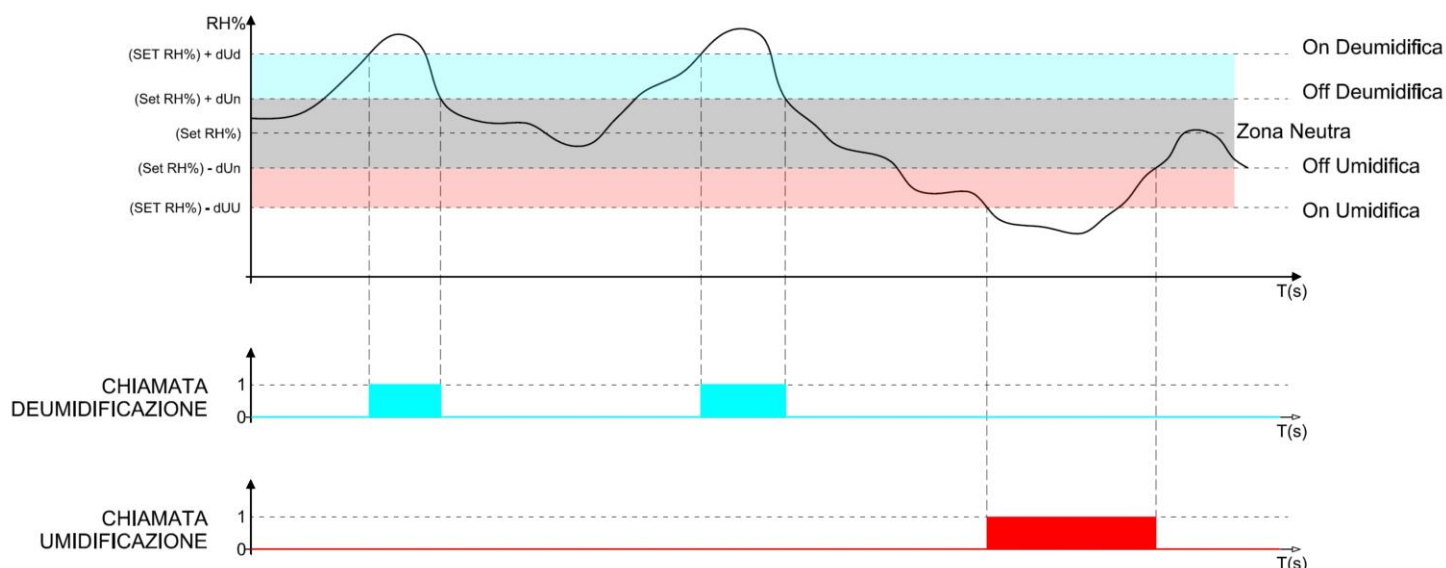
<table>
<tr><td>5.16</td><td>VENTILATION</td></tr>
</table>

The parameters of the second level programming F3, F4, F6, F7, F8 enable setting fans management in the different modes.

By setting parameter rin=1, it is possible to differentiate high and low speed of the fans in the various phases of a program (parameters vSg, v1, v2, v3, v4, v5, vSC).

<table>
<tr><td>5.17</td><td>AIR CHANGE</td></tr>
</table>

The air changes can be enabled with parameter rA. Up to six daily execution times for air change can be set in parameters from rA1 up to rA6.

The duration of the air change is defined by parameter drA.

During air change, hot, cold, humidity and dehumidification do not activate.

It is possible, at any time, to force an air change using the DOWN key.

5.18   REFRESHMENT OR PAUSE

The refreshment is a phase of the pause process of the temperature and humidity management. Refreshments are managed with parameters Pr and dr.

Pr defines the interval between one refreshment and the subsequent one, dr defines refreshment duration.

It is possible, at any time, to force an air change using the UP key . (a defrosting is also simultaneously activated).

To interrupt a refreshment, position the control in stand-by (the times are reloaded).

5.19   DEFROSTING

Defrosting can be managed with parameters d4, d5, d6, d7, F5 that define the intervals, the maximum duration, the defrosting end temperature, the dripping and the fans stop. To manually activate defrosting it is sufficient to press the UP key . Defrosting is not activated in case the temperature set for defrosting end (d6) is lower than the temperature detected by the evaporator probe. Defrosting will complete upon reaching of the defrosting end temperature (d6) or for defrosting maximum duration (d5).

5.20   DEFROSTING WITH HOT GAS

Set parameter d1 = 1 for managing of cycle reverse defrosting.

The compressor relay and the defrosting relay are activated for the entire defrosting phase.

For correct plant management, it will be the responsibility of the installer to use the defrost output that must allow the opening of the cycle reverse solenoid valve and the closing of the liquid solenoid valve.

For the capillary plants (without thermostatic valve) it is sufficient to control the cycle reverse solenoid valve using the defrosting relay control.

PASSWORD FUNCTION	5.21

The password function activates by setting a value for parameter PA different from 0. See parameter P1 for the different protection levels.

Protection is enabled automatically after approx. 2 minutes of keyboard inactivity.

Numbers 000 appear on the display.

By keeping SET pressed, the first digit flashes for amendment using up/down arrow.

Release SET and press SET again: the second amendable digit flashes.

Release SET and press SET again: the third amendable digit flashes.

The operation is cyclical and therefore by pressing SET again, the first digit flashes again, and so-on.

If password is forgotten use universal number 100.

AUTOMATIC PROGRAMS	5.22

An automatic program is a work cycle made of a maximum of 7 phases in which it is possible to automatically amend the temperature and the humidity setpoint when switching from one phase to the subsequent one.

In each phase it is possible to choose whether to enable or not the movements (managed with parameters Pr and dr) and manage a different speed for the fans.

It is possible to set up to 5 programs (identified with Pr1, Pr2, Pr3, Pr4, Pr5) each of which has a different setting according to the table of paragraph 5.10.

For each program, the first phase is defined dripping or phase 0; 5 process phases follow.

The last phase is the seasoning/preserving phase with unlimited duration in time.
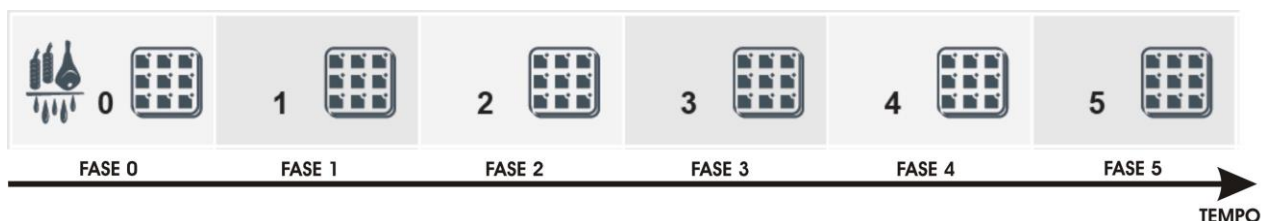
Each phase and the dripping are characterised by:

- Temperature setpoint.

- Humidity setpoint.

- Refreshments enabling/disabling.

- High or low fans speed.

- Phase duration (maximum 99 hours with 30 min steps).

For the dripping phase it is possible to exclude the humidity and the cold management.

The program starts by pressing the START key for a few seconds, the program selection by pressing the SET key.

Starting the program:

1) press the START [⏱] key for a few seconds.

2) using the UP and DOWN arrows select the wanted program.

3) press the SET [⌨] key to start the program.

The time evolution is highlighted by the advancing bars. During program execution, it is possible to amend the humidity and temperature setpoint directly from the keyboard without having to access programming. Variations are provisional and do not alter the pre-set program.

If a phase has 0 time, it moves on to the subsequent one.

The times of the phases proceed even in case of no electric power supply or control stand-by.

Using the START key (pressed briefly) it is possible to see the remaining time of the phase in progress.

With parameter CIC, it's possible to program a cycle (once the program has finished it automatically starts from the beginning) or to connect programs between them, in order to have a greater number of phases of the 6 of the individual program.

A program can always be interrupted by pressing the START/STOP [⏱] key for a few seconds.

DAY/NIGHT CYCLE FOR GERMINATION LIGHTS | 5.23

By setting parameter Cg (Germination/seasoning cycle) at second programming level, you can choose the use of the programs or a special program suitable for day/night cycles:

Cg = 0 (default) activates the automatic programs management for seasoning;

Cg = 1 activates the management of the germination day/night cycle.

By means of the parameters indicated in paragraph 5.12, it is possible to determine the day start and end times and manage two differential temperature setpoint.

During the day phase, the germination lights are switched on and the display shows the references of phase 0 switched-on. During the night phase, the germination lights are switched-off and the references of phase 4 switch-on.

The connection of the germination lights is separate from the cell light that can be used as service light (managed as usual from the door switch and the light key).

The current refreshment relay will become with double function: if Cg = 1 is selected it is no longer the refreshment relay but becomes the relay of the germination lights.

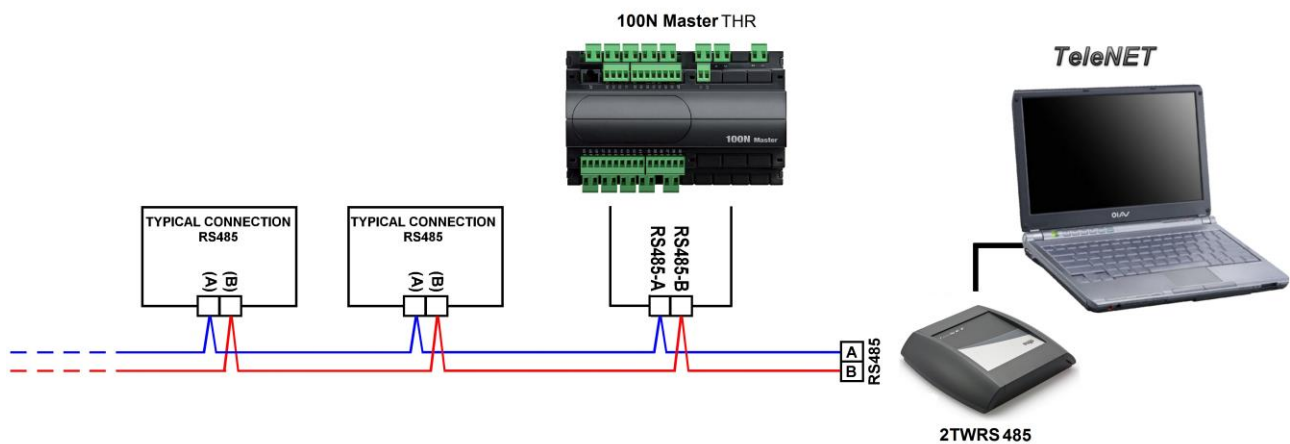**The day/night cycle starts by pressing the cycle start key** **.**

CHAPTER 6: OPTIONS

6.1   TELENET SUPERVISION/MONITORING SYSTEM

To insert the board in a **TeleNET** network, refer to the layout below. To configure the instrument, refer to the **TeleNET** manual.

IMPORTANT: During configuration, select "Instrument PLUS 100 THR rel. 8 or higher" under the entry "Module".

CHAPTER 7: DIAGNOSTIC

DIAGNOSTIC

7.1

In case of anomalies, the **VISION100 THR** controller warns the operator using alarm codes shown by the display and an acoustic signal emitted by a buzzer inside the Operational console. In case an alarm condition occurs, the display will show one of the following messages:

ALARM CODE	POSSIBLE CAUSE	OPERATION TO BE CARRIED OUT
E0	**Functional anomaly of the ambient probe**	• Check ambient probe state. • If problem persists, replace the probe.
E1	**Functional anomaly of the humidity probe**	• Check state and connection of humidity probe. • If problem persists, replace the probe.
E2	**Functional anomaly of the defrosting probe** (In this case, any defrosting will have d5 duration)	• Check defrosting probe state. • If problem persists, replace the probe.
E3	**Eeprom alarm** An error has been detected in the EEPROM memory (all outputs are deactivated except the alarm one).	• Switch the equipment off and on again.
E4	**Software compatibility error**	• Check correct combination between MASTER board and Console board.
E6	**Low battery alarm**	• Replace the Console lithium battery (CR2032 type).
Ec	**Main alarm** (e.g. Thermal protection or max. pressure switch) (All outputs are deactivated except the alarm output. if present)	• Check compressor absorption. • If problem persists, contact the after-sales technical assistance service.
En	**No connection between Console and MASTER board.**	• Check connection between the two units. • If problem persists, contact the after-sales technical assistance service.
Eu	**Minimum or maximum humidity alarm.** A humidity higher or lower to that set for minimum or maximum humidity alarm has been reached in the ambient (See variables AU1 and AU2, user programming level)	• Check humidity management. • The probe does not detect the humidity correctly.
Et + Temperature on display is flashing	**Minimum or maximum temperature alarm.** A temperature higher or lower to that set for minimum or maximum temperature alarm has been reached in the ambient (See variables At1 and At2, user programming level)	• Check the compressor state. • The probe does not detect the temperature correctly or the stop / start command of the compressor does not work.
Ed	**Limit Timeout for dehumidification**	• Check humidity management. • The probe does not detect the humidity correctly.

ATTACHMENTS

A.1   EU DECLARATION OF CONFORMITY

LA PRESENTE DICHIARAZIONE DI CONFORMITA' E' RILASCIATA SOTTO LA RESPONSABILITA' ESCLUSIVA DEL FABBRICANTE:
THIS DECLARATION OF CONFORMITY IS ISSUED UNDER THE EXCLUSIVE RESPONSIBILITY OF THE MANUFACTURER:

PEGO S.r.l.   Via Piacentina 6/b, 45030 Occhiobello (RO) – Italy –
Società soggetta all'attività di direzione e coordinamento di Castel S.r.l.

DENOMINAZIONE DEL PRODOTTO IN OGGETTO / *DENOMINATION OF THE PRODUCT IN OBJECT*

MOD.:   **VISION100 THR**

IL PRODOTTO DI CUI SOPRA E' CONFORME ALLA PERTINENTE NORMATIVA DI ARMONIZZAZIONE DELL'UNIONE EUROPEA:
THE PRODUCT IS IN CONFORMITY WITH THE RELEVANT EUROPEAN HARMONIZATION LEGISLATION:

Direttiva Bassa Tensione (LVD):	**2014/35/UE**
Low voltage directive (LVD):	***2014/35/EU***
Direttiva EMC:	**2014/30/UE**
Electromagnetic compatibility (EMC):	***2014/30/EU***

LA CONFORMITA' PRESCRITTA DALLA DIRETTIVA E' GARANTITA DALL'ADEMPIMENTO A TUTTI GLI EFFETTI DELLE SEGUENTI NORME:
THE CONFORMITY REQUIRED BY THE DIRECTIVE IS GUARANTEED BY THE FULFILLMENT TO THE FOLLOWING STANDARDS:

Norme armonizzate: **EN 60730-1:2011, EN 60730-2-9:2010, EN 61000-6–1:2007, EN 61000-6–3:2007**
European standards: ***EN 60730-1:2011, EN 60730-2-9:2010, EN 61000-6–1:2007, EN 61000-6–3:2007***

Firmato per nome e per conto di: Luogo e Data del rilascio:
Signed for and on behalf of: *Place and Date of Release:*

Pego S.r.l.
Martino Villa   Occhiobello (RO), 01/01/2022
Presidente

VISION100 THR CONNECTION LAYOUT

A.2
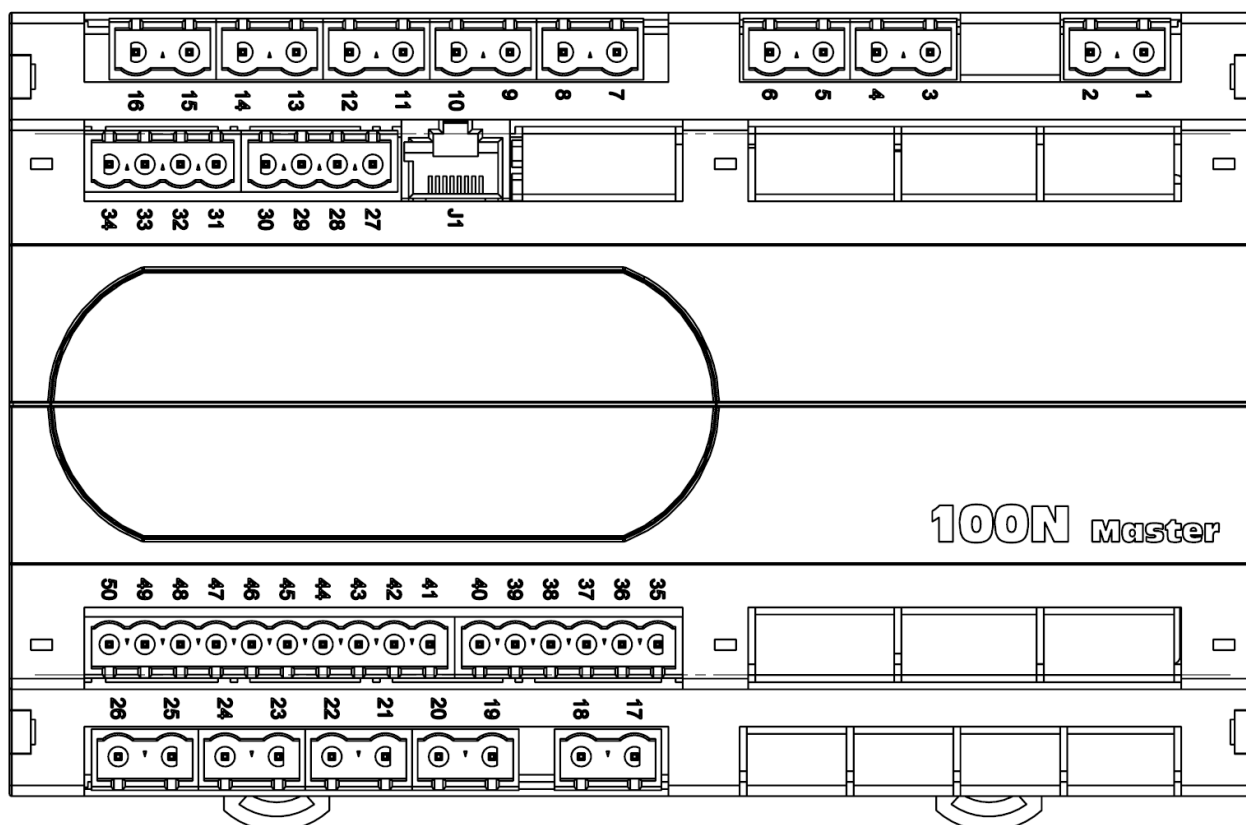
Power supply section

1-2 Power supply 230VAC 50/60 Hz

Analogical inputs section

29-30 Evaporator NTC probe

31-32 Humidity probe 4-20 mA
(0-100Rh%) (32=V+ 31=Y)

27-28 Ambient NTC probe

Digital inputs section

45-50 Stand by forcing

44-50 Disables hot (forces variable
EnH=0)

43-50 Disables humidity (forces variable
Hr=0)

42-50 Door switch

41-50 Main alarm (stops all outputs)

Console section

35-36 ±12V

37-38 RS485 console

Outputs section (contacts without voltage)

21-22 Alarm

23-24 Defrost

25-26 Dehumidification

15-16 Refreshment (rin=0)/ low speed fans
(rin=1) / Step 1 germination lights (Cg=1)

13-14 Air change

11-12 Humidification

9-10 Cell light

7-8 Fans (high speed if rin=1)

5-6 Hot

3-4 Cold

TeleNET Section

39 line A or clamp 3 of TWRS485

40 line B or clamp 4 of TWRS485

NOTES

PEGO s.r.l.
Via Piacentina, 6/b 45030 Occhiobello (RO) – ITALY
Tel. +39 0425 762906
e-mail: info@pego.it – www.pego.it

TECHNICAL ASSISTANCE
Tel. +39 0425 762906   e-mail: tecnico@pego.it

Distributor: