STORAGE

OPERATING INSTRUCTIONS

1.4

SOFTWARE V1.8

Please note

These instructions must be read carefully before using or running the storage.

INDEX

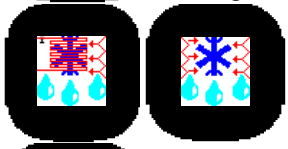
General information

This STORAGE has been born to maintain perishable goods in short, medium and long terms. Its dimensions can be different according to the client needs. From the smaller box, joinable by small opener for the storage of ice-scream bowls, to the one of human-size joinable by big doors and trans-pallets. Storage’s temperatures of products can be ranged from -30°C to +8°Cin relation to the client’s needs.
Particularities and advantages of this storage, are the simplicity of managing the machine and its reliability. The heart of the storage is a North Fridge's PLC programmed which guarantees a long-term operation even in unfavorable conditions, such as the accidental breakage of one or more probes.The conservative has a sophisticated system for cleaning the evaporator which maintains the perfect efficiency. If the evaporator is clogged by ice for setting errors of the machine, it will be able to detect its presence and suggest a manual defrost. There is also a particular routine to the assisted defrost (to run the machine when empty and OFF) in which it will be possible to defrost the entire cell and bring it to a temperature between + 20 ° C and + 30 ° C in a few minutes. A graphical interface V-Touch allows you to view the status of the machine, to access and change settings, view and manage faults and alarms.

V-color Interface

The heart of the system is a PLC on the machine. The PLC communicates with the user through a graphical interface called V-Color or V-touch. The interface is touch screen, so you can interact with the machine by simply pressing an icon or a written speech. The navigation through the menus is simple and intuitive, daily use will get you accustomed to the various menus of the controller. This guide will show you an overview of the menus available. Not all menus are accessible directly by the user, some are password protected; for safety reasons, are accessible only by the installer. Under the graphical interface and only in few pages there are passing keys, which are integral to the operation of the device. Allow you to return to the main page (*esc*), to switch press (◄►), to modify press (▲▼) to enter press (←).

The main menu is called **HOME**, and it is accessible by pressing the icon  .
Nella pagina HOME,in basso a sinistra, è presente un'icona o più icone che indicheranno lo stato della macchina.

- ON set point reached
- OFF the machine is turned off, you can run an assisted defrost (page 9)
-  Cooling
-  Gas and/or Resistors active defrost
-  Dropping phase

-  Fast cooling or pre-defrost
- 

An important alarm stopped the machine (only for version with compressor)

Under the temperature displayed there are descriptions of the machine's status, the flashing word **ALARM** or the icon  followed by the sign "BIIP" will notify an active alarm; to access the alarm will only have to push the word or icon, or follow the sequence:  - 

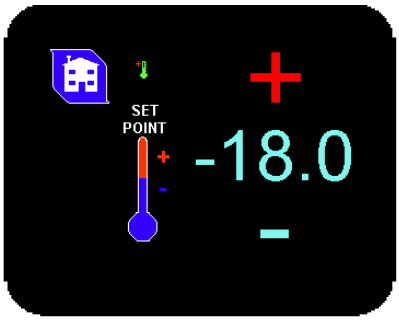
.To stop the alarm on the menu ALARMS press the icon  . The temperature shown is the highest temperature in the cell. The probes air present in the cell usually are two, one high and one low. This configuration allows you to keep in special conditions homogeneous temperatures throughout the cell, ensuring normal operation even if a probe was faulty. A faulty probe generates an alarm and will read err top right temperature. If both sensors are faulty air will read Tem. In this case the operation of the machine will be given to the timing of two phases, a cooling and a waiting. Next to the displayed temperature will appear and two icons  and  : the first will indicate that there is an ongoing program of energy saving, depending on whether there is an active reminder alarms. By pressing the icon  you can accede directly to the page showing the history of the alarms, as described at page 11.

There is a page named Home Pro, which displays the status of the outputs and all temperatures detected by the controller, the page is not always enabled it depends on the type of installation. Normally, the page is used by the installer for the necessary calibrations.

The pages are accessible either by pressing the graphic icons left of the display.

Controller's menus navigation

To access the setup page of the set-point will be enough to press the temperature displayed on the page **HOME**. To exit press  .



The symbol  , that can appear on the screen **HOME**, will indicate that a save energy program is on. The energy saving program acts on the set point temperature and the running of the ventilation. By default, the machine is delivered with an active overnight program but without deviation of the set point. In this way the energy saving program will act only as continuous ventilation or Smart Fan.

By the **HOME** page pressing  , the main page to the settings and the run of particular functions will be shown. On the top right the button  of the machine and the following  about the spot light of the cell (the ignition of the light in the cell is automatic opening of the doors). The machine in the OFF state still allows some operations such as turning on the light manually, or the execution of a program defrosting assisted with empty cell.

By pressing the icon  you will enter the page of active alarms; below, by pressing the icon  you can view the alarm history stored.

On the left the icon  will access the page for setting the time and the date. As a result of a break of the machine from the power supply prolonged, the will be probably the need to reset the time and the date for the proper operation of the machine.

The icon  will let you enter to the user's setting page

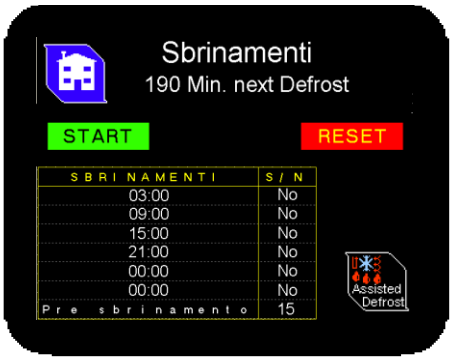
The Icons  and  , if allowed by the installer, will allow you to enter to pages about system's setting and alarms.

The icons  and  will let you enter the pages for manual, programmed and assisted defrost or to fast cooling application.

The icon  will let you enter by password to the page reserved to the installer.

By pressing the icon  you will enter to the page concerning all product's information. Some information such as installed software version or Mod-bus compatibility or moreover supported hardware, will let you update the product in the future.

Defrost Page



By entering this page you can activate and set up programmed defrost. The activation of just one programmed defrost, will exclude automatic defrost. You can set up to 6 programmed defrost, by choosing hour, minutes and/or seconds and pressing **Yes** next to where the time is shown.

By **Pre defrost** preparation's minutes of the defrost of the cell are indicated; cool down the cell before the running of defrost. When TN cell are particularly efficient, it is better to maintain this setting at minimum.(temperature positive)

From this screen it is possible to start a manual defrost by pressing START or stop it by pressing RESET

You can reset all current defrost.

By pressing the icon 

you will enter the page for the assisted defrost.

Assisted defrost

The assisted defrost program is a maintenance cycle of the entire cell. An ordinary defrost cycle should melt the frost of the evaporator, but sometimes the evaporator stock the melt turning it into ice, so as to obstruct the passage of air to ventilate the cell and maintain it in temperature. The inefficiency of ventilation causes no continuous operation of the cooling phase (considerable waste of energy) and the failure to achieve the set point temperature. Even after having launched several automatic defrost manually do not get the desired effect. At this point we give up and to defrost efficiently and manually you must remove the cell plug, open the doors and wait several hours hoping that the evaporator has thawed (often not the case even after 6 hours).The assisted defrost program helps you to carry the entire cell from a temperature of -15C to + 20C over in less than half an hour. This should be done with the machine empty in the OFF position and open doors. The program heats the evaporator with the hot gas and the resistances airing at the same time the cell. The cell leads quickly to a temperature above twenty degrees. During the defrost assisted phase is possible and advisable to perform the cleaning and disinfection of the cell. The program duration is preset to 30 minutes, but you can change the duration at your preference.

After you have set the machine on OFF and taken off all the product from the cell, open one door and run the program by pressing START. The temperature of the evaporator and the time will be shown. Anyway, if you decide to stop the operation just touch the button clear. Meanwhile the operation is running you can take a look to other menus.

User Parameters

You can enter this menu by pressing the icon  . In this part you can modify some elementary function of the machine. Let's see each of them:

- ***Label***, it's the assigned name of the machine which will displayed next to the word STORAGE.
- ***LCD Light***, it's the V-touch backlight way of activation.
- ***LCD light timer***, if the timer tool is on, this refer to the seconds of switched on light after the latest pressure of V-touch
- ***Open door LCD light mode***, you can turn on the LCD light when you open the doors
- ***Fridge defrost activity***, you can set up defrost in relation to the evaporator's activities, the more the storage is defrosted, the less it will be
- ***Timer among defrosts***, are the break between a defrost and the other. If the "fridge activity" is on, the minutes are related to the evaporator activity; that is some minutes later of cooling, a defrost will be launched.
- ***Unable micro door***, you can unable the micro doors. This operation, if arranged with a technician, allows to run the machine correctly even if there's a strike on doors' components. As the micro-door acts on the operation of the ventilation as well as on the light, the failure of one of these would cause a temporary malfunction of the ventilation in addition to keeping the light on in the cell. In any case, the program will be able to detect an opening of the door prolonged (or the breaking of a micro) and will ensure the ventilation necessary for the preservation of the product.
- ***Unable micro door 2***, if there are no back doors in the back of the cell, it must be disabled
- ***Saving energy activation***, you can enter an energy saving program in an established timeframe. The savings will act on the type of ventilation and changing the set point cell.
- ***Activation of savingenergy time***
- ***Disactivation of savingenergy time***
- ***Set point's deviation***, is the deviation of the set point in the phase of energy saving. By default, the machine is delivered with deviation 0.0, in this way the program will act only on the type of ventilation, saving energy on ventilation motors, this will permit to maintain them for a longer period. In the range of energy saving will be possible to move the set point of the machine to make sure that this is less active as possible meanwhile maintaining the product. For example, if the set point is -15.5 and the deviation is set to 1.4, the resulting set point is -14.1.The program's activation will be displayed by the icon on the **HOME** and **SETPOINT** page.
- ***HOME,*** you can choose the type of page to be displayed by pressing the icon  .
- ***External buzzer volume,*** you can set the volume of the alarm buzzer outside, if any.

Alarms

The **Alarms** menu is the main page to enter and manage alarms. On the top left active alarms will be shown, then looking down on the screen you will see the alarm's index with its description and solution. If there are multiple alarms, you can cycle through the various alarms simply pressing the icon  . To view and / or return to the first active alarm list, pressed the icon  . Generally the active alarms collapse and cancel itself from the list as soon as it is within the alarm condition; some alarms as the Blackout not fall automatically and so you need to reset the alarm by pressing the icon  .If you had missed an alarm or if you want to control when you were not there if an alarm has turned on and then fall you can access the page of the alarm by pressing the icon  .

The PLC director over the alarm log all the events of return from alarm, therefore the latest history should be the last state of the machine when the alarm. By the buttons<>you can enter former and later events, but by >> you will see the latest.

Parameters

To accede to the parameters' page please press the icon  . Changing parameters by non-technically size can cause a malfunction to the machine itself. It 'always good to seek advice from the installer before you play around with the parameters. The pages of the parameters may not be accessible. The saved parameters can be uploaded at the factory or by the installer by pressing the icon  . Be careful, will be loaded beyond the parameters of the system user and also those of the alarms!

- ***Language***, sets the language of communication of the V-touch.
- ***Differential***, temperature difference compared to the setpoint whereby the machine is not involved.
- ***Arrest's delay***, delay, in seconds, of the cooling output (solenoid / compressor). Useful when you are using the relay contact with a condensing unit instead of a solenoid valve. Prevent the shutdown and power-ups in a row and the compressor.
- ***Temperature of finished defrost,*** when the defrost temperature the machine starts the evaporator's dropping cycle. Please note, the temperature is ignored throughout the minimum defrost time.
- ***Hot gas defrost Temp,*** temperature at which it is interrupted the flow of hot gas to the evaporator, this does not act on the defrost cycle.
- ***Min. break among defrosts****,* are the minutes interval between a defrost and the next. If you have set the function of activities fridge (have a look to **USER PARAMETRES**) the minutes refer to the activity of the evaporator; essentially after some minutes of cooling a defrost will be launched.
- ***Maximum defrost time****,* if the defrost temperature is not reached, the machine will continue the defrost cycle for a maximum defrost.
- ***Minimum defrost time****,* even if the machine reaches the end defrost temperature before the minimum duration time, the defrost cycle will continue for the minimum duration.
- ***Min. of EV's dropping****,* reached the end defrost temperature and in any case after the minimum term or after the maximum, the machine will go into a cycle of dropping, which will allow the evaporator to get rid of the water droplets and dry.
- ***Calibration upper probe****,* allows to calibrate accurately the probe used.
- ***Calibration inferior probe****,* allows to calibrate accurately the probe concerned
- ***Calibration evaporator probe****,* allows to calibrate accurately the probe concerned
- ***Ventilation (degrees)****,*the temperature below whom is activated the cooling ventilation. It is used to not bring warm air into the cell, for example after a defrost. The value should be brought close to 0 in TN cells to prevent thermal shock to food.
- ***Delay on closing door fans****,* when a door is opened, the ventilation is interrupted to prevent the escape of cold air and do not accumulate moisture on the evaporator; when the door has been closed, the ventilation is delayed for some minutes
- ***Di1 door sensor****,* set the type of electrical contact of the sensor leads. N.C. normally closed (at opening the door also opens the contact). N.O. normally open (at opening the door the contact closes).
- ***Di2 door sensor****,* set the type of electrical contact of the sensor secondary port (if present). N.C. normally closed (opening the door also opens the contact). N.O. normally open (opening the door, the contact closes).
- ***Di3 digital entry****,* digital input (see diagram) N.C. normally closed. O. normally open
- ***Di4 digital entry****,* digital input (see diagram) N.C. normally closed. O. normally open
- ***Di5 digital entry****,* digital input (see diagram) N.C. normally closed. O. normally open
- ***Di6 digital entry****,* digital input (see diagram) N.C. normally closed. O. normally open

- ***Delay short term,*** delays the start of the cooling output if it has just stopped, useful if the machine is connected to a condenser unit.
- ***Delay outputs at startup,*** when the power is applied to the system and the machine was operating, the outputs will be delayed for some seconds.
- ***EV activity defrost***, you can set the defrost based on the activity of the evaporator, that means that the more it works the fridge more often will defrost, so on the opposite
- ***Anti-frost activation,*** maximum temperature beyond which the resistances are switched off doors. Prevents overheating of the resistance in the presence of positive temperatures.
- ***Min. defrost max probe err,*** if the evaporator probe was faulty, defrosting will automatically change onto defrost time without temperature control.
- ***Cooling pre defrost,*** before performing a defrost cycle, it is possible to prepare the cell with the air cooled as it will remain stationary during the defrost cycle for 5-10 minutes of a typical cycle.
- ***No stop ventilation,*** There are three types of ventilation of the cell. **NO**: the cell is ventilated only when prompted by the temperature set point then in the cooling phase (high energy saving and low wear of the blowers against temperature stratification).**SI** : the cell is continuously ventilated (temperature uniformity for energy consumption against continuous high wear of the fans).**SMA** : Smart fan function allows you to combine the advantages of both settings described above. With the Smart fan on, the ventilation is activated only if the set point requires it, or if the temperature difference between the top and the bottom of the cell exceeds the parameter described below.
- ***temp. gap on SMArtFan mode,*** temperature difference between the top of the cell and the lower part below which the ventilation remains off.
- ***Max temperature of the evaporator,*** safety limit of the maximum temperature reached by the evaporator, beyond which the hot gas solenoid valve is closed, closed regardless of which operation is being executed. (It should not be changed!)
- ***Ventilation delay on stop,*** delayed arrest ventilation in fast cooling mode.
- ***EFF limit,*** data concerning the algorithm of calculation of the efficiency % of the ventilation. (It should not be changed!)

Alarms' Parameters

To enter, please press the icon 

. Changing parameters by no- technically size can cause a malfunction of the machine itself. It is always good to seek advice from the installer before you play around with the parameters. The pages of the parameters may not be accessible.

- ***Probe's alarm delay (sec.)***, (this must not be modified)
- ***Max unregular value (probe)***, value in temperature beyond which a probe air is considered in error.
- ***Min unregular value (probe)***, value in the temperature below which a probe air is considered in error.
- ***Max unregular value (probe EV)***, value in the temperature below which a probe air is considered in error.
- ***Min unregular value (probe EV)***, value in the temperature below which a probe air is considered in error.
- ***No stop cycle (waiting min.)***, if all probes air were faulty, is activated the non-stop timer loop which consists in two phases of a hold and a refrigeration. The data described here relates to the step of waiting to refrigeration during which the machine does not perform any operation.
- ***No stop cycle (waiting refrigeration)***, at the end of the waiting phase of the non-stop cycle, the refrigeration phase will start for the duration of minutes expressed by this parameter.
- ***Ice detected (tem.)***, at the end of the defrosting phase if the evaporator temperature has decreased below the temperature set in this parameter, it will be generated the alarm about ice on the evaporator.
- ***Open door alarm's delay sec.***, seconds after whom, the opening of a door, the alarm is generated
- ***Delay Al.temp.at ON. min.***, minutes of delayed activation of the temperature alarms, after have set the machine on ON.
- ***Temp.'s alarm delay(sec.)***, minutes of delayed temperature alarms during normal function
- ***Min limit of efficiency***, value below which the alarm is generated by low efficiency of ventilation.
- ***Efficiency alarm's delay***, seconds of delay concerning the ventilation efficiency alarm
- ***Temp. absolute or relative***, type of temperature setting alarms described here under. Absolute: will indicate the actual temperature and the real that will trigger the alert. Relative: will be calculated from time to time with respect to the set temperature set point, in this way by changing the set point of the cell, we will move automatically the temperatures of the alarms.
- ***Low temperature alarm***, is the temperature below which the alarm will be generated at low temperatures. Pay attention to the setting of the previous parameter, if you set the related temperature, this data will be necessarily negative, because it will be added to the set point; example: set parameter set to -15.5 and Low temperature alarm -6 be so: -15.5 + (- 6) = -21.5.
- ***High temperature alarm***, is the temperature above which the alarm is generated by high temperature. Beware parameter setting temp. absolute or relative, if you set the related temperature, this data will necessarily be positive because it will be added to the set point; example: set parameter set to -15.5 and High temperature alarm 6 look like this: -15.5+ (6) = - 9.5.
- ***Max. high press. operation:*** number of interventions of the high pressure after which the machine moves to block.
- ***Min. highpress operation:*** after the intervention of the high pressure the machine remains on stop for some seconds.
- ***Max. low press. operation:*** number of interventions of the low pressure, after which the machine moves to block.

- ***Delaystopped comp.to low temp alarm:*** activation of the low call of the compressor, it remains active for some seconds in an attempt to restore the pressure.
- ***Min low temperature operation:*** the activation of the low alarm cannot last less than some seconds.

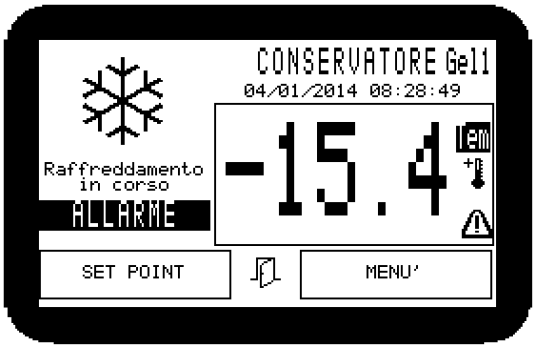
SERVICE

The SERVICE menu 

is reserved to the installer. That means that the pages can be accessible only by entering a password.

V-touch interface (B/N)

The heart of the system is a PLC on the machine. The PLC communicates with the user through a graphical interface called V-Color or V-touch. The interface is touch screen, so you can interact with the machine by simply pressing an icon or a written speech. The navigation through the menus is simple and intuitive, daily use will get you accustomed to the various menus of the controller. This guide will show you an overview of the menus available. Not all menus are accessible directly by the user, some are password protected; for safety reasons, are accessible only by the installer. Under the graphical interface and only in few pages there are passing keys, which are integral to the operation of the device. Allow you to return to the main page (esc), to switch press (◄►), to modify press (▲▼) to enter press (←).



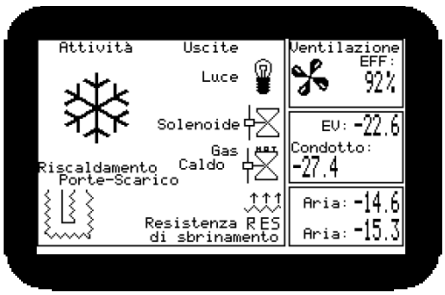
The main menu is called **HOME**, and you can enter it by pressing  or the button *[esc]*.

Nella pagina HOME, in alto a sinistra, è presente un'icona o più icone che indicheranno lo stato della macchina.

- ON set point reached
- OFF the machine is turned off, you can run an assisted defrost, pag.12
-  Cooling
-  Gas and/or Resistors active defrost
-  Dropping phase
-  Fast cooling

-  An important alarm stopped the machine (only for version with compressor)
- Under the temperature displayed there are descriptions of the machine's status, the flashing word **ALLARM** followed by "BIIP"" will notify an active alarm; to access the alarm will only have to push the word or icon, or follow the sequence: MENU'- ALARMS. To stop the alarm on the ALARMS menu, please press **BEEP STOP** or just keep pressing for few seconds*[esc]*.The temperature shown is the highest temperature in the cell. The probes air present in the cell usually are two, one high and one low. This configuration allows you to keep in special conditions homogeneous temperatures throughout the cell, ensuring normal operation even if a probe was faulty. A faulty probe generates an alarm and will read **err** top right temperature. If both sensors are faulty air will read **Tem**. In this case the operation of the machine will be given to the timing of two phases, a cooling and a waiting. Next to the displayed temperature will appear and two icons  and  : the first will indicate that there is an ongoing program of energy saving, depending on whether there is an active reminder alarms. By pressing the icon you can accede directly to the page showing the history of the alarms, as described at pag 11.

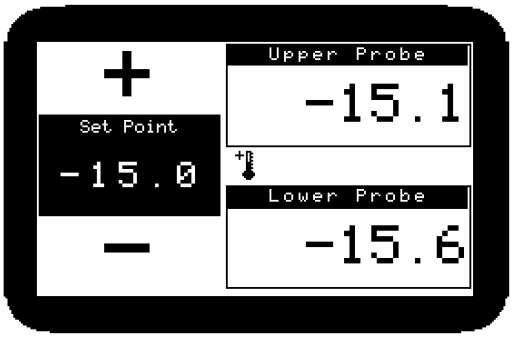
There is a page named Home Pro, which displays the status of the outputs and all temperatures detected by the controller, the page is not always enabled it depends on the type of installation. Normally, the page is used by the installer for the necessary calibrations.



You can also press*[esc]* on the **HOME** page.

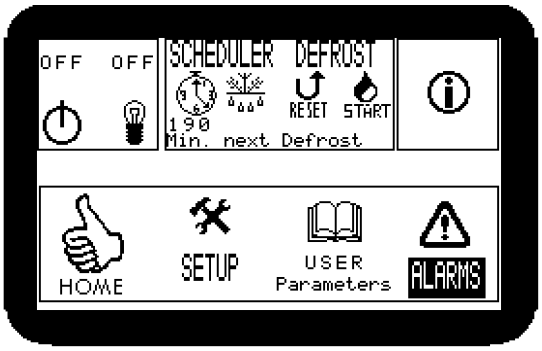
Controller's menu navigation

To enter the set-point's setting page, you just have to press SETPOINT on the down left of the **HOME** page. To exit press*[esc]*.



The symbol , may appear on the **HOME** page, starà ad indicare che è in corso un programma di risparmio energetico. The energy saving program acts on the set point temperature and the operation of the ventilation. By default, the machine is delivered with the program active overnight but no deviation of the set point. In this way the energy saving program will act only on the non-stop ventilation or Smart Fan.

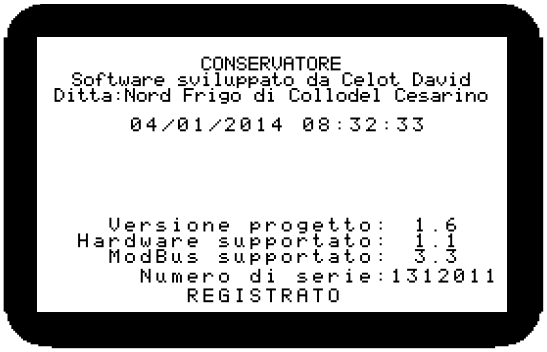
At the **HOME** page, by pressing MENU', the main page to enter the settings and for sending commands will appear. On the top left the button *ON/OFF* of the machine, followed by that is the one of the cell's light (the ignition of the light in the cell is automatic opening of the doors). The machine in the OFF state still allows some operations such as turning on the light manually, or the execution of a program defrosting assisted with empty cell. (l'accensione della luce nella cella è automatica all'apertura delle porte).



On the top, on **SHEDULER DEFROST** , there are some information about the maintenance of defrosts activities. Normally the machine is set to perform a defrost of the evaporator after some minutes of operation, the remaining time of the execution of the next defrost is indicated below the clock. Pressing the clock you will enter the programmed defrosts configuration page . Activating even just one programmed defrost the machine will automatically exclude the timed defrosts. The programming of

defrosts keeps in optimal temperature the cell during peak hours of work. In any case the machine before launching a defrost will execute a step of forced cooling for some minutes. In the main screen START and RESET allows you to set a manual defrost and/or stop it before its regular end.

By pressing the icon ⓘ you will enter the product's information page.



Some information suchas software version or Mod-bus compability, or moreover the hardware, j Alcune informazioni quali la versione software installata o la compatibilità Modbus o ancora l'hardware supportato, vi consentirà in futuro di poter aggiornare il prodotto.

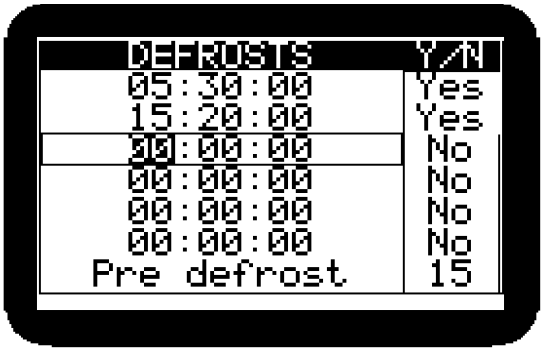
On the left the button **HOME** will let you return to the main page.

On the right the button **SETUP** will let you enter to options and configuration's page (page 11).

USER PARAMETERS is the page for user settings.

ALARM page for the control of active alarms, by this one will be possible to access the page of the alarm.

Programmed defrosts



On this page you can activate and set a programmed defrost. The activation of even one programmed defrost, will exclude an automatic defrost. You can set up to six programmed defrost, enter the hours, minutes and / or seconds and activate the program on the right time by pressing Yes.

Pre defrost are the minutes of preparation of the cell before a defrost; a cooling of the cell will be run before the execution of the defrost phase. In the particularly efficient cells of type TN (positive temperature) is recommended to keep this setting to the minimum allowed.

User Parameters

In this section you can modify some basic operations of the storage. Let'sseeeach of them:

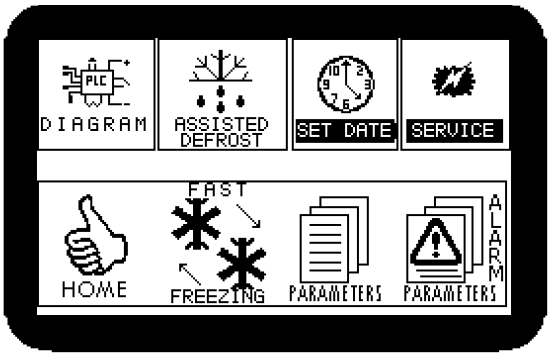
- ***Label***, it's the assigned name of the machine which will displayed next to the word CONSERVATORE.
- ***LCD Light***, it's the V-touch backlight way of activation.
- ***LCD light timer***, if the timer tool is on, this refer to the seconds of switched on light after the latest pressure of V-touch
- ***Open door LCD light mode***, you can turn on the LCD light when you open the doors
- **Fridge defrost activity**, you can set up defrost in relation to the evaporator's activities, the more the storage is defrosted, the less it will be
- ***Timer among defrosts***, are the break between a defrost and the other. If the "fridge activity" is on, the minutes are related to the evaporator activity; that is some minutes later of cooling, a defrost will be launched.
- ***Unable micro door***, you can unable the micro doors. This operation, if arranged with a technician, allows to run the machine correctly even if there's a strike on doors' components. As the mico-door acts on the operation of the ventilation as well as on the light, the failure of one of these would cause a temporary malfunction of the ventilation in addition to keeping the light on in the cell. In any case, the program will be able to detect an opening of the door prolonged (or the breaking of a micro) and will ensure the ventilation necessary for the preservation of the product.
- ***Unable micro door 2***, if there are no back doors in the back of the cell, it must be disabled
- ***Saving energy activation***,you can enter an energy saving program in an established timeframe. The savings will act on the type of ventilation and changing the set point cell.
- ***Activation of savingenergy time***
- ***Disactivation of savingenergy time***
- ***set point's deviation***, is the deviation of the set point in the phase of energy saving. By default, the machine is delivered with deviation 0.0,in this way the program will act only on the type of ventilation, saving energy on ventilation motors, this will permit to maintain them for a longer period. In the range of energy saving will be possible to move the set point of the machine to make sure that this is less active as possible meanwhile maintaining the product.For example, if the set point is -15.5 and the deviation is set to 1.4, the resulting set point is -14.1.The program's activation will be displayed by the icon on the **HOME** and **SETPOINT** page.

Alarms

The **Alarms** menu is the main page to view and manage alarms. In the upper left it displays the number of active alarms, then below are displayed respectively the active alarm with description and its solution. If there are multiple alarms, you can see all alarms occurred by simply pressing the icon  . To view and / or return to the first active alarm list, pressed the icon  . Generally active alarms fall and delete from the list as soon as it is within the alarm condition; some alarms, as the Blackout, do not fall automatically and so you need to reset the alarm by pressing the icon  . If you had missed an alarm or would like to check an alarm you can access the page of the alarm by pressing the message History

The PLC, as far as the alarm history, detects all the events of fall and return alarms, therefore the last screen should be state the last alarm of the machine. Use <> so you can view the events before and after and with the >> button you will reach directly the last alarm occurred.

Setup



In the SETUP menu: On the left, by pressing the icon **DIAGRAM** you will be able to access the wiring diagram to the PLC. It will be very useful if you need to change, for example, a faulty probe. The diagram is divided on two levels, one upper and one lower. On the right the icon **ASSISTED DEFROST** will let you enter the assisted defrost page (pag. 12). Keeping on the right **SET DATE** will help you to manage date and hour. **SERVICE** is the menu accessible only by the technical staff. The icon  will let you come back to me main page. **FAST FREEZING** will let you enter the fast cooling program. It is useful if you have added new cell products that require a rapid cooling. Bottom right two icons **PARAMETERS** and **ALARM PARAMETERS** let enter to the setting parameters and operating parameters of the machine alarms. Changing parameters by non-technically size can cause a malfunction of the machine itself. It's always good to seek advice from the installer before you play around with the parameters. The pages of the parameters may not be accessible.

Assisted defrosts

The assisted defrost program is a maintenance cycle of the entire cell. An ordinary defrost cycle should melt the frost of the evaporator, but sometimes the evaporator stock the melt turning it into ice, so as to obstruct the passage of air to ventilate the cell and maintain it in temperature. The inefficiency of ventilation causes no continuous operation of the cooling phase (considerable waste of energy) and the failure to achieve the set point temperature. Even after having launched several automatic defrost manually do not get the desired effect. At this point we give up and to defrost efficiently and manually you must remove the cell plug, open the doors and wait several hours hoping that the evaporator has thawed (often not the case even after 6 hours). The assisted defrost program helps you to carry the entire cell from a temperature of -15C to + 20C over in less than half an hour. This should be done with the machine empty in the OFF position and open doors. The program heats the evaporator with the hot gas and the resistances airing at the same time the cell. The cell leads quickly to a temperature above twenty degrees. During the defrost assisted phase is possible and advisable to perform the cleaning and disinfection of the cell. The program duration is preset to 30 minutes, but you can change the duration at your preference.

After placing the machine on OFF mode and emptied the cell from products, open at least one door. Start the program by pressing the START button. This will display the temperature of the evaporator and the remaining time to the end. In any case, if you decide to stop the operation will be sufficient to press the CLEAR button. During the operation, you can view other menus.

Parameters

Changing parameters by non-technically size can cause a malfunction of the machine itself. It is always good to seek advice from the installer before you play around with the parameters. The pages of the parameters may not be accessible.

- ***Language***, sets the language of communication of the V-touch.
- ***Differential***, temperature difference compared to the setpoint whereby the machine is not involved.
- ***Arrest's delay***, delay, in seconds, of the cooling output (solenoid / compressor). Useful when you are using the relay contact with a condensing unit instead of a solenoid valve.Prevent the shutdown and power-ups in a row and the compressor.
- ***Temperature of finished defrost*** when the defrost temperature the machine starts the evaporator's dropping cycle. Please note, the temperature is ignored throughout the minimum defrost time.
- ***Hot gas defrost Temp,*** *temperature at which it is interrupted the flow of hot gas to the evaporator, this does not act on the defrost cycle*.
- ***Min. break among defrost****,* are the minutes interval between a defrost and the next. If you have set the function of activities fridge (have a look to **USER PARAMETRES**) the minutes refer to the activity of the evaporator; essentially after some minutes of cooling a defrost will be launched.
- ***Maximum defrost time****,* if the defrost temperature is not reached, the machine will continue the defrost cycle for a maximum defrost.
- ***Minimum defrost time****,* even if the machine reaches the end defrost temperature before the minimum duration time, the defrost cycle will continue for the minimum duration.
- ***Min. of EV's dropping****.,* reached the end defrost temperature and in any case after the minimum term or after the maximum, the machine will go into a cycle of dropping, which will allow the evaporator to get rid of the water droplets and dry.
- ***Calibration upper probe****,* allows to calibrate accurately the probe used.
- ***Calibration inferior probe****,* allows to calibrate accurately the probe concerned
- ***Calibration evaporator probe****,* allows to calibrate accurately the probe concerned
- ***Ventilation (degrees)****,* the temperature below whom is activated the cooling ventilation. It is used to not bring warm air into the cell, for example after a defrost. The value should be brought close to 0 in TN cells to prevent thermal shock to food.
- ***Delay on closing door fans****,* when a door is opened, the ventilation is interrupted to prevent the escape of cold air and do not accumulate moisture on the evaporator; when the door has been closed, the ventilation is delayed for some minutes
- ***Di1 door sensor****,* set the type of electrical contact of the sensor leads. N.C. normally closed (at opening the door also opens the contact).N.O. normally open (at opening the door the contact closes).
- ***Di2 door sensor****,* set the type of electrical contact of the sensor secondary port (if present). N.C. normally closed (opening the door also opens the contact). normally open (opening the door, the contact closes).
- ***Di3 digital entry****,* digital input (see diagram) N.C. normally closed. O. normally open
- ***Di4 digital entry****,* digital input (see diagram) N.C. normally closed. O. normally open
- ***Di5 digital entry****,* digital input (see diagram) N.C. normally closed. O. normally open
- ***Di6 digital entry****,* digital input (see diagram) N.C. normally closed. O. normally open
- ***Delay short term****,* delays the start of the cooling output if it has just stopped, useful if the machine is connected to a condenser unit.
- ***Delay outputs at startup****,* when the power is applied to the system and the machine was operating, the outputs will be delayed for some seconds.
- ***EV activity defrost***, you can set the defrost based on the activity of the evaporator, that means that the more it works the fridge more often will defrost, so on the opposite

- ***Anti-frost activation**,* maximum temperature beyond which the resistances are switched off doors. Prevents overheating of the resistance in the presence of positive temperatures.
- ***Min. defrost max probe err**,* if the evaporator probe was faulty, defrosting will automatically change onto defrost time without temperature control.
- ***Cooling pre defrost**,* before performing a defrost cycle, it is possible to prepare the cell with the air cooled as it will remain stationary during the defrost cycle for 5-10 minutes of a typical cycle.
- ***No stop ventilation**,* There are three types of ventilation of the cell. **NO** : the cell is ventilated only when prompted by the temperature set point then in the cooling phase (high energy saving and low wear of the blowers against temperature stratification).**SI** : the cell is continuously ventilated (temperature uniformity for energy consumption against continuous high wear of the fans).**SMA** : Smart fan function allows you to combine the advantages of both settings described above. With the Smart fan on, the ventilation is activated only if the set point requires it, or if the temperature difference between the top and the bottom of the cell exceeds the parameter described below.
- ***temp. gap on SMArtFan mode**,* temperature difference between the top of the cell and the lower part below which the ventilation remains off.
- ***Max temperature of the evaporator**,* safety limit of the maximum temperature reached by the evaporator, beyond which the hot gas solenoid valve is closed, closedregardless of which operation is being executed. (It should not be changed!)
- ***Ventilation delay on stop,*** delayed arrest ventilation in fast cooling mode.
- ***EFF limit**,* data concerning the algorithm of calculation of the efficiency % of the ventilation. (It should not be changed!)

From the parameters page you can restore the parameters set during the installation, you only have to push the box with its inscription, be careful because the reset also affects the settings of User Parameters and Alarm Parameters.

N.B. To the installer: After changing the parameters, please save them on the SERVICE menu.

Alarm Parameters

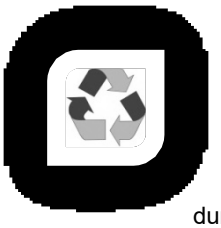
- ***Probe's alarm delay (sec.)***, (this must not be modified)
- ***Max unregular value (probe)***, value in temperature beyond which a probe air is considered in error.
- ***Min unregular value (probe)***, value in the temperature below which a probe air is considered in error.
- ***Max unregular value (probe EV)***, value in the temperature below which a probe air is considered in error.
- ***Min unregular value (probe EV)***, value in the temperature below which a probe air is considered in error.
- ***No stop cycle (waiting min.)***, if all probes air were faulty, is activated the non-stop timer loop which consists in two phases of a hold and a refrigeration. The data described here relates to the step of waiting to refrigeration during which the machine does not perform any operation.
- ***No stop cycle (waiting refrigeration)***, at the end of the waiting phase of the non-stop cycle, the refrigeration phase will start for the duration of minutes expressed by this parameter.
- ***Ice detected (tem.)***, at the end of the defrosting phase if the evaporator temperature has decreased below the temperature set in this parameter, it will be generated the alarm about ice on the evaporator.
- ***Open door alarm's delay sec.***, seconds after whom, the opening of a door, the alarm is generated
- ***Delay All.temp. at ON. min.***, minutes of delayed activation of the temperature alarms, after have set the machine on ON.
- ***Temp.'s alarm delay (sec.)***, minutes of delayed temperature alarms during normal function
- ***Min limit of efficiency***, value below which the alarm is generated by low efficiency of ventilation.
- ***Efficiency alarm's delay***, seconds of delay concerning the ventilation efficiency alarm
- ***Temp. absolute or relative***, type of temperature setting alarms described here under. Absolute: will indicate the actual temperature and the real that will trigger the alert. Relative: will be calculated from time to time with respect to the set temperature set point, in this way by changing the set point of the cell, we will move automatically the temperatures of the alarms.
- ***Low temperature alarm***, is the temperature below which the alarm will be generated at low temperatures. N.B. pay attention to the setting of the previous parameter, if you set the related temperature, this data will be necessarily negative, because it will be added to the set point; example: set parameter set to -15.5 and Low temperature alarm -6 be so: -15.5 + (- 6) = -21.5.
- ***High temperature alarm***, is the temperature above which the alarm is generated by high temperature. N.B. beware parameter setting temp. absolute or relative, if you set the related temperature, this data will necessarily be positive because it will be added to the set point; example: set parameter set to -15.5 and High temperature alarm 6 look like this: -15.5+ (6) = - 9.5.
- ***Max. high press. operation:*** number of interventions of the high pressure after which the machine moves to block.
- ***Min. highpress operation:*** after the intervention of the high pressure the machine remains on stop for some seconds.
- ***Max. low press. operation:*** number of interventions of the low pressure, after which the machine moves to block.
- ***Delaystopped comp.to low temp alarm:*** activation of the low call of the compressor, it remains active for some seconds in an attempt to restore the pressure.
- ***Min low temperature operation:*** the activation of the low alarm cannot last less than some seconds.

SERVICE

The SERVICE menu is dedicated to the installer. The pages contained herein are only accessible via password.

Warnings

Be careful with your new purchase, keep it clean and use the V-touch or vColor only with your fingers and not with other items that may cause deterioration of the film sensitive to touch. If a command does not respond, wait few seconds before trying again. The terminal may be running complex calculations and be on standby. Heavy operations such as the changing of the language of communication or the re-set of parameters can cause a period of inactivity of the LCD longer than ten seconds. Do not insist, wait patiently.Lots of times to cancel a particular situation you just need to press (*esc*), if you are modifying before closing remember to press (←).If the V-touch or color does not respond in any way, please try to cut power to the controller and the LCD for at least ten seconds and then fed back to the system voltage. If you need to take action to change a probe, be sure to be able to do the job, otherwise contact a refrigeration engineer or an electrician. Well interpreted the alarm signaled by the controller. Consult the circuit diagram and note the connections. Turn off the power to the system, remove the panel and replace the probe taking care not to damage the cable with one of the same type. Place the panel and turn it ON. If your system is configured to a supervisory system, do not remove the power for prolonged times. Disconnect mains power only if you must repair or maintaining the system. If the supervision system is active, keep the power to the machine, and keep the machine in the OFF mode. If you need to contact your installer for advice or repairs always communicate software, hardware and ModBus version supported. (take a look to ⓘ or info page).



If you need to dispose the facility, you first need to switch off the system, empty food and confer them appropriately. Empty the refrigeration system of the gas contained in the pipes by qualified personnel such as a refrigeration, the gas content are highly harmful to the environment. Disconnect and remove all electronic and electrical equipment and give it to an eco-center between durable materials. Remove the insulation panels and confer with an eco-center between the bulky materials or delivered to a specific disposal firm industry. Remove all removable steel's parts, copper pipes and radiators and give them to an eco-center or at a disposal industry.

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