PLUS 100 AB

MANUALE D'USO E MANUTENZIONE
USE AND MAINTENANCE MANUAL

rev 01-08

CONTENTS

CHAPTER 1: INTRODUCTION

1.1 GENERAL

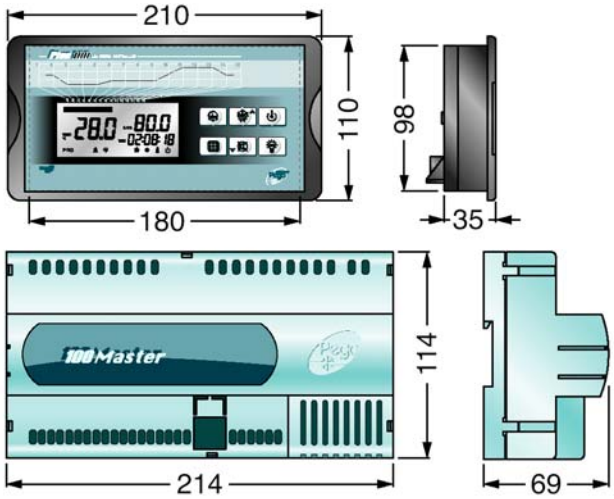
The electronic controllers of the ***PLUS 100*** series have been designed to control static or ventilated cold rooms.

The ***PLUS100 AB*** electronic board allows the user to control all the components on a refrigeration unit. The board allows the user to control and power the main refrigeration system components such as the compressor, evaporator fans, defrosting elements and room light.
There is also a product cooling function: the cooling can be ended as a function of time or the temperature of the product skewering sensor.

1.2 PRODUCT ID CODES

PLUS100 AB	Controller for cooling and storage rooms.

OVERALL DIMENSIONS 1.3



IDENTIFICATION DATA 1.4

The unit described in this manual has, on its side, an ID plate showing all the relevant identification data:

- Name of Manufacturer
- Code and model of electrical board
- Serial number
- IP protection rating
- Power supply voltage

CHAPTER 2: INSTALLATION

2.1 IMPORTANT INFORMATION 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. Do not use multi-polar cables in which there are wires connected to inductive/power loads or signalling wires (e.g. probes/sensors and digital inputs).

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

4. Minimise the length of connector wires so that wiring does not twist into a spiral shape as this could have negative effects on the electronics.

5. Fit a general protection fuse upstream from the electronic controller.

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

7. When it is necessary to make a probe/sensor extension, the wires must be of the correct cross-section, which in any case must be at least 1 mm^2.

2.2 STANDARD ASSEMBLY AND USE KIT

The ***PLUS 100 AB*** system is supplied with the following assembly and utilisation items:

- n°1 console fixing bracket
- n°2 temperature sensors (skewering sensor separate)
- n°1 user's manual

CHAPTER 3: FUNCTIONS

3.1 FUNCTIONS CONTROLLED BY THE PLUS100AB -

- Display and adjustment of room temperature
- Display of skewering sensor temperature
- Display of evaporator temperature
- System control activation/deactivation
- System warnings (sensor error, min-max temperature alarms, compressor safety device);
- Evaporator fan control
- Automatic/manual defrost control (static, with elements, cycle inversion)
- Switching on of room light with panel key or via door switch
- Clock for defrosts in real time clock
- Alarm relay

CHAPTER 4: TECHNICAL CHARACTERISTICS

TECHNICAL CHARACTERISTICS 4.1

Power supply	
Voltage	230 V~ ± 10% 50Hz
MAX power absorption	~ 7 VA
Climatic conditions	
Working temperature	-10 - 60°C
Storage temperature	-30 - 70°C
Relative humidity	Below RH 90%
General characteristics	
Type of sensors that can be connected	NTC 10K 1%
Resolution	1°C
Sensor read precision	± 0.5°C
Read range	-45…+45
PLUS100 AB - Output characteristics - max applicable load (230 V AC)	
Compressor (non-powered contact)	1500 W (AC3)
Elements (non-powered contact)	1500 W (AC1)
Fans (non-powered contact)	500 W (AC3)
Room light (non-powered contact)	800 W (AC1)
Alarm contact (non-powered contact)	800 W (AC1)
Dimensional characteristics	
Dimensions	19.3 cm x 7.9 cm x 20.3 cm (HxDxL)
Insulation / mechanical characteristics	
Box protection rating	IP 65
Box material	ABS self-extinguishing
Type of insulation	Class II

4.2 WARRANTY TERMS

PLUS 100 electronic controllers are covered by a 24-month warranty against all manufacturing defects, valid from date of delivery. If the system malfunctions as a result of tampering, impact or improper installation the warranty will automatically be rendered null and void. It is strongly recommended that you observe all instructions/information regarding the technical characteristics of the device.

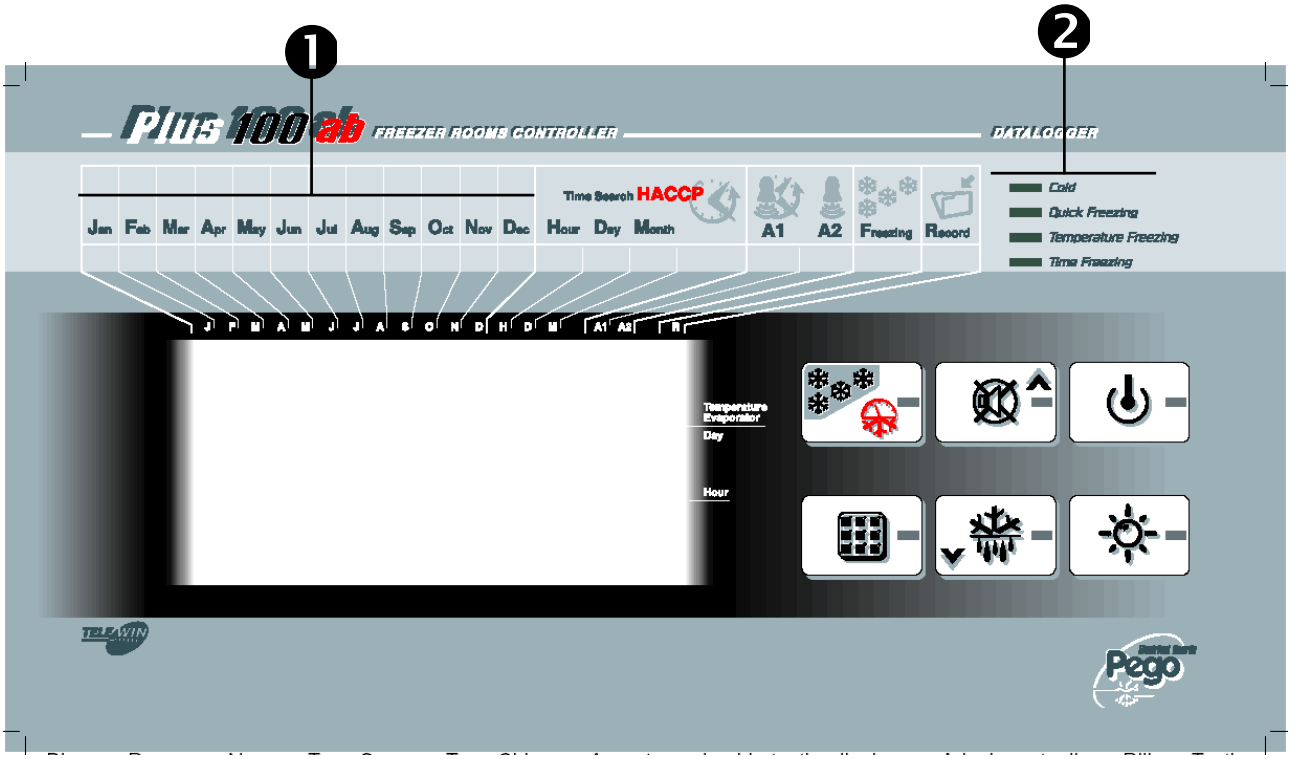
WARNING !

Any modifications made to wiring and/or internal components or any tasks carried out in a way that fails to comply with the information/instructions in this manual shall not only render the warranty null and void immediately but may also lead to malfunctions, irreparable damage, serious injury or put persons/objects in danger.

PEGO S.r.l. declines any responsibility for possible errors or inaccuracies written in this manual as a result of printing or transcription errors.
PEGO S.r.l. reserves the right to modify its products as it deems necessary without altering its main characteristics. Each new release of a ***PEGO*** user manual replaces previous ones.

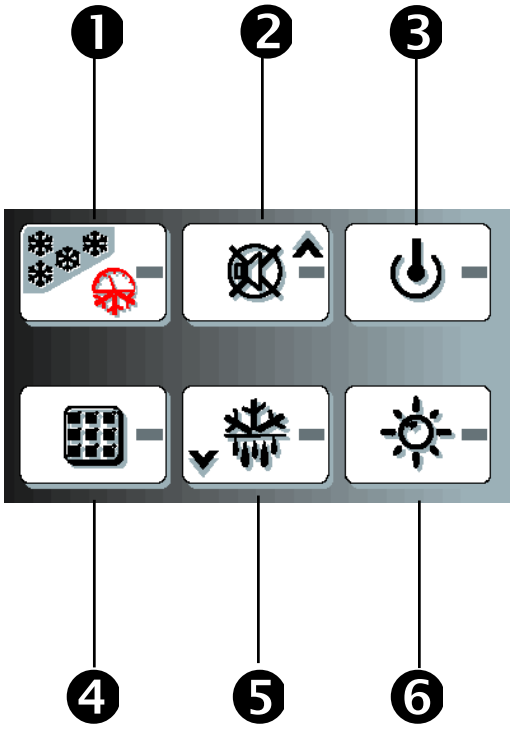
CHAPTER 5: PARAMETER PROGRAMMING

LCD AREAS 5.1



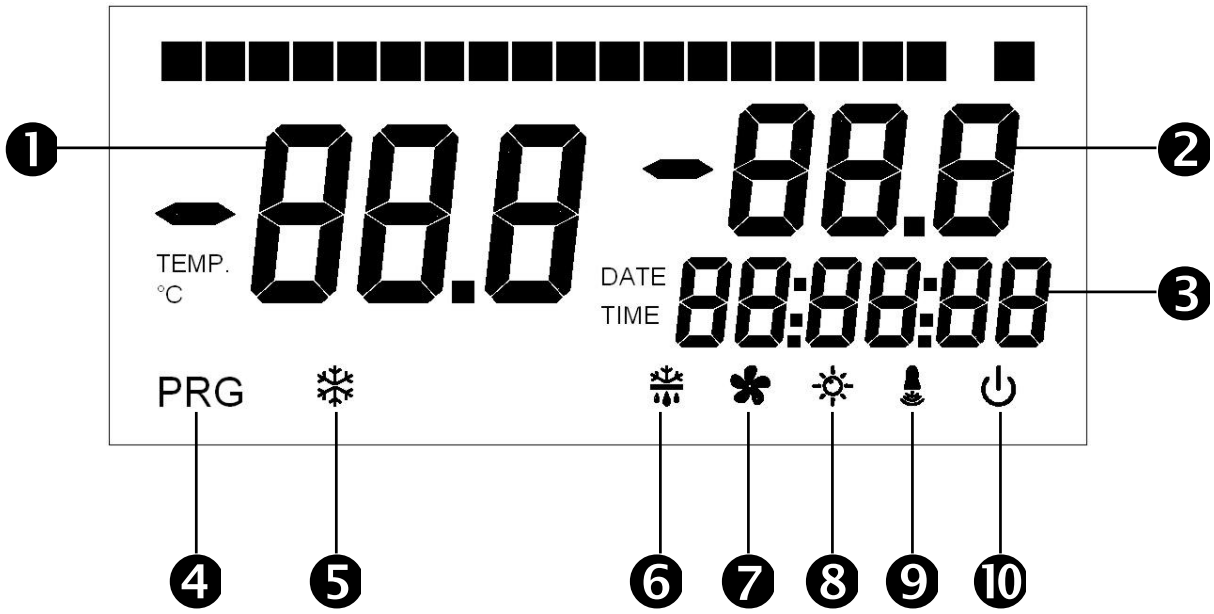
1. Display of current month (previous months also remain lit)
2. Indicator/warning LEDs:
    a. ***Cold***: cooling in progress
    b. ***Quick freezing***: rapid freezing in progress
    c. ***Temperature freezing*** cooling/freezing by temperature (PR1, PR2, PR3)
    d. ***Time freezing*** cooling/freezing by time (PR4, PR5, PR6)

5.2 CONTROL PANEL



1. **COOLING CYCLE START key** (if pressed for a few seconds the cooling cycle starts)
2. **UP / MUTE BUZZER ALARM key** (if pressed for 5 seconds, together with key 1, recorded alarms are displayed)
3. **STAND BY key** (system shuts down, room temperature light flashes)
4. **SET key,** room temperature
5. **DOWN / MANUAL DEFROST key**
6. **ROOM LIGHT key**

LCD DISPLAY 5.3



1. Ambient temperature / parameters (for values greater than +45°C the word HOT is displayed).
2. Evaporator temperature / product sensor temperature / day of current month (see setting on parameter tEu on 1st level programming) / parameters (during programming) (for values greater than +45°C the word HOT is displayed)
3. Time / date / time parameter values
4. Programming (control is in programming mode)
5. Cold (compressor call indicator)
6. Defrost
7. Fans (flashing during fan stop – parameter F5)
8. Light
9. Alarm
10. Stand-by (flashing in stand-by. Outputs deactivated.)

5.4 GENERAL

To enhance safety and simplify the operator's work, the ***PLUS 100 system*** has two programming levels; the first level (Level 1) is used to configure the frequently-modified **SET-POINT** parameters. The second programming level (Level 2) is for general parameter programming of the various controller work modes.

It is not possible to access Level 2 programming directly from Level 1: you must exit the programming mode first.

5.5 KEY TO SYMBOLS

For purposes of practicality the following symbols are used:

- **(▲)** the UP key is used to increase values and mute the buzzer;
- **(▼)** the DOWN key is used to decrease values and force defrosting.

5.6 SETTING AND DISPLAYING THE SET-POINTS

1. Press the **SET key** to display the current **SET-POINT** (temperature or humidity).
2. Hold down the **SET key** and press the **(▲)** or **(▼)** keys to modify the **SET-POINT**.
3. Release the **SET key** to return to room temperature display: the new setting will be saved automatically.

PROGRAMMING THE TYPE OF WORK (User level) 5.7

To gain access to the programs menu it is necessary to:

1. Press the key 

2. Use the arrow keys to select the program (PR1....PR6).

3. Press the SET key.

4. After selecting the desired variable it will be possible:

• To modify the setting by holding the SET key pressed and pressing the **(▲)** or **(▼)** keys.

When the modifications have been made press key 1 to return to program selection (at this point it is possible to modify another program or start the work cycle).

The STAND-BY key allows the user to exit selection and return to manual storage.

Program PR1: temperature-based cooling

Program for product cooling by positive temperature. Cooling ends when the core of the product reaches temperature At1. A maximum safety time is set on parameter Ab1. When cooling is over the controller automatically goes to storage mode with the ST1 setting. ST1 also has the function of controlling the compressor, which stops if the room temperature reaches temperature ST1-r1. The compressor is reactivated on reaching temperature ST1.

VARIABLES	*MEANING*	*VALUES*	*DEFAULT*
At1	**End of PR1 cooling temperature**	-45 +45 °C	5°C
ST1	**Storage temperature at end of cooling / lower compressor stop limit (- differential r1)** The compressor stops during cooling if the ambient temperature drops below ST1-r1. The fans continue to run	-45 +45 °C	5°C
Ab1	**Maximum safety duration of PR1 cooling**	0:10:00…10:00:00	4:00:00

Program PR2: temperature-based freezing

Product freezing program. Freezing ends when the product core temperature reaches At2. A maximum safety time is set on parameter Ab2. When freezing is over the controller automatically goes to storage mode with the ST1 setting. The compressor works continuously.

VARIABLES	*MEANING*	*VALUES*	*DEFAULT*
At2	**End of freezing temperature PR2**	-45 +45 °C	-20°C
ST2	**Storage temperature setting at end of freezing** The compressor does not stop for the entire duration of freezing	-45 +45 °C	-20°C
Ab2	**Maximum safety duration of PR2 freezing**	0:10:00…10:00:00	4:00:00

Program PR3: temperature-based cooling and freezing

Program for product cooling and freezing by positive temperature. When room temperature drops below the STS setting the switch from cooling to freezing takes place. Freezing continues until the end of the cycle even in the event of a power cut or a rise in temperature. Freezing ends when the product core reaches temperature At3. A maximum safety time is set on Ab3. At the end of freezing the control automatically goes to storage mode as per the ST3 setting. ST3 also has the function of controlling the compressor during cooling (the compressor stops if ambient temperature reaches ST3-r1). The compressor is reactivated on reaching ST3. During freezing the compressor works continuously.

VARIABLES	MEANING	VALUES	DEFAULT
At3	**End of PR3 Cooling/Freezing temperature**	-45 +45 °C	-20°C
ST3	**Storage temperature at end of cooling-freezing / lower compressor stop limit (- differential r1).** The compressor stops during cooling if ambient temperature drops below ST3-r1. The fans continue to run	-45 +45 °C	-20°C
Ab3	**Maximum safety duration of PR3 cooling-freezing**	0:10:00…10:00:00	0:30:00

Program PR4: time-based cooling

Program for product cooling by time. Cooling ends when the maximum time Ab4 has expired. When cooling is over the controller automatically goes to storage mode with the ST4 setting. ST4 also has the function of regulating the compressor, which stops if room temperature reaches temperature ST4-r1. The compressor is reactivated on reaching temperature ST4.

VARIABLES	MEANING	VALUES	DEFAULT
ST4	**Storage temperature at end of cooling / lower compressor stop limit (- differential r1)** The compressor stops during cooling if the ambient temperature drops below ST4-r1. The fans continue to run	-45 +45 °C	5°C
Ab4	**Maximum safety duration of PR4 cooling**	0:10:00…10:00:00	4:00:00

Program PR5: time-based freezing

Product freezing program by time. Freezing ends when maximum time Ab5 has expired. When freezing is over the controller automatically goes to storage mode with the ST5 setting. The compressor works continuously.

VARIABLES	MEANING	VALUES	DEFAULT
ST5	**Storage temperature setting at end of freezing** The compressor does not stop for the entire duration of freezing	-45 +45 °C	-20°C
Ab5	**Maximum duration of PR5 freezing**	0:10:00…10:00:00	1:00:00

Program PR6: time-based cooling and freezing

Program for product cooling and freezing by time. When room temperature drops below the STS setting the switch from cooling to freezing takes place. Freezing continues until the end of the cycle even in the event of a power cut or a rise in temperature. Freezing ends when the maximum time Ab6 expires. At the end of freezing the control automatically goes to storage mode as per setting ST6. ST6 also has the function of regulating the compressor during cooling (the compressor stops if ambient temperature reaches ST6-r1). The compressor is reactivated on reaching ST6. During freezing the compressor works continuously.

VARIABLES	MEANING	VALUES	DEFAULT
ST6	**Storage temperature at end of cooling-freezing / lower compressor stop limit (- differential r1).** The compressor stops during cooling if ambient temperature drops below ST6-r1. The fans continue to run	-45 +45 °C	-20°C
Ab6	**Maximum duration of PR6 cooling-freezing**	0:10:00…10:00:00	3:00:00

LEVEL 1 PROGRAMMING (User level) 5.8

To gain access to the Level 1 configuration menu proceed as follows:

1. Press the **(▲)** and **(▼)** keys simultaneously and keep them pressed for a few seconds until the first programming variable appears on the display.

2. Release the **(▲)** and **(▼)** keys.

3. Select the variable to be modified using the **(▲)** or **(▼)** key.

4. When the variable has been selected it is possible:

• to display the setting by pressing SET

• to modify the setting by pressing the SET key and the **(▲)** or **(▼)** keys.

When configuration values have been set you can exit the menu by pressing the **(▲)** and **(▼)** keys simultaneously for a few seconds until the room temperature reappears.

5. The new settings are saved automatically when you exit the configuration menu.

5.9 LIST OF LEVEL 1 VARIABLES (User level)

VARIABLE	MEANING	VALUES	DEFAULT
r0	**Temperature differential** referred to main SETPOINT	1 - 10 °C	2°C
r1	**Ambient temperature limit during cooling** The compressor stops and the fans are activated during the cooling phase if the ambient temperature drops below this differential with respect to the program-specific storage temperature (ST1,ST3,ST4,ST6). The compressor restarts on re-attainment of the settings (ST1,ST3,ST4,ST6).	1 - 50 °C	5°C
d0	**Defrost interval** (hours)	0 - 24 hours	4 hours
d2	**End-of-defrost setpoint**. Defrost is not executed if the temperature read by the defrost sensor is greater than value *d2* (If the sensor is faulty defrosting is time-based)	-35 - 45 °C	10°C
d3	**Maximum defrost duration** (minutes)	1 - 240 min	25 min
d7	**Drip duration** (minutes) At the end of defrosting the compressor and the fans remain at standstill for time setting *d7*: the defrost LED on the front of the panel flashes.	0 - 30 min	0 min
F5	**Fan pause** after defrost (minutes) Allows fans to be kept at standstill for a time *F5* after dripping. This time is counted from the end of dripping. If dripping is not set the fan pause is executed directly after the end of defrosting. During the pause the fan icon flashes.	0 - 10 min	0 min
A1	**Minimum temperature alarm** (active only during storage) Allows user to define a minimum cold room storage temperature. Below the value *A1* a warning is given: the alarm LED and the displayed temperature flash and the fault is also highlighted by an internal buzzer.	-	-45°C
A2	**Maximum temperature alarm** (active only during storage). Allows user to define a maximum cold room storage temperature. Above the value *A2* a warning is given: the alarm LED and the displayed temperature flash and the fault is also highlighted by an internal buzzer.	-	+45°C
tEu	**Displays evaporator sensor temperature / current day-date / product sensor temperature**	0 = displays the day on the LCD 1 = displays evaporator temperature on LCD (nothing displayed if dE =1 2 = displays product sensor	2

VARIABLE	MEANING	VALUES	DEFAULT
dFr	**Real-time defrost enable** With *d0*=0 and *dFr*=1 it is possible to set up to 6 defrosts in real time in a day by using the parameters dF1…dF6	0 disabled 1 enabled	0
dF1…dF6	**Programming defrost times** It is possible to set up to 6 defrosting times	00:00:00 - 23:50:00	--
STS	**Freezing SET** Manages the switch from cooling to freezing in programs PR3 and PR6.	-45 - +45 °C	-10°C

LEVEL 2 PROGRAMMING (Installer level) 5.10

To access the second programming level press the UP **(▲)** and DOWN **(▼)** keys and the LIGHT key simultaneously for a few seconds.

When the first programming variable appears the system automatically goes to stand-by.

1. Select the variable to be modified by pressing the UP **(▲)** and DOWN **(▼)** keys.

When the parameter has been selected it is possible to:

2. View the setting by pressing the SET key.

3. Modify the setting by holding the SET key down and pressing the **(▲)** or **(▼)** key.

4. When configuration settings have been completed you can exit the menu by pressing the **(▲)** and **(▼)** keys simultaneously and keeping them pressed until the room temperature value reappears.

5. Changes are saved automatically when you exit the configuration menu.

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

LIST OF LEVEL 2 VARIABLES (Installer level) 5.11

VARIABLE	MEANING	VALUES	DEFAULT
AC	**Door switch input status**	0= normally open 1= normally closed	0
F3	**Fan status with compressor off**	0 = Fans working continuously 1 = Fans working only when compressor working	1
F4	**Fan pause during defrost**	0 = Fans working during defrost 1 = Fans not working during defrost	1
F6	**Air re-circulate fan activation** The fans come on for a time defined by F7 if they have not come on for the time F6. If the moment of activation coincides with defrosting there is a wait until defrosting has been completed	0 – 240 min	0 (function deactivated)
F7	**Air re-circulate fans activation duration** Fan operation time for F6	0-240 sec	0:00:10
dE	**Sensor presence** By excluding the evaporator sensor defrosts occur cyclically according to a period *d0* and end when an external device that closes the remote defrost contact trips or when time *d3* expires	0 = evaporator sensor present 1 = evaporator sensor absent	0
dE1	**Product sensor presence** With dE1=1 it is possible to disconnect the product sensor without an error warning and cooling is time-based only	0 = product sensor present 1 = product sensor absent	0
dC	**Remote defrost input status**	0 = NO 1 = NC	0 = NA
d1	**Defrost type**, cycle-inversion (hot gas) or by heating element	1= hot gas 0= element	0
d4	**End-of-cooling defrost** This parameter decides whether, at the end of the cooling phase, a defrost has to be carried out immediately (d4=0) or if the defrosts follow the settings independently (d4=1). If d4=0 a defrost will in any case take place even if timed defrosts are enabled	0 – 1	default 0
Ad	**Network address** for connection to the TeleWIN supervision system	0 - 31	0
Ald	**Minimum and maximum temperature** signalling and alarm display delay	1…240 min	2:00:00
C1	Minimum time between shutdown and **subsequent switching on of the compressor**.	0…15 min	0 min
CAL	**Cold room sensor value correction**	-10…+10	0
CAS	**Skewer sensor value correction**	-10…+10	0

Pc	**Compressor protection contact status**	0 = NO 1 = NC	0 = NO
doC	**Compressor safety time for door switch**: when the door is opened the evaporator fans shut down and the compressor will continue working for time **doC**, after which it will shut down.	0…5 minutes	0
Fst	**FAN shutdown TEMPERATURE** The fans will stop if the temperature value read by the **evaporator** sensor is higher than this value.	-45…+45°C	+45°C
tA	**NO – NC** alarm relay switching	=activates when alarm is on 1=deactivates when alarm is on	1
rA	**Control relay** door anti-fogging element	0=alarm relay 1=anti-fogging element on	0
in2	**Man in cold room alarm** Select input INP2 on the board as *end of remote defrost* or as *man in cold room alarm* (contact NC).	0 = remote defrost end 1 = man in room alarm	0
Lic	**Lower temperature set-point limit**	-45.. LSc	-45°C
LSc	**Upper temperature set-point limit**	Lic..+45	+45°C
dMY	**Day-month-year setting**	day-month-year	-
hMS	**Clock setting**	Hour–min-sec	-

5.12 SWITCHING ON THE PLUS 100 AB ELECTRONIC CONTROLLER

After wiring the electronic controller correctly, power up at 230 V AC; the display panel will immediately emit a beep and all the segments and LEDs will come on simultaneously for a few seconds.

5.13 COMPRESSOR ACTIVATION/DEACTIVATION CONDITIONS

The ***PLUS 100*** controller activates the compressor when cold room temperature exceeds setting+differential (r0); it deactivates the compressor when cold room temperature is lower than the setting.

5.14 COOLING AND/OR FREEZING CYCLE ACTIVATION/DEACTIVATION CONDITIONS

To start a program press key 1. 
Select a program (PR1....PR6) using the up / down keys.
Start the selected program by pressing key 1 for a few seconds. It is also possible to start a program starting from stand-by mode.

To confirm the start of a cycle the warning/indicator LEDs come on and the program in use is displayed. Compressor and fans function as per the settings in the individual programs. The fans run continuously and the defrosts are inhibited. If key 1 is pressed briefly during operation the remaining time appears momentarily on the display. At the end of the program (time or temperature-based, indicated by a buzzer sounding for 30 seconds) the controller carries out a defrost cycle (d4=0), after which it goes to storage mode and controls the set room temperature.
To deactivate the cooling cycle manually press key 1 for a few seconds until the indicator LED goes out.

MANUAL DEFROSTING 5.15

To defrost just press the dedicated key (see section 5.2) to activate the elements relay. Defrosting will not take place if the end-of-defrost temperature setting (d2) is lower than the temperature detected by the evaporator sensor. Defrosting ends when the end-of-defrost temperature (d2) or maximum defrost time (d3) is reached.

HOT GAS DEFROSTING 5.16

Set parameter d1 =1 to manage the defrost cycle in inversion mode.
The compressor relay and defrost relay are activated throughout the defrost phase.
To ensure proper control of the system the installer must use the defrost output: this must allow opening of the cycle inversion solenoid valve and closure of the liquid solenoid valve.
For capillary systems (without thermostat valve) it is only necessary to control the cycle inversion solenoid valve via the defrost relay control.

MODIFYING DATE AND TIME 5.17

To change date and time settings just modify the values as per the parameter setting procedure described in section 5.9 of this manual.

CHAPTER 6: TROUBLESHOOTING

6.1 TROUBLESHOOTING GUIDE

In the event of any anomalies the PLUS100 system warns the operator by displaying alarm codes and sounding the warning buzzer inside the control panel. If an alarm is tripped the display will show one of the following messages.

ALARM CODE	POSSIBLE CAUSE	PROCEDURE TO BE FOLLOWED
E0	*Roof temperature sensor faulty*	• Check that the room sensor is working properly • If the problems persists replace the sensor
E1	*Defrost sensor faulty* (In this event any defrosts will have duration time *d3*)	• Check that defrost sensor is working properly • If the problems persists replace the sensor
E2	*Product temperature sensor faulty*	• Check that product sensor is working properly • If the problems persists replace the sensor
E3	*EEPROM ALARM* EEPROM memory error detected. (All outputs deactivated except alarms)	• Switch off unit and switch back on
E5	*Data write alarm*; the controller is not saving data correctly.	• Contact technical assistance service
E6	*Flat battery alarm*; the controller will function for at least another 20 days; subsequently any power loss to the board will involve loss of time settings (but not previously recorded data)	• Change the battery
E7	*Day/month/date anticipation attempt alarm* Happens when you try to bring forward the date by a day, month or year or if data is already present.	• Switch off unit and switch back on; date/day/month/year will be restored as per the settings prior to the variation attempt.
E8	*Man in room alarm* The man in room alarm switch in the room has been pressed to indicate a dangerous situation	• Reset the alarm switch inside the cold room
E9	*Faulty printer alarm*	• Check printer connections
Ec	*Compressor safety device tripped* (e.g. Overheat or max. pressure switch.) (All outputs deactivated except the alarm one, if present)	• Check the compressor status • Check compressor absorption • If problem persists contact technical assistance service
Eu	*Fan safety device*	• Check fans are working properly • If problem persists contact technical assistance service

Ep	*Pressure lock-out*	• Check pressure switches are working properly • If problem persists contact technical assistance service
Temperature shown on display is flashing	*Minimum or maximum temperature alarm.* The temperature inside the cold room has exceeded the min. or max. temperature alarm setting (see variables *A1 and A2, user programming level*)	• Check that the compressor is working properly. • Sensor not reading temperature properly or compressor start/stop control not working.

Should the alarm cease without any intervention on the part of the operator a record shall in any case be made of it. Pressing the “mute alarm” key will display the error code of the already-ceased alarm.

ALLEGATI / APPENDICES

A.1 *DICH. DI CONFORMITA' CE / EC DECLARATION OF CONFORMITY*

COSTRUTTORE / MANUFACTURER
PEGO SRL Via Piacentina,6b 45030 Occhiobello (RO) - ITALY -

DENOMINAZIONE DEL PRODOTTO / NAME OF THE PRODUCT
MOD.: PLUS 100 AB

IL PRODOTTO E' CONFORME ALLE SEGUENTI DIRETTIVE CE/THE PRODUCT IS IN CONFORMITY WITH THE REQUIREMENTS OF THE FOLLOWING EUROPEAN DIRECTIVES:

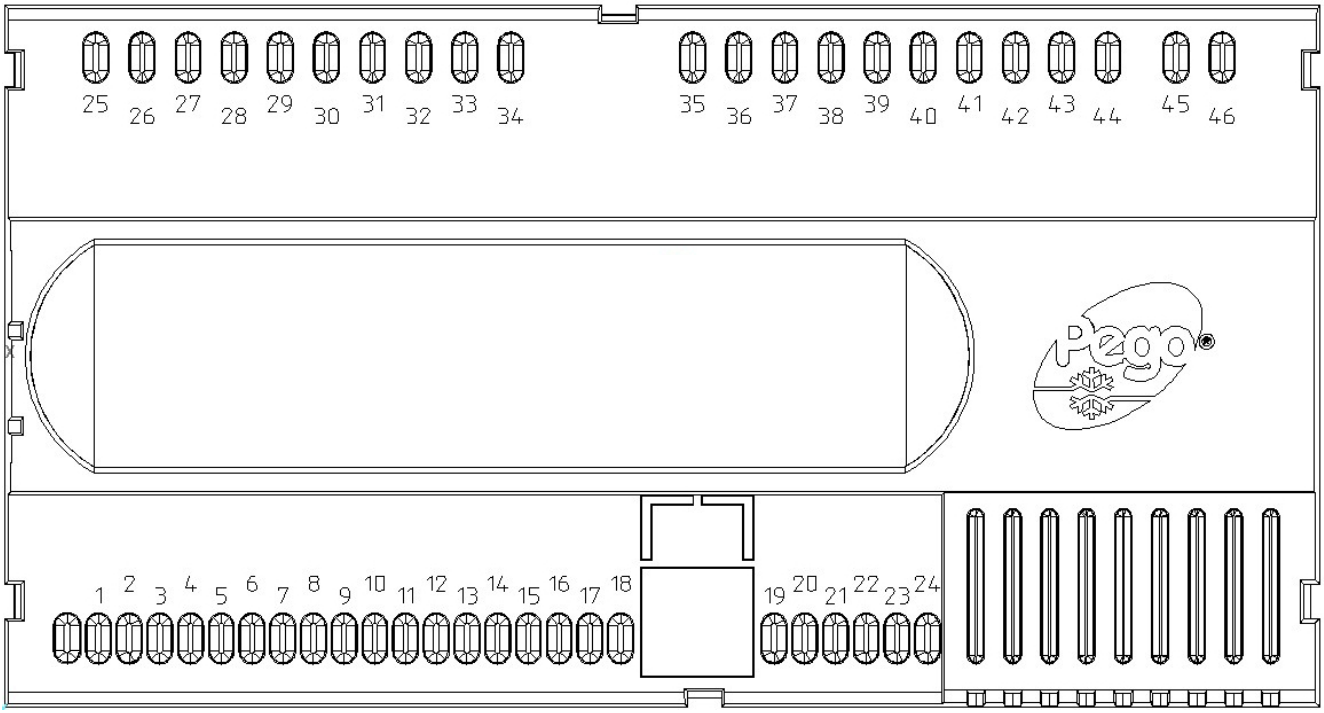
2006/95/CE	**Direttiva del Consiglio per l'unificazione delle normative dei Paesi CEE relativa al materiale elettrico destinato ad essere utilizzato entro certi limiti di tensione e successive modificazioni**
2006/95/EC	EC Directive on unification of laws of the Member States relating to electrical equipment employed within certain voltage limits and subsequent amendments
89/336 CEE	**Direttiva del Consiglio per l'unificazione delle normative dei Paesi CEE relativa alla compatibilità elettromagnetica e successive modificazioni**
89/336 EEC	EC Directive on unification of the laws of the Member States relating to electro-magnetic compatibility and subsequent amendments
93/68 CEE	**Direttiva del consiglio per la marcatura CE del materiale elettrico destinato ad essere utilizzato entro talunni limiti di tensione.**

LA CONFORMITA' PRESCRITTA DALLE DIRETTIVE E' GARANTITA DALL' ADEMPIMENTO A TUTTI GLI EFFETTI DELLE SEGUENTI NORME:
CONFORMITY WITH THE REQUIREMENTS OF THIS DIRECTIVE IS TESTIFIED BY COMPLETE ADHERENCE TO THE FOLLOWING STANDARDS:

NORME ARMONIZZATE / HARMONIZED EUROPEAN STANDARDS

EN 61000-6-1 EN 61000-6-3 EN 60335 – 1

A.2 PLUS 100 AB connections diagram



Power section
45-46 Power supply 230 V AC 50 Hz

Inputs section
3-4 Skewer sensor NTC 10K (only cooling)
5-6 Evaporator sensor NTC 10K
7-8 Room sensor NTC 10K

N.B. Terminal 9 is the common of all the digital inputs

9-14 Pressure lock-out
9-15 Fan overload
9-16 Remote defrost end
9-17 Door switch
9-18 Compressor safety device

Outputs section (no-voltage contacts)

31-32 Freezing solenoid
33-34 Cooling solenoid
35-36 Alarm
37-38 Room light
39-40 Fans
41-42 Defrost
43-44 Compressor

TeleWIN section
19-20 RS485 for TeleWIN

Note:
9-14 and 9-15 stops cold, fans, solenoids. Activates alarm
31-32 Freezing solenoid (active in freezing process)
33-34 Cooling solenoid (active in cooling process and with compressor during manual function)

Notes:

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