PLUS100 AB

Use and maintenance manual

READ AND KEEP

REV. 02-18
ENG

ELECTRICAL BOARDS FOR REFRIGERATING INSTALLATIONS

Refrigeration Pego

CONTENTS

CHAPTER 1: INTRODUCTION

1.1 *GENERAL*

The electronic controllers of the ***PLUS100*** 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*

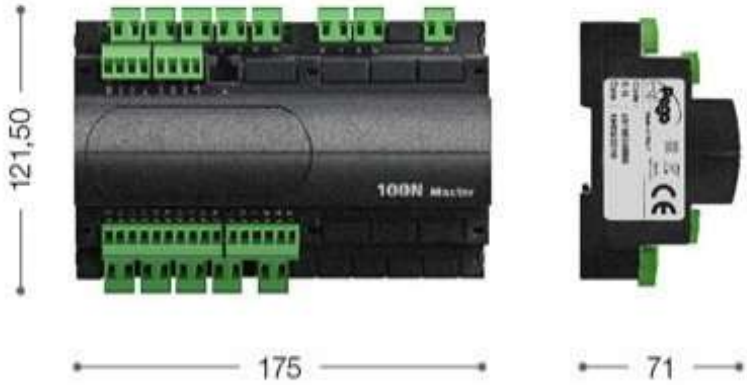
PLUS100 AB	Controller for cooling and storage rooms.

OVERALL DIMENSIONS

1.3

PLUS100 AB

100N MASTER AB



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 of the electrical board
- Serial number
- 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 1mm^2.

2.2 *STANDARD ASSEMBLY AND USE KIT*

The ***PLUS100 AB*** system is supplied with the following assembly and utilisation items:

- n°1 console fixing bracket;
- n°2 temperature sensors (piercing temperature probe not included);
- n°1 user's manual;

CHAPTER 3: FUNCTIONS

3.1 *FUNCTIONS CONTROLLED BY THE PLUS100 AB*

- 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% 50-60Hz
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
Output characteristics - max applicable load (230VAC)	
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*

PLUS100 AB series products 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 with the prior request of the Return Authorization Number.

Customers are entitled to have defective products repaired, spare parts and labour 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.

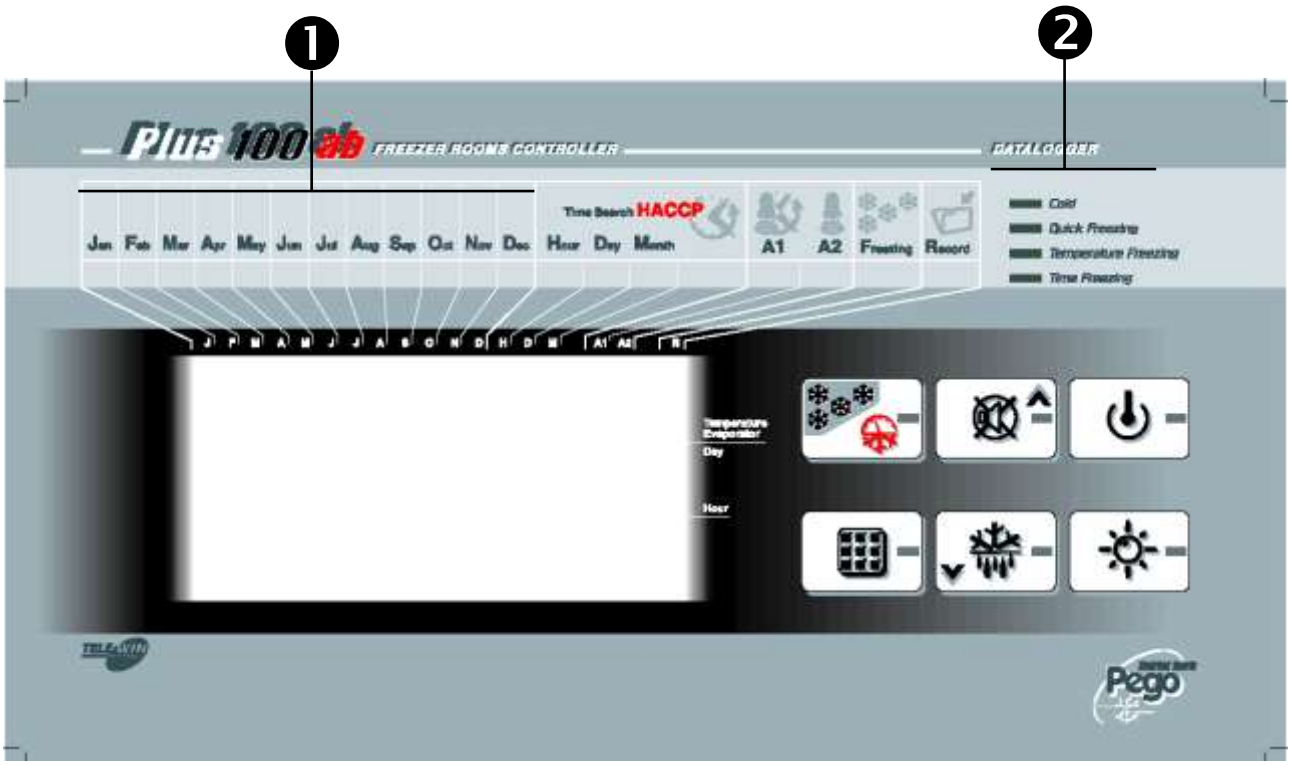
Each new release of the Pego product user manual replaces all the previous ones.

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.

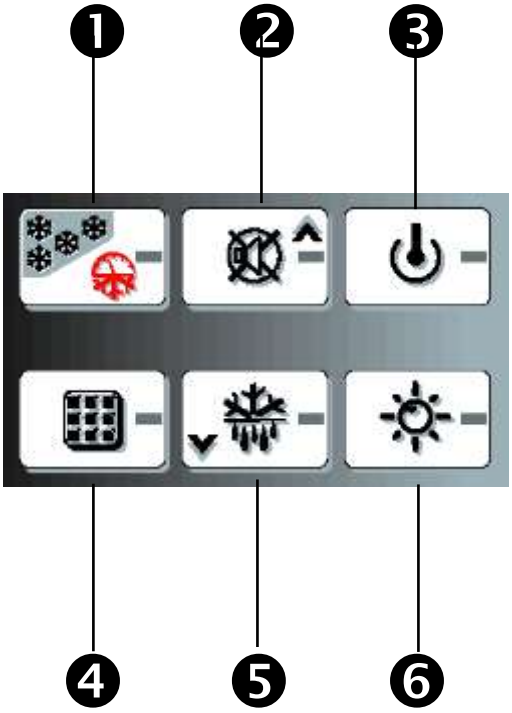
CHAPTER 5: PARAMETER PROGRAMMING

LCD AREAS 5.1



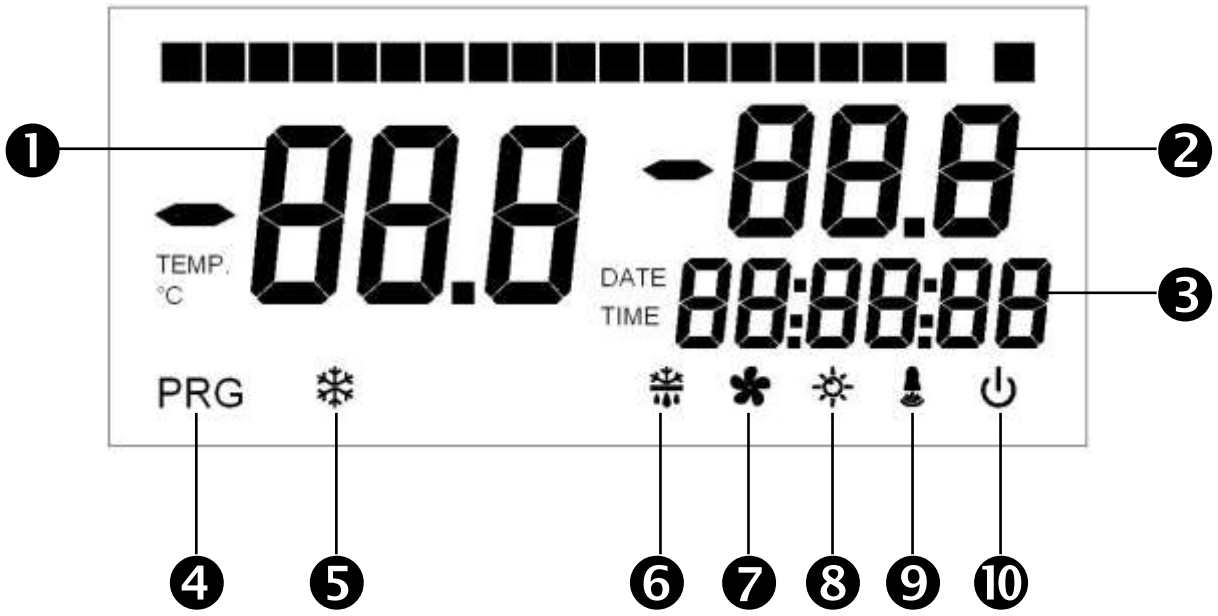
1. Display of current month (previous months also remain lit).
2. Indicator/warning LEDs:
    a. ***Cold***: cooling in progress.
    b. ***Quick freezing***: rapid freezing in progress.
    c. ***Temperature freezing*** cooling/freezing by temperature (PR1, PR2, PR3).
    d. ***Time freezing*** cooling/freezing 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 ***PLUS100 AB 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).
2. Hold down the **SET key** and press the **(▲)** or **(▼)** keys to modify the **SET-POINT**.

Release the **SET key** to return to room temperature display: the new setting will be saved automatically.

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

1. Press the key 1  .

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

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

2. 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.

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

4. 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 (piercing temperature probe)** 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 TeleNET 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	**Piercing temperature probe 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	0 = 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 PLUS100 AB ELECTRONIC CONTROLLER*

After wiring the electronic controller correctly, power up at 230VAC; 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 ***PLUS100 AB*** 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 AB 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.
En	*No connection between Console and MASTER board.*	• Check the connection between the two units. • 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.

If the alarm is returned without operator intervention, the error is tracked over time.
After pressing the "mute alarm" button, the error code already returned will be displayed.

APPENDICES

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 –

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

MOD.: **PLUS100 AB**

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 60730-1:2016, EN 60730-2-9:2010, EN 61000-6–1:2007, EN 61000-6–3:2007**
European standards:	**EN 60730-1:2016, EN 60730-2-9:2010, EN 61000-6–1:2007, EN 61000-6–3:2007**

IL PRODOTTO E' COSTITUITO PER ESSERE INCORPORATO IN UNA MACCHINA O PER ESSERE ASSEMBLATO CON ALTRI MACCHINARI PER COSTITUIRE UNA MACCHINA CONSIDERATE DALLA DIRETTIVA: 2006/42/CE "Direttiva Macchine".
THE PRODUCT HAS BEEN MANUFACTURED TO BE INCLUDED IN A MACHINE OR TO BE ASSEMBLED TOGHETER WITH OTHER MACHINERY TO COMPLETE A MACHINE ACCORDING TO DIRECTIVE: EC/2006/42 "Machinery Directive".

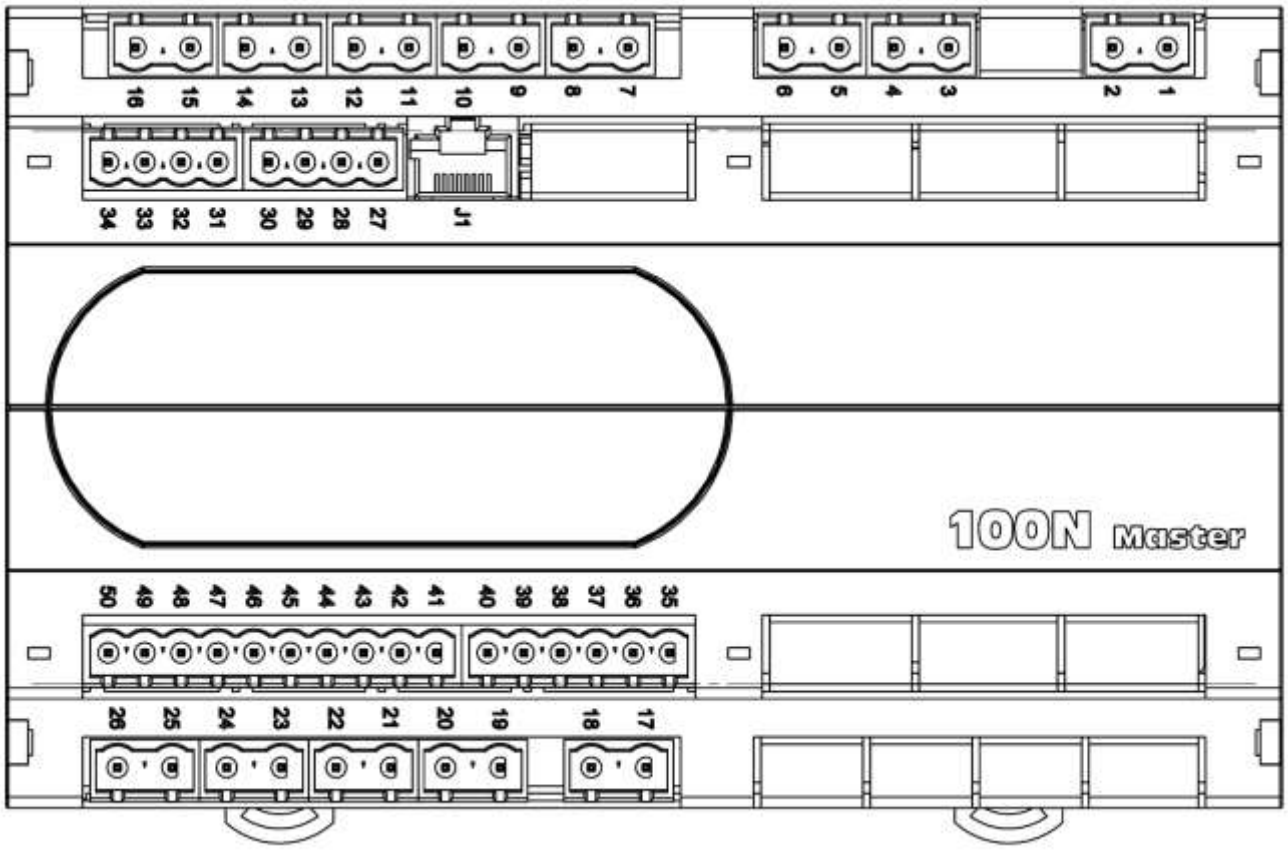
Firmato per nome e per conto di:
Signed for and on behalf of:

Pego S.r.l.
Lisa Zampini
Procuratore Generale

Luogo e Data del rilascio:
Place and Date of Release:

Occhiobello (RO), 08/01/2018

A.2 *PLUS100 AB CONNECTIONS DIAGRAM*



Power section

1-2 Power supply 230VAC 50/60 Hz

Analog inputs

27-28 NTC 10K cold room

29-30 NTC 10K food

31-32 NTC 10K evaporator

Digital inputs

41-50 Compressor protection

42-50 Switch door

43-50 Remote end defrost

44-50 Fan overload protection

45-50 Pressure alarm

Outputs (free-voltage contacts)

15-16 Freezing solenoid

13-14 Cooling solenoid

11-12 Alarm

9-10 Cold room light

7-8 Fans

5-6 Defrost

3-4 Compressor

TeleNET section:

39 A line or clamp 3 2TWRS485

40 B line or clamp 4 2TWRS485

Note:

44-50 *and* ***45-50*** stops cold, fans, solenoids. Activates alarm.
15-16 Freezing solenoid (active in freezing process).
13-14 Cooling solenoid (active in cooling process and with compressor during manual function).

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