



## SK3232.XXX - IT-Chiller - Software instructions





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# 1 - INTRODUCTION



At unit's starting up a mask indicating the installed software's version will be visualized, after a few seconds the main mask visualizing temperatures and some icons (see following table) describing the unit's status will appear.

icon	Description
	General alarm
	Warning
	Unit off by local (ENTER+DOWN) or alarm
	Unit on
	Unit off by remote (digital input)
	Fans' speed
	Pump 1 on
	Pump 2 on
	Pump 1 and 2 on ( during the changeover time only )

### Alarm Pushbutton

This pushbutton is enable when an alarm occurs. In this moment the bell becomes red and by pushing it the operator has the possibility to look at the alarm list;

### Program Pushbutton (PRG)

When this button is pressed the system introduces the operator in the setup list. This list is protected by password;

### Escape pushbutton (ESC)

When this button is pressed from the main mask the system introduces the operator in the INFO mask . In this area the user is able to look at all the values ( pressure values, temperature values etc. ) that the system is reading .

The ESC button is also used to leave every kind of configuration or setting mask to return at the main visualization;

### Arrow UP or Arrow Down Pushbutton

These two pushbutton are used to scroll the mask and to change the setting.

### Enter Pushbutton

Is used to confirm all the changes in the setting.





### Chiller Starting up

To start up the chiller press on the main mask contemporaneously the UP+ENTER keys (local switch).



### Chiller Switching off

To switch off the chiller press on the main mask contemporaneously the DOWN+ENTER keys (local switch).

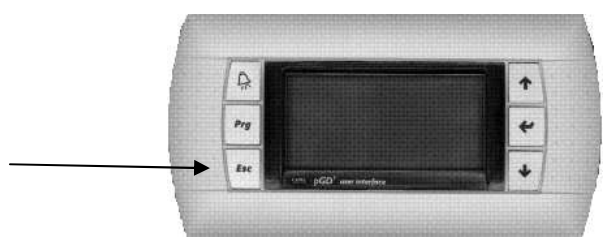






## Info List

Starting from the main mask is possible to access in the Info mask by pressing the Escape pushbutton (ESC)



Then the operator will be able to navigate through the INFO Mask and read out all the values regarding the Chiller such as pressures, temperatures, set points and constructor informations. To travel into the INFO Mask the operator has only to press the arrow UP or arrow DOWN pushbutton . Following the INFO masks that are contained in this list :

```

+-----+
|TEMPERATURES
|=====
|Tank-Process   : 00.0C|
|Evaporator IN  : 00.0C|
|Evaporator OUT: 00.0C|
|Antifreeze 1   : 00.0C|
|Antifreeze 2   : 00.0C|
|
+-----+

```

```

+-----+
|HYDRAULIC PRESSURE
|=====
|Suction        : 00.0bar|
|Discharge      : 00.0bar|
|Discharge 2    : 00.0bar|
|(reserve)
|Flow rate: 0000.01/min|
|(optional)
+-----+

```

```

+-----+
|HYDRAULIC CIRCUIT
|=====
|PUMP1 SPEED:
|           000.0%
|
|PUMP2 SPEED:
|           000.0%
+-----+

```





```
+-----+
| INFO FREECOOLING
|=====
|Temp.freecol.  : 00.0C|
|Temp.cond.FC   : 00.0C|
|Fans setpoint  : 00.0C|
|FC valve pos.  :000.0%|
|Mode:OFF
|Esc.FC:ENABLE
+-----+
```

```
+-----+
| CURRENT CONSUMPTION
| (OPTIONAL)
|=====
|Current consumption:
|          0000.0  A
+-----+
```

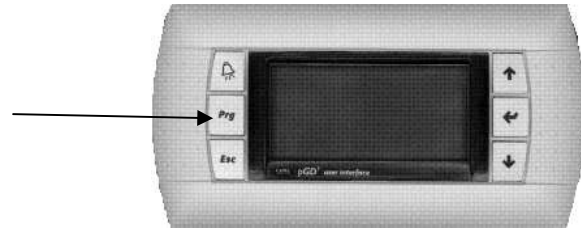
```
+-----+
| FUNCTIONAL TIMES
|=====
|Chiller       : 000000n|
|Freecooling:  : 000000n|
|Mix           : 000000n|
|Pump 1        : 000000m|
|Pump 2        : 000000m|
+-----+
```

```
+-----+
|          INFO NETWORK
|          nonononononono_
|chiller.bmp
|
|MASTER           : 00
|LOCAL ADDRESS:   : 00
|ON FROM MASTER  :NOT
|SET HIGH TEMP.: 00.0C
+-----+
```



## Customer Setting

Starting from the main mask is possible to access in the customer setting by pressing the program pushbutton (PRG)



In this area the customer will be able to change the chiller's setpoints, change language, times, date and change the default settings.

### 1 - How to enter in the "Customer Parameters" menu

Starting from the main mask the operator has to push the PRG button. Then he will be introduced in the "Customer setting Password" mask. As default this password is stored at 0000, but the customer will have the possibility to change it as he wants.

```

+-----+
|  CUSTOMER PARAMETERS  |
|=====|
|  INSERT  PASSWORD     |
|      0000              |
|  and press  ENTER     |
+-----+

```

When this mask appears on the screen, the operator has to press ENTER, and insert the password by pressing arrow UP or DOWN (the value displayed increases or decreases) and then press ENTER to confirm the operation.

If the password is correct the user will be introduced in the "Customer Setting" menu as shown below:

```

+-----+
|  CUSTOMER SETTING    |
|=====|
|  LANGUAGE             |
|  date/hour            |
|  regulation parameters|
|  high temperature alarm|
|  default parameters   |
+-----+

```





## 2 - How to change interface language

To change the language the user has to enter in the "Customer Setting" menu following the operations described in the point 1) How to enter in the "Customer Parameters" menu. Then on the screen will appear the menu shown below:

```

+-----+
|          CUSTOMER SETTING          |
|=====|
| LANGUAGE                          |
|date/hour                          |
|regulation parameters              |
|high temperature alarm             |
|default parameters                 |
+-----+

```

Moving in the menu by press arrow UP or DOWN, when the word "language" will be shown in capitals letter the operator has to press ENTER and the menu below will appear on the screen:

```

+-----+
|          SELEZIONE LINGUA          |
|=====|
| ITALIANO                          |
|inglese                            |
|tedesco                            |
|                                     |
|          e premere  ENTER          |
+-----+

```

The operator has to choose the language by pressing arrow UP or Down button ( the word change in capital letters) and press ENTER to confirm the selection. Done that, the mask below will appear on the screen:

```

+-----+
|                                     |
|          RIMATRIX5                  |
|                                     |
|KRMX V.01 10-NOV-2008              |
|                                     |
|          ESC -> CONTINUE          |
+-----+

```

The operator has to push ESC to finish and store the operations and he will be moved to the main mask.





### 3 - How to change - adjust hour and date

To change or adjust the date and hour the user has to enter in the “Customer Setting” menu following the operations described in the point 1) How to enter in the “Customer Parameters” menu. Then on the screen will appear the menu shown below:

```
+-----+
|          |
|  CUSTOMER SETTING  |
|          |
|=====|
| language          |
| DATE/HOUR       |
| regulation parameters |
| high temperature alarm |
| default parameters |
|          |
+-----+
```

Moving in the menu by press arrow UP or DOWN, when the word “date/hour” will be shown in capital letters the operator has to press ENTER and the menu below will appear on the screen:

```
+-----+
|          |
|  HOURS AND DATE  |
|  SETTING         |
|          |
|=====|
| HOUR:    00:00   |
| DATE:    :00:00:00 |
|          |
+-----+
```

The operator has to use Arrow UP or DOWN to increase or decrease the value and press ENTER to change field and store the changes.

At the end of the operation the user has to push one times ESC pushbutton to return in the “Customer Setting” menu or two times ESC to go to the main mask.

### 4 - How to change regulation parameters

To change the regulation parameters the user has to enter in the “Customer Setting” menu following the operations described in the point 1) How to enter in the “Customer Parameters” menu. Then on the screen will appear the menu shown below:

```
+-----+
|          |
|  CUSTOMER SETTING  |
|          |
|=====|
| language          |
| date/hour        |
| REGULATION PARAMETERS |
| high temperature alarm |
| default parameters |
|          |
+-----+
```



Moving in the menu by press arrow UP or DOWN, when the word “regulation parameters” will be shown in capital letters the operator has to press ENTER and the menu below will appear on the screen:

```

+-----+
|REGULATION PARAMETERS|
|SETPOINT             |
|=====|
|new      :    00.0C  |
|actual   :    00.0C  |
|effective:    00.0C  |
|                |
+-----+

```

The operator has press ENTER to go into the field and use Arrow UP or DOWN to increase or decrease the value and press ENTER to store the changes. The user has only the possibility to change the “new” value, then, when ENTER will be pressed all the other issue will be changed.

At the end of the operation the user has to push one times ESC pushbutton to return in the “Customer Setting” menu or two times ESC to go to the main mask.

## 5 - How to change High and low temperature alarms

To change the regulation parameters the user has to enter in the “Customer Setting” menu following the operations described in the point 1) How to enter in the “Customer Parameters” menu. Then on the screen will appear the menu shown below:

```

+-----+
|    CUSTOMER SETTING    |
|                |
|=====|
|language                |
|date/hour               |
|regulation parameters   |
|HIGH TEMPERATURE ALARM |
|default parameters      |
+-----+

```

Moving in the menu by press arrow UP or DOWN, when the word “regulation parameters” will be shown in capital letters the operator has to press ENTER and the menu below will appear on the screen:

```

+-----+
|TEMPERATURE ALARMS     |
|=====|
|HIGH at      :    00.0C|
|LOW at       :    00.0C|
+-----+

```

The operator has press ENTER to go into the field and use Arrow UP or DOWN to increase or decrease the value and press ENTER to store the changes.

**Important notes:** in case of thermal redundance activated, the high temperature alarm setpoint will be the value where the chiller in stand-by will be switched ON to help the system operation at good condition. Thermal redundance function will be enable only when 2 or more chiller will be connected in pLan.

At the end of the operation the user has to push one times ESC pushbutton to return in the “Customer Setting” menu or two times ESC to go to the main mask.





## 6 - How to charge default parameters

To charge the default parameters the user has to enter in the “Customer Setting” menu following the operations described in the point 1) How to enter in the “Customer Parameters” menu. Then on the screen will appear the menu shown below:

```

+-----+
|          |
|  CUSTOMER SETTING  |
|          |
|=====|
| language          |
| date/hour        |
| regulation parameters |
| high temperature alarm |
| DEFAULT PARAMETERS |
|          |
+-----+

```

Moving in the menu by press arrow UP or DOWN, when the word “default parameters” will be shown in capital letters the operator has to press ENTER and the menu below will appear on the screen:

```

+-----+
|          |
|=====|
|          |
|  CHARGE DEFAULT  |
|  PARAMETERS?    |
|          |
| YES: press ENTER  |
| NOT: press  ESC   |
|          |
+-----+

```

Now the operator has to press ENTER to charge the Default parameters or ESC to return in the customer setting menu.

**Important :** As default parameters the constructor intends only:

- Chiller's main setpoint
- High and Low Temperature alarms

## 7 - How to change the customer setting password

To change the customer password the user has to enter in the “Customer Setting” menu following the operations described in the point 1) How to enter in the “Customer Parameters” menu. Then on the screen will appear the menu shown below:

```

+-----+
|          |
|  CUSTOMER SETTING  |
|          |
|=====|
| regulation parameters |
| high temperature alarm |
| default parameters    |
| service parameters    |
| CUSTOMER PASSWORD |
|          |
+-----+

```





Moving in the menu by press arrow UP or DOWN, when the word “default parameters” will be shown in capital letters the operator has to press ENTER and the menu below will appear on the screen:

```
+-----+
| CHANGE PASSWORD |
|=====|
| INSERT NEW CUSTOMER |
|      PASSWORD      |
|      0000          |
| and press PRG to store |
+-----+
```

Then press ENTER and insert the new password by increase or decrease the value by pushing Arrow UP or DOWN. Press PRG button to store the new password or press ESC to return in the “Customer Setting” menu (in this case the password remains the same stored before or as in factory setting at **0000**).

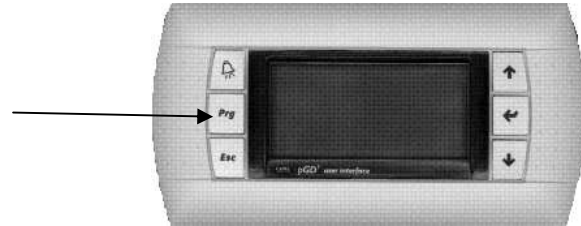
**Important Note** : In case of password changing remember or keep signed the new password. In case of forgetfulness the software has to be totally recharged in the controller and all the data and all the informations will be lost.



## Service Parameters

### 8 - How to enter in the "Service Parameters" menu

Starting from the main mask is possible to access in the service parameters by pressing the program pushbutton (PRG). This software's area is strictly reserved to service technician. Change or try to change some parameters in this area could be dangerous for the chiller's functionality .



Then he will be introduced in the "Customer setting Password" mask. As default value, this password is stored at 0000 and press ENTER;

```
+-----+
|  CUSTOMER PARAMETERS  |
|=====|
|  INSERT  PASSWORD     |
|          0000         |
|  and press  ENTER    |
+-----+
```

Then the service technician will be introduced in the "Customer Setting" menu, and he has to scroll it by pushing arrow UP or DOWN 'till the word "Service parameters" will be shown in capital letters.

```
+-----+
|  CUSTOMER SETTING     |
|=====|
| date/hour             |
| regulation parameters |
| high temperature alarm|
| default parameters    |
| SERVICE PARAMETERS    |
+-----+
```

In this are the service technician has to pres ENTER and he will be introduced in the "Customer Setting Password" area as shown in the next page:

```
+-----+
|  SERVICE PARAMETERS   |
|=====|
|  INSERT PASSWORD     |
|          1234         |
|  and press  ENTER    |
+-----+
```







When ENTER pushbutton will be pressed, the operator will have the possibility to enter in the chiller's parameters management and will have the possibility to change:

- **Cooling setpoint absolute**

```
+-----+
| ABSOLUTE REGULATION |
| Setpoint      : 00.0C |
| Max setpoint  : 00.0C |
| Min setpoint  : 00.0C |
| Differential   : 00.0C |
| Max different. : 00.0C |
| Min different. : 00.0C |
|                1/3   |
+-----+
```

- **Cooling setpoint differential ( ambient )**

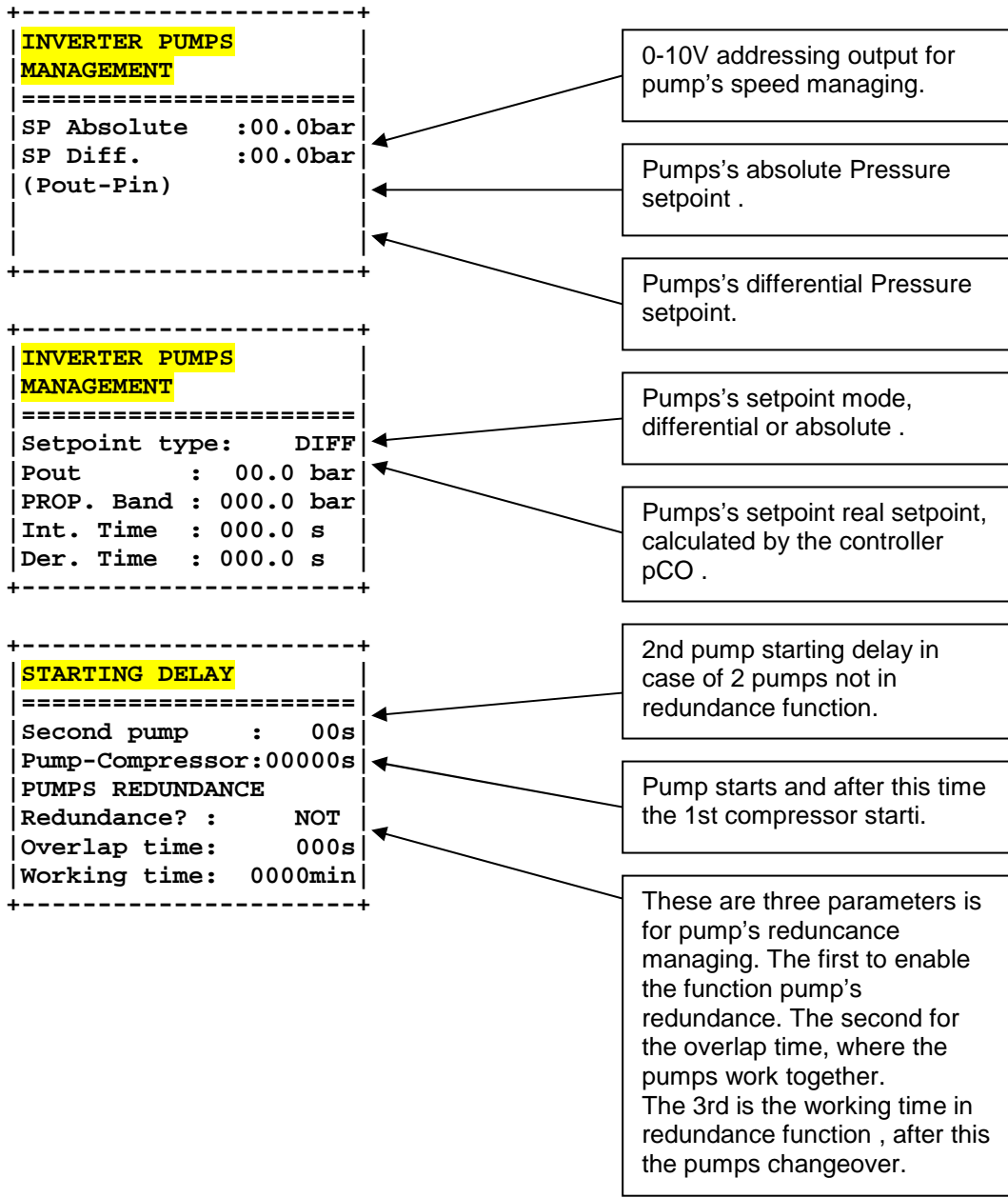
```
+-----+
| DIFFERENTIAL REGULAT. |
| ENABLE?       : NOT   |
| Setpoint      : 00.0C |
| Higher limit  : 00.0C |
| Lower limit   : 00.0C |
| max setpoint  : 00.0C |
| min setpoint  : 00.0C |
|                3/3   |
+-----+
```

- **Cooling setpoint compensation (differential with high and low limit)**

```
+-----+
|=====|
| Antifreeze SP1: 00.0Ž |
| Antifreeze SP2: 00.0Ž |
|=====|
| Compensation   : NOT  |
| Set. compensat.: 00.0Ž |
| Diff.compensat.: 00.0Ž |
| Compensat. max : 00.0Ž |
+-----+
```



- Inverter pumps managements (setpoint, pressure referement, operation time, redundance.....)





- Chiller's redundance ( in case of systems with 2 or more cooling unit connected in pLan )

```

+-----+
|CHILLER REDUNDANCE
|=====
|Enable?      : NOT
|Status in alarm: ON
|Running Time :00000m
|Overlap Time : 00000s
+-----+
  
```

Parameter to enable the chiller's redundance.

In case of redundance enable this parameter described the chiller's function in case of redundance by alarm .

```

+-----+
|CHILLER REDUNDANCE
|=====
|N# Chiller total: 0
|N# Chiller ON   : 0
|Sequence       : 00000
+-----+
  
```

Parameter used to set the working time for the chillers. After this time the chillers changeover.

Parameter used set how many chiller are installed in the system

Parameter used set how many chiller has to be ON in the system

The parameter SEQUENCE is factory setted , DON'T touch it

- Thermal redundance ( in case of systems with 2 or more cooling unit connected in pLan )

```

+-----+
|THERMAL REDUNDANCE
|=====
|Enable?      : NOT
|Hysteresys   : 00.0C
|=====
|MULTI-PUMPS FUNCTION
|Enable?      : NOT
|N# Pumps ON  : 0
+-----+
  
```

Parameter to enable the thermal redundance. Referred to high temperature alarm (parameter described in point 5) of this brochure). After the high temperature value + hysteresys the chiller in stand-by will be switched ON.

Parameter to enable the multipumps function. With this parameter is possible to manage how many pumps have to be switched ON in the complete system. This parameter is allowed only in case of systems with minimum 2 chillers.





```

+-----+
| CHILLER OFFLINE PUMPS |
| FUNCTION               |
|=====|
| Enable function:NOT    |
| Enable pumps every:   |
|         000h          |
| Pumps running time:   |
|         0000s         |
+-----+

```

To scroll the masks the flashing cursor has to be placed in the top left part of the screen, then the operator will have the possibility to navigate inside the masks by pushing arrow UP or DOWN button

Press ESC button one time to return in the "Service parameters" list

Press ESC button two times to return in the "Customer setting" list

Press ESC button three times to return in the main mask

## 10 - How to change compressor's operation times

To change the compressor's operation times the user has to enter in the "Service Parameters" menu following the operations described in point 8) How to enter in the "Service Parameters" menu. Then on the screen will appear the menu shown below:

```

+-----+
| SERVICE PARAMETERS    |
|=====|
| regulation - setpoint |
| COMPRESSOR'S TIMING  |
| FCM parameters       |
| high pressure switch 1|
| high pressure switch 2|
+-----+

```

In the "service parameters" menu the service technician has to choose the "Compressor timing" issue by pressing arrow UP or DOWN and press enter when the word "Compressor timing" appears in capital letters. After this operation will appear on the screen the following mask:

```

+-----+
| COMPRESSOR'S TIMING  |
|=====|
| TIME min. OFF   : 0000s|
| TIME min. ON    : 0000s|
| Min TIME between diff. |
| compressors     : 0000s|
| Min TIME between same |
| compressor      : 0000s|
+-----+

```

These parameters are used to manage the compressor's running times. These values are used to keep the compressor safe for a great number of ON and OFF that is not ok for its life. The compressor's constructor provides us a minimum cycle per hour of 10.

To change the values in this mask, the user has to press ENTER, change by pressing arrow UP or DOWN and press ENTER again to confirm the changes and to jump to the next field.

Press ESC button one time to return in the "Service parameters" list

Press ESC button two times to return in the "Customer setting" list

Press ESC button three times to return in the main mask





## 11 - How to change FCM parameters – (Pressostatic fan speed control )

The FCM is a fan's speed controller that manage the speed of fans looking at the pressure in the liquid line of cooling circuit. The FCM operation is to keep the refrigerant temperature constant . To change the FCM parameters the user has to enter in the "Service Parameters" menu following the operations described in the point 8) How to enter in the "Service Parameters" menu. Then on the screen will appear the menu shown below:

```
+-----+
| SERVICE PARAMETERS |
|=====|
|regulation - setpoint|
|compressor's timing |
|FCM PARAMETERS      |
|high pressure switch 1|
|high pressure switch 2|
+-----+
```

In the "service parameters" menu the service technician has to choose the " FCM parameters " issue by pressing arrow UP or DOWN and press enter when the word "FCM parameters" appears in capital letters. After this operation will appear on the screen the following mask:

To change the values in this mask, the user has to press ENTER, change by pressing arrow UP or DOWN to change the values and press ENTER again to confirm the changes and to jump to the next field.

```
+-----+
| FANS SPEED CONTROLLER |
|=====|
|Setpoint      : 00.0C |
|Hysteresis    : 00.0C |
|Max output    :000.0% |
|Min output    :000.0% |
|              1/5     |
+-----+
```

Refrigerant's liquid temperature setpoint

Minimum and maximum fan's speed ( factory setted at 0 and 100)

```
+-----+
| FANS SPEED CONTROLLER |
|=====|
|Speed-up ?    : NOT  |
|Speed-up time : 00s   |
|Temp. cut-off : 00.0C |
|Diff. cut-off : 00.0C |
|              2/5     |
+-----+
```

This parameters is the cut-off temperature, the value of liquid refrigerant's temperature where the fans will be stopped top prevent a great expansion on the thermostatic valves. (Epecially in winter times)





```
+-----+
| FANS SPEED CONTROLLER |
|=====|
| Soft start      : NOT |
| Soft-start time : 000s |
| HT function enable :   |
|                               NOT |
|                               3/5 |
+-----+
```

```
+-----+
| FANS SPEED CONTROLLER |
| ALLARMS                |
|=====|
| max press.at : 00.0bar |
| Hysteresis   : 0.0bar |
| Output al.max: 000.0% |
|                               4/5 |
+-----+
```

With this parameter the operator has the possibility to set the fan's speed when the pressure transducer get broken in short circuit using the setpoint and the output at MAX.

```
+-----+
| FANS SPEED CONTROLLER |
| ALLARMS                |
|=====|
| min press. at: 00.0bar |
| Hysteresis   : 0.0bar |
| Output al.min: 000.0% |
|                               5/5 |
+-----+
```

With this parameter the operator has the possibility to set the fan's speed when the pressure transducer get broken in open circuit using the setpoint and the output at MIN.

To scroll the masks the flashing cursor has to be placed in the top left part of the screen, then the operator will have the possibility to navigate inside the masks by pushing arrow UP or DOWN button

- Press ESC button one time to return in the "Service parameters" list
- Press ESC button two times to return in the "Customer setting" list
- Press ESC button three times to return in the main mask





### 13 - How to change low pressure switches alarms 1 and 2 management

To change the low pressure switches 1 and 2 alarms management the user has to enter in the "Service Parameters" menu following the operations described in the point 8) How to enter in the "Service Parameters" menu. Then on the screen will appear the menu shown below:

```

+-----+
| SERVICE PARAMETERS |
|=====|
| FCM parameters    |
| high pressure switch 1 |
| high pressure switch 2 |
| LOW PRESSURE SWITCH 1 |
| LOW PRESSURE SWITCH 2 |
+-----+

```

In the "service parameters" menu the service technician has to choose the " low pressure switch 1 or 2 " issue by pressing arrow UP or DOWN and press enter when the word "low pressure switch 1 or 2" appears in capital letters. After this operation will appear on the screen the following mask:

To change the values in this mask, the user has to press ENTER, change by pressing arrow UP or DOWN to change the values and press ENTER again to confirm the changes and to jump to the next field.

```

+-----+
| LOW PRESSURE SWITCH |
| CIRCUIT 1          |
|=====|
| Starting delay : 000s |
| Running delay  : 000s |
| Alarm manual reset?  |
|                               NOT |
| Number of event:    0 |
+-----+

```

This parameter is used to choose reset mode of low pressure switch alarm.

```

+-----+
| LOW PRESSURE SWITCH |
| CIRCUIT 2          |
|=====|
| Starting delay : 000s |
| Running delay  : 000s |
| Alarm manual reset?  |
|                               NOT |
| Number of event:    0 |
+-----+

```

How many times the alarm has to occur to be reset manually

Press ESC button one times to return in the "Service parameters" list  
Press ESC button two times to return in the "Customer setting " list  
Press ESC button three times to return in the main mask





## 14 - How to change antifreeze alarm management

To change the antifreeze alarms management the user has to enter in the "Service Parameters" menu following the operations described in the point 8) How to enter in the "Service Parameters" menu. Then on the screen will appear the menu shown below:

```

+-----+
| SERVICE PARAMETERS |
|=====|
| high pressure switch 1 |
| high pressure switch 2 |
| low pressure switch 1 |
| low pressure switch 2 |
| ANTIFREEZE THERMOSTAT |
+-----+

```

In the "service parameters" menu the service technician has to choose the " low pressure switch 1 or 2 " issue by pressing arrow UP or DOWN and press enter when the word "low pressure switch 1 or 2" appears in capital letters. After this operation will appear on the screen the following mask:

To change the values in this mask, the user has to press ENTER, change by pressing arrow UP or DOWN to change the values and press ENTER again to confirm the changes and to jump to the next field.

```

+-----+
| ANTIFREEZE THERMOSTAT |
|=====|
| Alarm manual reset?   |
|                               |
|                               |
| Number of event:     |
|                               |
|                               |
+-----+

```

NOT

0

This parameter is used to choose reset mode of antifreeze alarm.

How many times the alarm has to occur to be reset manually

- Press ESC button one times to return in the "Service parameters" list
- Press ESC button two times to return in the "Customer setting " list
- Press ESC button three times to return in the main mask





## 15 - How to change flow switch alarm management

To change the flow switch alarm management the user has to enter in the "Service Parameters" menu following the operations described in the point 8) How to enter in the "Service Parameters" menu. Then on the screen will appear the menu shown below:

```

+-----+
| SERVICE PARAMETERS |
|=====|
| high pressure switch 2 |
| low pressure switch 1 |
| low pressure switch 2 |
| antifreeze thermostat |
| FLOW SWITCH 1 |
+-----+

```

In the "service parameters" menu the service technician has to choose the " flow switch 1" issue by pressing arrow UP or DOWN and press enter when the word "flow switch" appears in capital letters. After this operation will appear on the screen the following mask:

To change the values in this mask, the user has to press ENTER, change by pressing arrow UP or DOWN to change the values and press ENTER again to confirm the changes and to jump to the next field.

```

+-----+
| FLOW SWITCH 1 |
|=====|
| Alarm manual reset? |
|          NOT |
| Number of event:   0 |
| Priming time :    00s |
| Alarm delay  :    00s |
+-----+

```

This parameter is used to choose reset mode of flow switch alarm.

How many times the alarm has to occur to be reset manually

Programmable priming times for the pump

Alarm delay, the alarm will be accepted after this time

Press ESC button one times to return in the "Service parameters" list  
Press ESC button two times to return in the "Customer setting " list  
Press ESC button three times to return in the main mask





## 16 - How to change probe's calibration – offset

To change the flow probes calibration or offset the user has to enter in the “Service Parameters” menu following the operations described in the point 8) How to enter in the “Service Parameters” menu. Then on the screen will appear the menu shown below:

```

+-----+
| SERVICE PARAMETERS |
|=====|
| low pressure switch 1 |
| low pressure switch 2 |
| antifreeze thermostat |
| flow switch 1 |
| PROBES OFFSET |
+-----+

```

In the “service parameters” menu the service technician has to choose the “ probe offset ” issue by pressing arrow UP or DOWN and press enter when the word “probes offset” appears in capital letters. After this operation will appear on the screen the following mask:

To change the values in this mask, the user has to press ENTER, change by pressing arrow UP or DOWN to change the values and press ENTER again to confirm the changes and to jump to the next field.

## 17 - How to Manage compressor , fans and pump breaker switch alarm

To manage the compressors, fans, and pumps breaker switch alarm the user has to enter in the “Service Parameters” menu following the operations described in the point 8) How to enter in the “Service Parameters” menu. Then on the screen will appear the menu shown below:

```

+-----+
| SERVICE PARAMETERS |
|=====|
| flow switch 1 |
| probes offset |
| FANS BREAKER SWITCH |
| PUMPS BREAKER SWITCH |
| COMP. BREAKER SWITCH |
+-----+

```

In the “service parameters” menu the service technician has to choose the “ fans breaker switch, pumps breaker switch or compressors breaker switch” issue by pressing arrow UP or DOWN and press enter when the word “fans breaker switch, pumps breaker switch or compressors breaker switch” appears in capital letters. After this operation will appear on the screen the following mask:





To change the values in this mask, the user has to press ENTER, change by pressing arrow UP or DOWN to change the values and press ENTER again to confirm the changes and to jump to the next field.

+-----+	
<b>FANS BREAKER SWITCH</b>	
=====	
Alarm manual reset?	← This parameter is used to choose reset mode of antifreeze alarm.
NOT	
Number of event:	← How many times the alarm has to occur to be reset manually
0	
+-----+	

Press ESC button one times to return in the "Service parameters" list  
 Press ESC button two times to return in the "Customer setting " list  
 Press ESC button three times to return in the main mask

## 18 - How to Manage Freecooling Function

To manage the freecooling function the user has to enter in the "Service Parameters" menu following the operations described in the point 8) How to enter in the "Service Parameters" menu. Then on the screen will appear the menu shown below:

+-----+	
SERVICE PARAMETERS	
=====	
high temperature alarm	
manufacturer setting	
new service password	
alarms groups	
<b>FREECOOLING</b>	
+-----+	

In the "service parameters" menu the service technician has to choose the "Freecooling" issue by pressing arrow UP or DOWN and press enter when the word "Freecooling" appears in capital letters. After this operation will appear on the screen the following mask:

+-----+	
<b>FREECOOLING</b>	
=====	
Unit : MASTER	
Regulation : LOCAL	
Condition FC : LOCAL	
Enable FC : NO	
Delay FC : 0000s	
Rotation FIFO: NOT	
+-----+	

To change the values in this mask, the user has to press ENTER, change by pressing arrow UP or DOWN to change the values and press ENTER again to confirm the changes and to jump to the next field.



Following all the variable's description:

**UNIT selection : MASTER or SLAVE.**

Unit MASTER: The unit master is the only one that read the process temperature and sent all the value to all the other SLAVE units. The MASTER unit set the freecooling condition and sent all the information to all the other machine (chiller). The MASTER unit manage all the system, and the machine's rotation in case of 2 or more chiller connected in the final system.

**REGULATION and FREECOOLING condition selection: LOCAL or REMOTE**

In case of LOCAL regulation the chiller manage the freecooling operation by itself , looking only at the temperature managed inside the machine. In the REMOTE regulation the chiller will be managed by the unit MASTER ( in case of 2 or more chillers connected in pLAN).

**Enable FC : Yes or Not**

This variable is used to enable or disable the Freecooling function.

**Delay FC: 0000 sec.**

This parameter is used to set the delay for the freecooling condition, after this time the freecooling condition will be able and start to runs

**Rotation FIFO: Yes or Not**

This parameter will be used only in case of 2 or more chillers connected in pLAN and provide the chillers's rotation in case of freecooling confdition.

Following will be shown all the masks presents in the freecooling's management inside the software and the description of all the system . To scroll the masks the operator has to press the keys arrow UP or arrow DOWN wit the cursor in the top left position.

```

+-----+
| FREECOOLING |
|=====|
|Delta FC      :    00.0C|
|Differenz.FC:    00.0C|
|Band  FC      :    00.0C|
|Ti  FC        :    000s|
|Td  FC        :    000s|
|Offset FC     :    00.0C|
+-----+

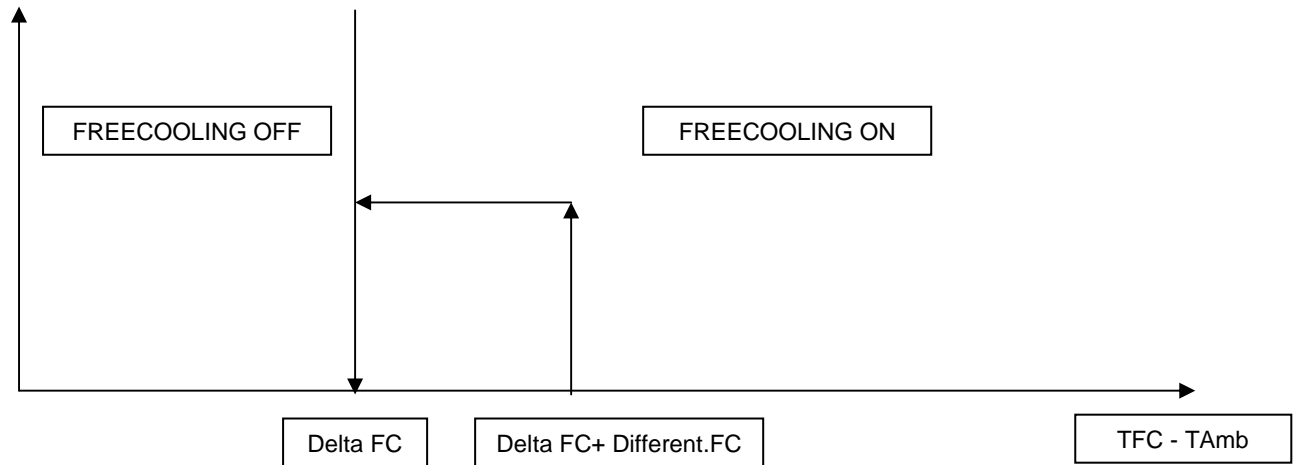
```



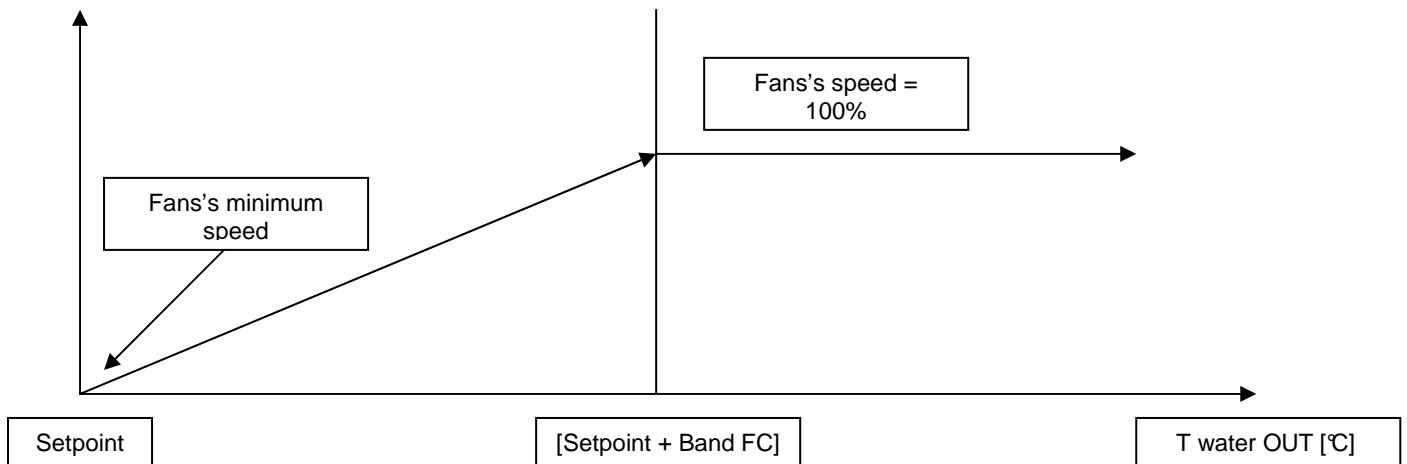


### Parameters description:

**Delta FC and Different. FC:** These two parameters are the ones that manage the freecooling condition. The Delta FC + Different FC the result of this operation will be the minimum difference between the freecooling temperature and the ambient temperature, when this condition occurs the freecooling operation will be enabled and the 3 way freecooling's valve will be opened.



**Band FC:** This value represent the fans's acceleration over the setpoint in freecooling condition. It means that at the setpoint the fans's speed will be at the minimum, setted by the parameter [MIN out FC] and at the value [setpoint + Band FC] the fans's speed will be at 100%, as shown in the chart below:

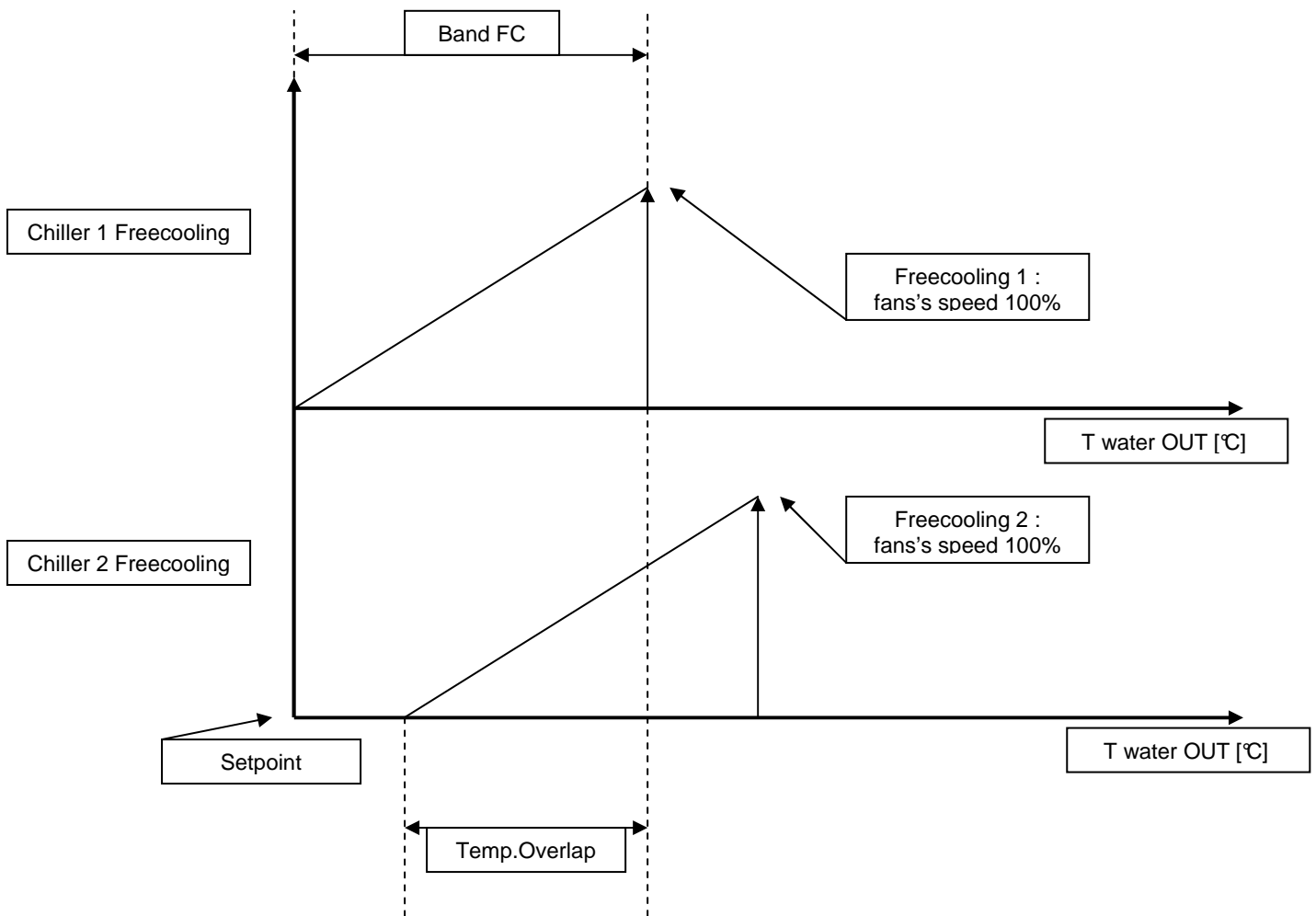


**Ti FC and Td FC:** These two parameters will be used to manage the PID regulation of fans's speed . A precious management of these parameters will provide a good temperature management in freecooling condition also in case of variable cooling power request.



FREECOOLING	
Temp.Overlap:	00.0C
Min out FC:	000.0%
Neutral zone K:	00.0C
Neutral zone V:	00.0C

**Temp.Overlap:** This parameter is enable only in case of 2 or more chillers connected in pLAN. It represents the overlap temperature between the freecooling of different chillers. To better understand its functionality follow the chart below:



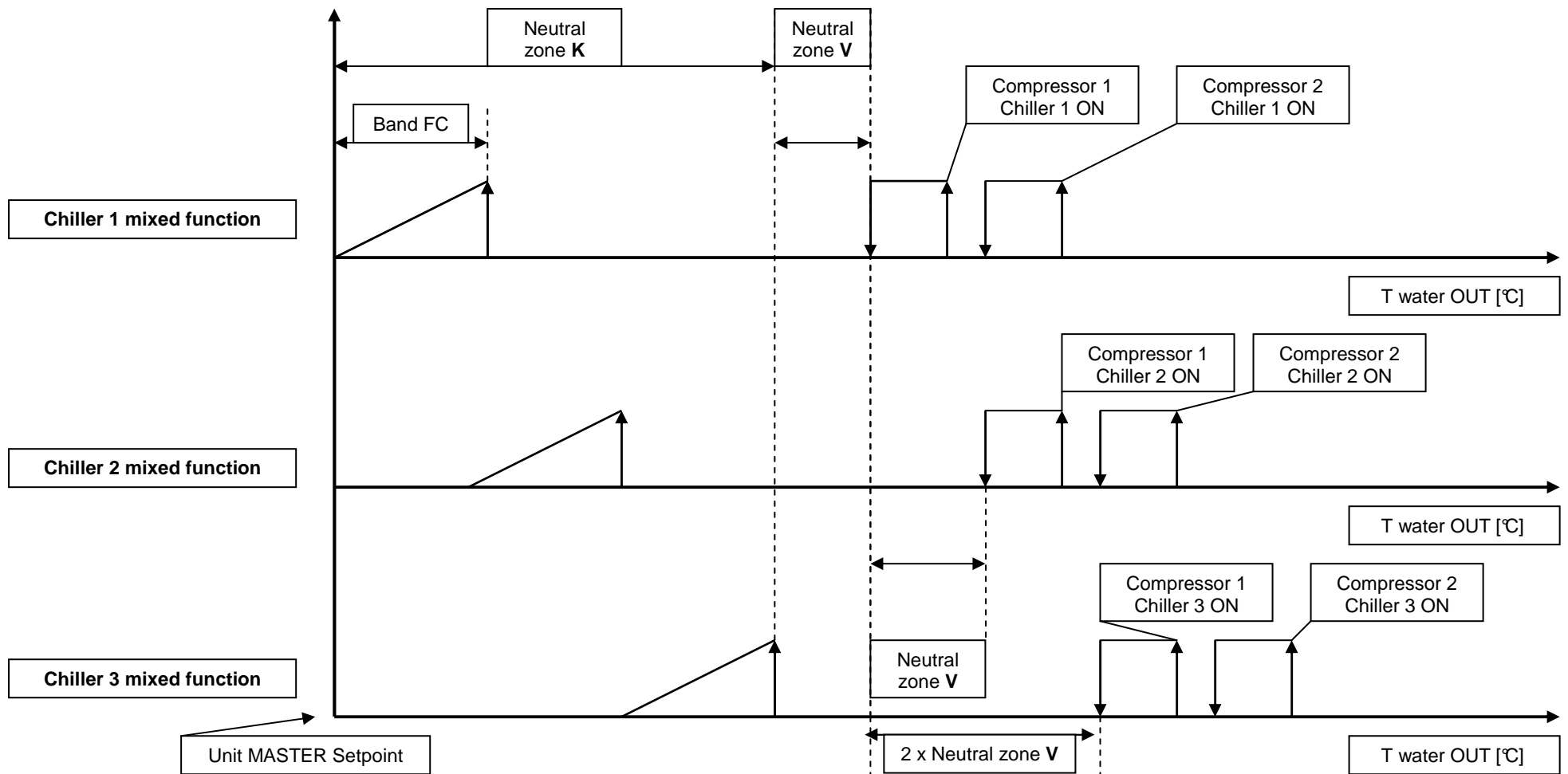


**Min out FC:** As described before, this parameter represents the fans's minimum speed in freecooling operation mode.

**Neutral zone K :** This parameter is used to fix the cooling setpoint (compressors) in case of mixed function ( Freecooling + Cooling ). In case of 1 chiller connected and in mixed function the freecooling setpoint will be the **[main setpoint]** (look at the point n°9 of this document) and the cooling setpoint will be **[main setpoint+Band FC+Neutral zone K]** ;

**Neutral zone V :** This parameter is used in case of 2 or more chiller connected in pLAN and is used to fix the cooling ( compressors) setpoint in case of mixed function.

**Important NOTE : For a better understand of this function look at the chard below. This chard will show the freecooling and mixed operation in case of 3 chillers connected in pLAN.**



**In mixed function the 3 way valve will be every time opened at 100%. The fan's speed will follow the water temperature during the freecooling ( the speed accelerate when the temperature grows up). In case of mixed function the fan's speed control will be managed by the freon's condensation temperature or pressure.**





```
+-----+
|FREECOOLING
|CHILLER TIMING
|=====
|Min on      : 00000s
|Min off     : 00000s
|Min Different: 00000s
|Min Same    : 00000s
|-----+
```

```
+-----+
|FREECOOLING VALVE
|=====
|Enable PID reg.: NOT
|Band          : 00.0C
|Ti Valve:     000s
|Td Valve:     000s
|Offset PID:   00.0s
|Output Signal: 00
|-----+
```

```
+-----+
|FC THERMAL EXCLUSION
|Enable? : NOT
|Probe A:IN EVAP.
|Probe B:IN EVAP.
|Temp(A-B) : 00.0C
|Delta T : 0.0C
|Differenz.: 0.0C
|Delay : 000s
|-----+
```

```
+-----+
|EXTERNAL DRY-COOLER
|ALARM
|=====
|Manual reset : NOT
|Number of alarm: 00
|-----+
```



## 19 - How to Manage Hydraulic pressure alarm and warning

To manage the hydraulic pressure alarm and warning the user has to enter in the "Service Parameters" menu following the operations described in the point 8) How to enter in the "Service Parameters" menu. Then on the screen will appear the menu shown below:

```

+-----+
| SERVICE PARAMETERS |
|=====|
| new service password |
| alarms groups        |
| freecooling          |
| running times        |
| HYDRAULIC PRESSURES |
+-----+

```

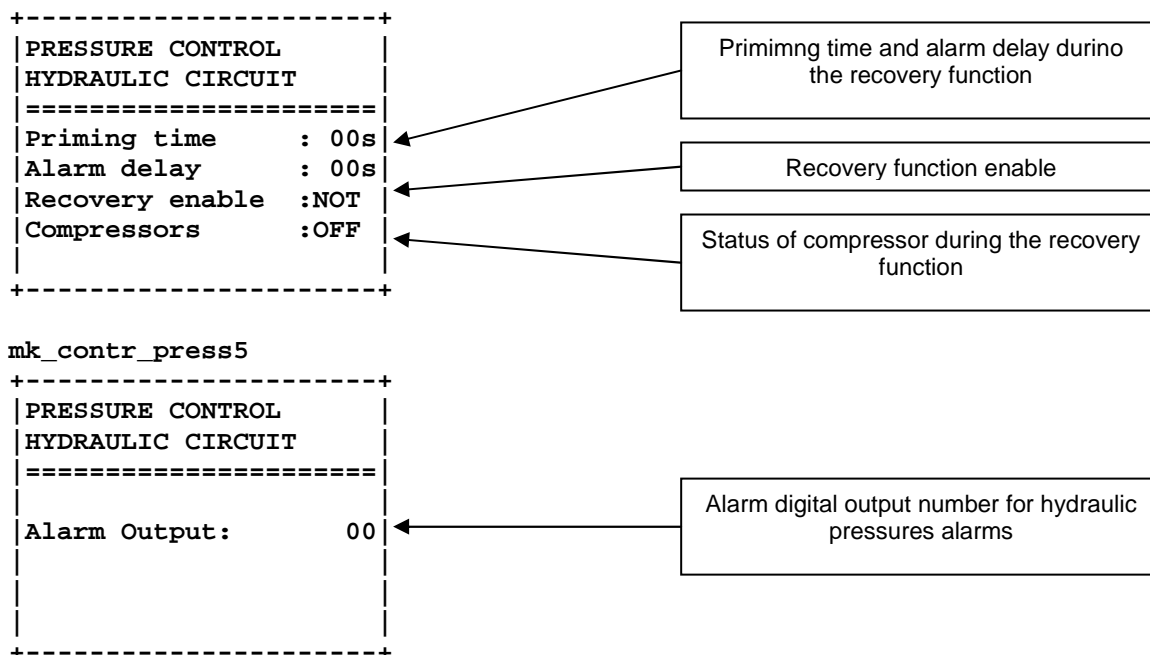
In the "service parameters" menu the service technician has to choose the "Hydraulic pressures" issue by pressing arrow UP or DOWN and press enter when the word "Hydraulic pressures" appears in capital letters. After this operation will appear on the screen the following mask:

<pre> +-----+   PRESSURE CONTROL        HYDRAULIC CIRCUIT     =====    Enable P.Static:  NOT     Setpoint      :  00.0bar     Alarm delay   :    00s     Manual reset  :    NOT     Number of events:00     +-----+ </pre>	Parameter to enable the function - Hydraulic static pressure ALARM
<pre> +-----+   PRESSURE CONTROL        HYDRAULIC CIRCUIT     =====    Enable P.Static:  NOT     Setpoint      :  00.0bar     Alarm delay   :    00s     Manual reset  :    NOT     Number of events:00     +-----+ </pre>	Parameter set the hydraulic pressure alarm. At this point the management system will stop the pumps

<pre> +-----+   PRESSURE CONTROL        HYDRAULIC CIRCUIT     =====    Enable Warning:    NOT     Setpoint      :  00.0bar     Alarm delay   :    00s     Manual reset  :    NOT     Number of events:00     +-----+ </pre>	Parameter to enable the function - Hydraulic static pressure Warning
<pre> +-----+   PRESSURE CONTROL        HYDRAULIC CIRCUIT     =====    Enable Warning:    NOT     Setpoint      :  00.0bar     Alarm delay   :    00s     Manual reset  :    NOT     Number of events:00     +-----+ </pre>	Parameter to set the Static hydraulic pressure warning. At this point the management system will show a warning but it doesn't stop the pumps

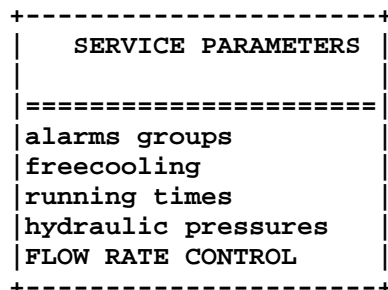
<pre> +-----+   PRESSURE CONTROL        HYDRAULIC CIRCUIT     =====    Diff.Press.Enable?NOT     Min. differece btw       Pin ã Pout =  00.0bar     Manual reset  :    NOT     Number of events: 00    +-----+ </pre>	Parameter to enable the function - Hydraulic differential pressure alarm
<pre> +-----+   PRESSURE CONTROL        HYDRAULIC CIRCUIT     =====    Diff.Press.Enable?NOT     Min. differece btw       Pin ã Pout =  00.0bar     Manual reset  :    NOT     Number of events: 00    +-----+ </pre>	Parameter set the hydraulic differential pressure alarm. At this point the management system will stop the pump that is running and switches ON the ones in stand – by just to restore the sistam's hydraulic pressure. To do it also the <b>recovery</b> parameter ha sto be enable



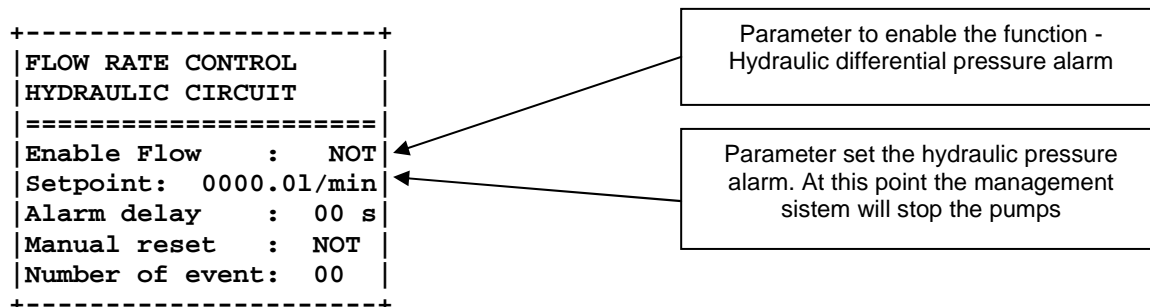


## 20 - How to Manage Flow rate control and alarms

To manage the hydraulic pressure alarm and warning the user has to enter in the "Service Parameters" menu following the operations described in the point 8) How to enter in the "Service Parameters" menu. Then on the screen will appear the menu shown below:



In the "service parameters" menu the service technician has to choose the "Flow rate control" issue by pressing arrow UP or DOWN and press enter when the word "Flow rate control" appears in capital letters. After this operation will appear on the screen the following mask:



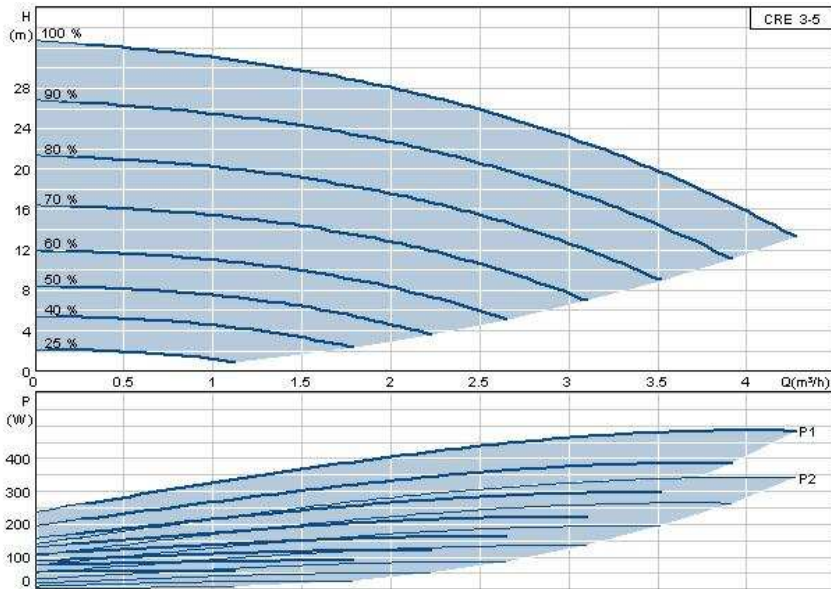
To change the values in this mask, the user has to press ENTER, change by pressing arrow UP or DOWN to change the values and press ENTER again to confirm the changes and to jump to the next field.



## 21 - Pumps curve

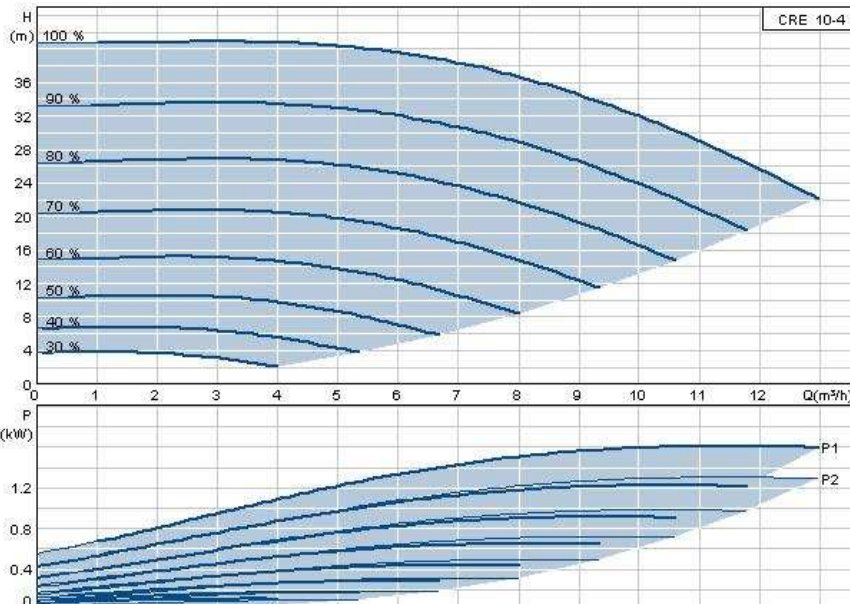
Pumps performance curve for unit : SK3232.70X – SK3232.71X

Flow rate : 60 [l/min]  
Head : 2,5 [bar]



Pumps performance curve for unit : SK3232.72X – SK3232.73X

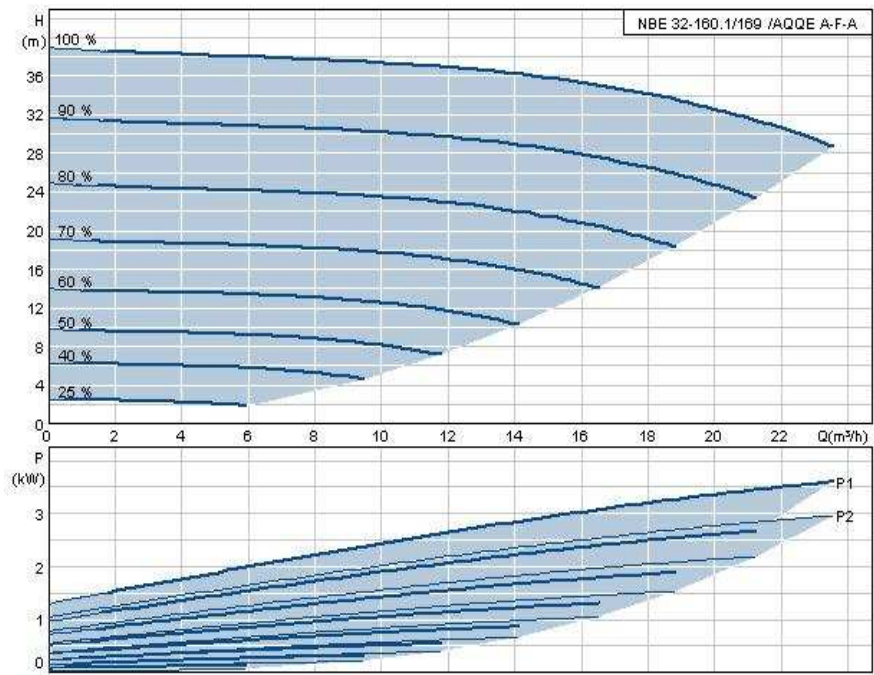
Flow rate : 120 [l/min]  
Head : 2,5 [bar]





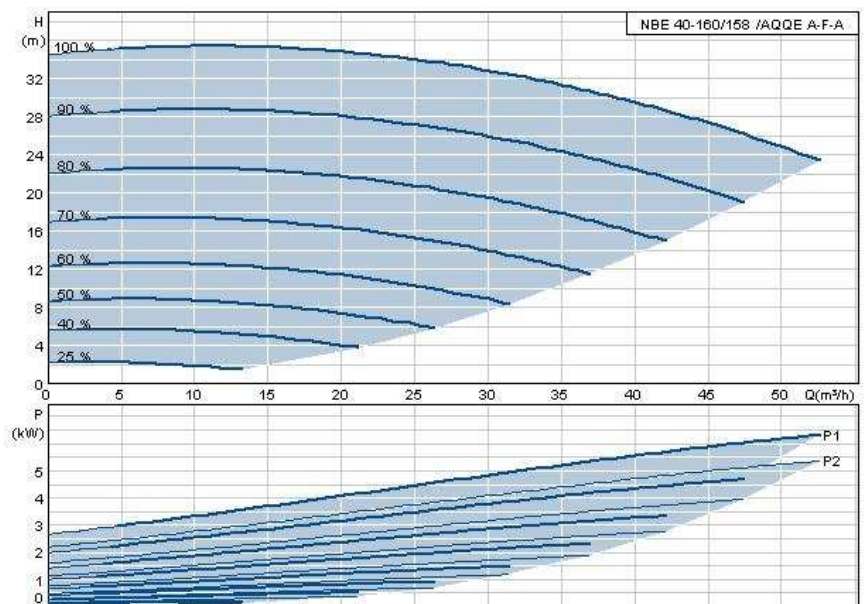
Pumps performance curve for unit : SK3232.74X – SK3232.75X – SK3232.76X – SK3232.77X

Flow rate : 240 [l/min]  
Head : 2,5 [bar]



Pumps performance curve for unit : SK3232.78X – SK3232.79X – SK3232.80X – SK3232.81X – SK3232.82X

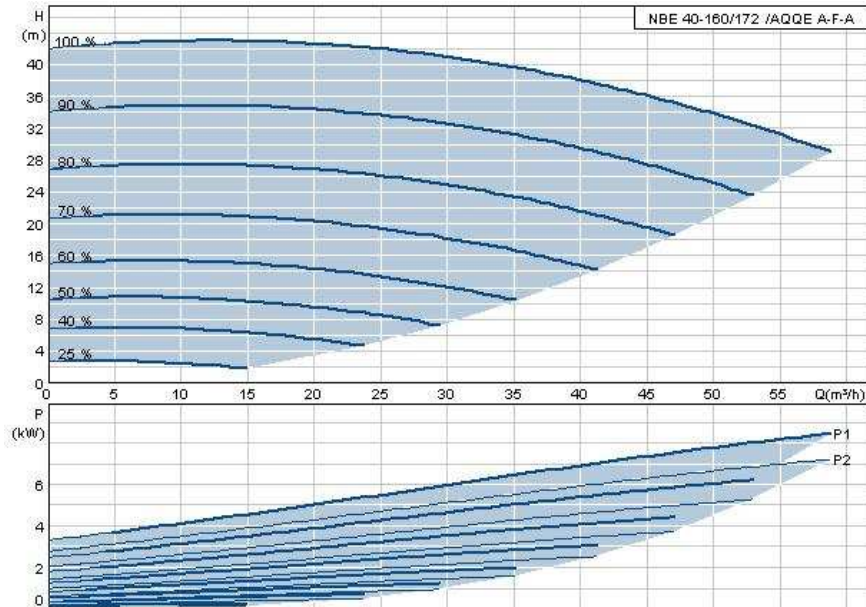
Flow rate : 500 [l/min]  
Head : 2,5 [bar]





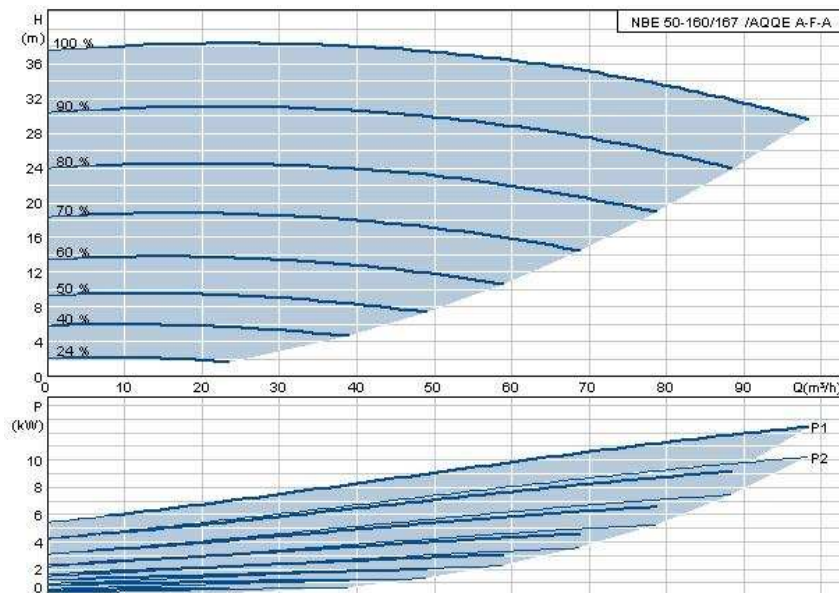
Pumps performance curve for unit : SK3232.83X – SK3232.84X – SK3232.85X

Flow rate : 810 [l/min]  
Head : 2,5 [bar]



Pumps performance curve for unit : SK3232.86X – SK3232.87X – SK3232.88X

Flow rate : 1200 [l/min]  
Head : 2,5 [bar]





## 22 - Alarm List, causes , fast solution

```

+-----+
|ALARM           AL01|
|
|  BREAKER SWITCH
|  OR ELECTRONIC MODUL
|  COMPRESSOR 1
|  CIRCUIT 1
|
|ENTER to RESET
+-----+

```

**Description :**

This alarm occurs when the compressor 1 circuit 1's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked, to much on-off per hour, refrigerant lackage ( low suction pressure )or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the compressor's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the compressor's current consumption;
- 4)Switch on the breaker switch and check the suction pressure using the manometer for refrigerant circuit;

**Reset:**

Push the ENTER key on the display as written on the display;

```

+-----+
|ALARM           AL03|
|
|  BREAKER SWITCH
|  OR ELECTRONIC MODUL
|  COMPRESSOR 2
|  CIRCUIT 1
|
|ENTER to RESET
+-----+

```

**Description :**

This alarm occurs when the compressor 2 circuit 1's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked, to much on-off per hour, refrigerant lackage ( low suction pressure )or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the compressor's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the compressor's current consumption;
- 4)Switch on the breaker switch and check the suction pressure using the manometer for refrigerant circuit;

**Reset:**

Push the ENTER key on the display as written on the display;





```
+-----+
|ALARM           AL05|
|
|  BREAKER SWITCH
|  OR ELECTRONIC MODUL
|  COMPRESSOR 3
|  CIRCUIT 1
|
|ENTER to RESET
+-----+
```

**Description :**

This alarm occurs when the compressor 3 circuit 1's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked, too much on-off per hour, refrigerant leakage ( low suction pressure )or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the compressor's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the compressor's current consumption;
- 4)Switch on the breaker switch and check the suction pressure using the manometer for refrigerant circuit;

**Reset:**

Push the ENTER key on the display as written on the display;

```
+-----+
|ALARM           AL02|
|
|  BREAKER SWITCH
|  OR ELECTRONIC MODUL
|  COMPRESSOR 1
|  CIRCUIT 2
|
|ENTER to RESET
+-----+
```

**Description :**

This alarm occurs when the compressor 1 circuit 2's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked, too much on-off per hour, refrigerant leakage ( low suction pressure )or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the compressor's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the compressor's current consumption;
- 4)Switch on the breaker switch and check the suction pressure using the manometer for refrigerant circuit;

**Reset:**

Push the ENTER key on the display as written on the display;



```
+-----+
|ALARM           AL04|
|
|  BREAKER SWITCH
|  OR ELECTRONIC MODUL
|  COMPRESSOR 2
|  CIRCUIT 2
|
|ENTER to RESET
+-----+
```

**Description :**

This alarm occurs when the compressor 2 circuit 2's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked, to much on-off per hour, refrigerant lackage ( low suction pressure )or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the compressor's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the compressor's current consumption;
- 4)Switch on the breaker switch and check the suction pressure using the manometer for refrigerant circuit;

**Reset:**

Push the ENTER key on the display as written on the display;

```
+-----+
|ALARM           AL06|
|
|  BREAKER SWITCH
|  OR ELECTRONIC MODUL
|  COMPRESSOR 3
|  CIRCUIT 2
|
|ENTER to RESET
+-----+
```

**Description :**

This alarm occurs when the compressor 3 circuit 2's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked, to much on-off per hour, refrigerant lackage ( low suction pressure )or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the compressor's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the compressor's current consumption;
- 4)Switch on the breaker switch and check the suction pressure using the manometer for refrigerant circuit;

**Reset:**

Push the ENTER key on the display as written on the display;



```
+-----+
|ALARM           AL07|
|
|  BREAKER SWITCH
|    FAN 1
|    CIRCUIT 1
|
|ENTER to RESET
+-----+
```

**Description :**

This alarm occurs when the fan 1 circuit 1's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the fan's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the fan's current consumption;

**Reset:**

Push the ENTER key on the display as written on the display;

```
+-----+
|ALARM           AL08|
|
|  BREAKER SWITCH
|    FAN 2
|    CIRCUIT 1
|
|ENTER to RESET
+-----+
```

**Description :**

This alarm occurs when the fan 2 circuit 1's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the fan's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the fan's current consumption;

**Reset:**

Push the ENTER key on the display as written on the display;



```
+-----+
| ALARM           AL09 |
|
| BREAKER SWITCH
| FAN 3
| CIRCUIT 1
|
| ENTER to RESET
+-----+
```

**Description :**

This alarm occurs when the fan 3 circuit 1's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the fan's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the fan's current consumption;

**Reset:**

Push the ENTER key on the display as written on the display;

```
+-----+
| ALARM           AL10 |
|
| BREAKER SWITCH
| FAN 4
| CIRCUIT 1
|
| ENTER to RESET
+-----+
```

**Description :**

This alarm occurs when the fan 4 circuit 1's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the fan's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the fan's current consumption;

**Reset:**

Push the ENTER key on the display as written on the display;



```
+-----+
| ALARM           AL11 |
|                 |
|   BREAKER SWITCH   |
|     FAN  1         |
|     CIRCUIT  2     |
|                 |
| ENTER to RESET    |
+-----+
```

**Description :**

This alarm occurs when the fan 1 circuit 2's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the fan's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the fan's current consumption;

**Reset:**

Push the ENTER key on the display as written on the display;

```
+-----+
| ALARM           AL12 |
|                 |
|   BREAKER SWITCH   |
|     FAN  2         |
|     CIRCUIT  2     |
|                 |
| ENTER to RESET    |
+-----+
```

**Description :**

This alarm occurs when the fan 2 circuit 2's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the fan's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the fan's current consumption;

**Reset:**

Push the ENTER key on the display as written on the display;



```
+-----+
| ALARM           AL13 |
|                 |
|   BREAKER SWITCH   |
|     FAN 3         |
|     CIRCUIT 2     |
|                 |
| ENTER to RESET   |
+-----+
```

**Description :**

This alarm occurs when the fan 3 circuit 2's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the fan's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the fan's current consumption;

**Reset:**

Push the ENTER key on the display as written on the display;

```
+-----+
| ALARM           AL14 |
|                 |
|   BREAKER SWITCH   |
|     FAN 4         |
|     CIRCUIT 2     |
|                 |
| ENTER to RESET   |
+-----+
```

**Description :**

This alarm occurs when the fan 4 circuit 2's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the fan's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the fan's current consumption;

**Reset:**

Push the ENTER key on the display as written on the display;



```
+-----+
|ALARM           AL15|
|
|  HIGH PRESSURE
|  SWITCH
|  CIRCUIT 1
|
|ENTER to RESET|
+-----+
```

```
+-----+
|ALARM           AL58|
|
|  HIGH PRESSURE
|CONDENSATION CIRCUIT 1|
|
+-----+
```

**Description :**

This alarm occurs when refrigerant's pressure inside the cooling circuit 1 is too high ( for R407C over 28 bar).

**Causes :**

Condensation coils full of dust, insufficient air flow rate on the condensation's coil, wiring on the high pressure switch, wrong fan's rotation or wrong fan's speed control management ( speed too slow) .

**Fast solution :**

- 1)Switch off the unit, clean the condensation's coils blowing inside the thins using compressed air;
- 2)Be sure that the unit is placed in the right way and there are no barriers near the condensation's coils ( minimum spaces between coils and barriers =1m);
- 3)Switch off the unit , and check the FCS parameters ;
- 4)Call a cooling technician

**Reset:**

Push the ENTER key on the display as written on the display;

```
+-----+
|ALARM           AL16|
|
|  HIGH PRESSURE
|  SWITCH
|  CIRCUIT 2
|
|ENTER to RESET|
+-----+
```

```
+-----+
|ALARM           AL60|
|
|  HIGH PRESSURE
|CONDENSATION CIRCUIT 2|
|
+-----+
```



**Description :**

This alarm occurs when refrigerant's pressure inside the cooling circuit 2 is too high ( for R407C over 28 bar).

**Causes :**

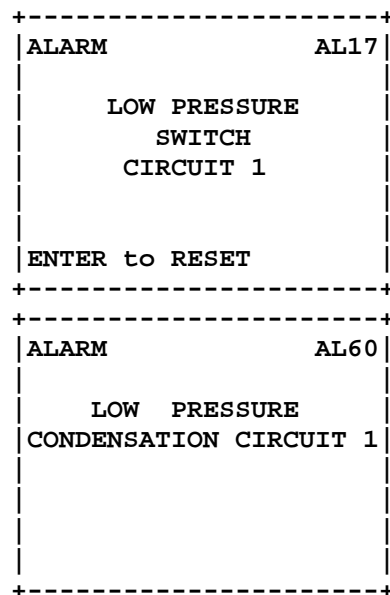
Condensation coils full of dust, insufficient air flow rate on the condensation's coil, wiring on the high pressure switch, wrong fan's rotation or wrong fan's speed control management ( speed too slow) .

**Fast solution :**

- 1)Switch off the unit, clean the condensation's coils blowing inside the thins using compressed air;
- 2)Be sure that the unit is placed in the right way and there are no barriers near the condensation's coils ( minimum spaces between coils and barriers =1m);
- 3)Switch off the unit , and check the FCS parameters ;
- 4)Call a cooling technician

**Reset:**

Push the ENTER key on the display as written on the display;



**Description :**

This alarm occurs when refrigerant's pressure inside the cooling circuit 1 is too low ( for R407C lower than 1,5 bar).

**Causes :**

Low refrigerant charge, leak in the cooling circuit, water flow rate to the plate heat exchanger too low, liquid solenoid valve broken or not connected, dryer filter full of dust, expansion thermostatic valve locked,

**Fast solution :**

- 1)Check the cooling circuit's working pressure ( suction )
- 2)Check the sight glass ( the glass has to be clean without bubble ) . Bubble inside means low refrigerant charge;
- 2)Check the fluid's flow rate; and the valve inside the user's piping ( has to be opened);
- 3)Check the liquid solenoid valve's electric connection
- 4)Call a cooling technician

**Reset:**

Automatic reset when the pressure rise up





```
+-----+
|ALARM           AL18|
|
|   LOW PERESSURE
|   SWITCH
|   CIRCUIT 2
|
|ENTER to RESET
+-----+
```

```
+-----+
|ALARM           AL60|
|
|   LOW PRESSURE
|   CONDENSATION CIRCUIT 2
|
+-----+
```

**Description :**

This alarm occurs when refrigerant's pressure inside the cooling circuit 2 is too low ( for R407C lower than 1,5 bar).

**Causes :**

Low refrigerant charge, leak in the cooling circuit, water flow rate to the plate heat exchanger too low, liquid solenoid valve broken or not connected, dryer filter full of dust, expansion thermostatic valve locked,

**Fast solution :**

- 1)Check the cooling circuit's working pressure ( suction )
- 2)Check the sight glass ( the glass has to be clean without bubble ) . Bubble inside means low refrigerant charge;
- 2)Check the fluid's flow rate; and the valve inside the user's piping ( has to be opened);
- 3)Check the liquid solenoid valve's electric connection
- 4)Call a cooling technician

**Reset:**

Automatic reset when the pressure rise up

```
+-----+
|ALARM           AL19|
|
|   ANTIFREEZE
|   THERMOSTAT
|
|ENTER to RESET
+-----+
```

```
+-----+
|ALARM           AL53|
|
|   ANTIFREEZE
|   CIRCUIT 1
|
+-----+
```



```

+-----+
| ALARM           AL76 |
|                 |
|   ANTIFREEZE ALARM   |
|   CIRCUIT 2         |
|                 |
+-----+

```

**Description :**

This alarm occurs when the temperature inside the cooling circuit 1's plate heat exchanged (refrigerant side) is too low ( lower than -7,0°C).

**Causes :**

Low refrigerant charge, little leak in the cooling circuit (the unit continues to run but in low pressure condition), water flow rate to the plate heat exchanger too low, dryer filter full of dust, expansion thermostatic valve full of dust,

**Fast solution :**

- 1)Check the cooling circuit's working pressure ( suction )
- 2)Check the sight glass ( the glass has to be clean without bubble ) . Bubble inside means low refrigerant charge;
- 2)Check the fluid's flow rate; and the valve inside the user's piping ( has to be opened);
- 3)Call a cooling technician

**Reset:**

Automatic reset when the temperature rise up to -4,5°C

```

+-----+
| ALARM           AL21 |
|                 |
|   EVAPORATOR INLET   |
|   PROBE              |
|   BROKEN OR DISCONNECTED |
|                 |
+-----+

```

**Description :** the temperature's probe is broken or not connected

**Fast solution:**

- 1)Check the probe's connection using the wiring diagram
- 2)Change the probe

**Reset:** automatic reset

```

+-----+
| ALARM           AL22 |
|                 |
|   AMBIENT PROBE     |
|   BROKEN OR DISCONNECTED |
|                 |
+-----+

```

```

+-----+
| ALARM           AL23 |
|                 |
|   USER 1 PROBE     |
|   BROKEN OR DISCONNECTED |
|                 |
+-----+

```





+-----+  
| ALARME                      AL24 |  
|  
|        USER 2 PROBE        |  
| BROKEN OR DISCONNECTED |  
|  
+-----+

+-----+  
| ALARM                        AL52 |  
|  
|        EVAPORATOR OUTLET    |  
|        PROBE                |  
| BROKEN OR DISCONNECTED |  
|  
+-----+

+-----+  
| ALARM                        AL56 |  
|  
|        ANTIFREEZE 1         |  
|        PROBE                |  
| BROKEN OR DISCONNECTED |  
|  
+-----+

+-----+  
| ALARM                        AL57 |  
|  
|        ANTIFREEZE 2         |  
|        PROBE                |  
| BROKEN OR DISCONNECTED |  
|  
+-----+

+-----+  
| ALARM                        AL67 |  
|  
|        TANK PROBE            |  
| BROKEN OR DISCONNECTED |  
|  
+-----+

+-----+  
| ALARM                        AL80 |  
|  
|        FREECOOLING         |  
|        PROBE                |  
| BROKEN OR DISCONNECTED |  
|  
+-----+





```
+-----+
|ALARM
|
|HYDRAULIC BACK
|PRESSURE TRANSDUCER
|BROKEN OR DISCONNECTED
|
+-----+
```

```
+-----+
|ALARM
|
|HYDRAULIC DISCHARGE
|PRESSURE TRANSDUCER
|BROKEN OR DISCONNECTED
|
+-----+
```

```
+-----+
|ALARM                AL35
|
|PUMP 1
|BREAKER SWITCH
|
|ENTER to RESET
|
+-----+
```

**Description :**

This alarm occurs when the pump1's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked or breaker switch not correctly setted discharge or suction line spherer valve closed or locked

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the fan's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the pump1's current consumption;
- 4)Check all the valve in the suction and discharge line of the pump1

**Reset:**

Push the ENTER key on the display as written on the display;



```
+-----+
|ALARM           AL36|
|
|      PUMP  2
|     BREAKER SWITCH
|
|ENTER to RESET
+-----+
```

**Description :**

This alarm occurs when the pump2's breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked or breaker switch not correctly setted discharge or suction line spherer valve closed or locked

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the fan's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the pump1's current consumption;
- 4)Check all the valve in the suction and discharge line of the pump2

**Reset:**

Push the ENTER key on the display as written on the display;

```
+-----+
|ALARM           AL37|
|
|      FLOW SWITCH 1
|
|      ENTER -> PUMP ON
|ENTER to RESET
+-----+
```

```
+-----+
|ALARM
|
|      FLOW RATE
|      TOO LOW
|
|ENTER to RESET
+-----+
```

**Description :**

This alarm occurs when the flow rate that pass throught the plate heat exchanger is not enough

**Causes :**

The pump doesn't run, filters in the hydraulic system are full of dust, obstructions in the hydraulic piping,

**Fast solution :**

- 1)Check the pumps are switched on or the breaker switch has to be not tripped
- 2)Clean the filters in the hydraulic module or pipping
- 3)Check all the valves in the hydraulic module
- 4)In case of freecooling valve, check the valve management

**Reset:**

Push the ENTER key on the display as written on the display;



WARNING	AL45
FLUID HIGH TEMPERATURE	

WARNING	AL46
FLUID LOW TEMPERATURE	

**Description :**

This alarm occurs when the process fluid's temperature is too high or low. This alarm could be on also in case of broken probes.

**Reset :**

Automatic reset

ALARM	AL51
REAR PANEL OPEN	

**Description :**

This alarm occurs when Back panel is open

**Causes:**

The back panel is open, the back panel's contact has not the right wiring

**Fast solution:**

- 1)Close the back panel
- 2)Check the wiring on the back panel's contact or in the main terminal board usind the wiring diagram

**Reset :**

Automatic reset

ALARM	AL64
WRONG PHASES ROTATION OR LOW VOLTAGE LIMIT	

**Description :**

This alarm occurs when the phase's sequence on the main voltage is not ok or the main voltage is too low

**Causes:**

The voltage has wrong phases , the main voltave is too low



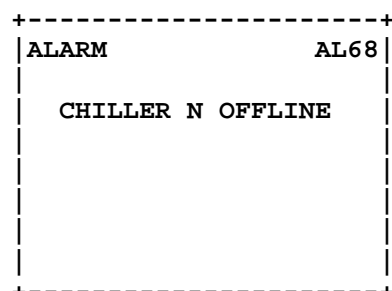


**Fast solution:**

- 1)Change the phases on the main supply
- 2)Check the main voltage supply

**Reset :**

Automatic reset



**Description :**

This alarm occurs in case of 2 or more chille connected in pLAN. The alarm shows wich chiller is not connected in LAN

**Causes:**

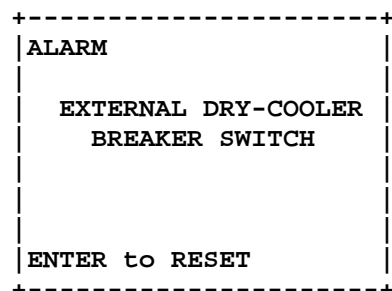
The LAN's cable is broken or not connected

**Fast solution :**

- 1)Check the pLAN cable connection and wiring, looking at the wiring diagram
- 2)Replace the pLAN cable or the connection in case of failure

**Reset:**

Autromatic reset



**Description :**

This alarm occurs when the dry-cooler's (when present) breaker switch trip for high current consumption.

**Causes :**

Missing phases, wrong phases's sequence, motor's rotor locked or breaker switch not correctly setted.

**Fast solution :**

- 1)Check on the wiring diagram the right breaker switch's Setpoint;
- 2)Keeping the breaker switch tripped , be sure that the wiring inside the fan's case is ok ( no missing phases );
- 3)Switch on the breaker switch and check the fan's current consumption;

**Reset:**

Push the ENTER key on the display as written on the display;



```
+-----+
|ALARM
|
|HYDRAULIC
|  STATIC PRESSURE
|    TOO LOW
|
|ENTER to RESET
+-----+
+-----+
|WARNING
|
|HYDRAULIC
|  STATIC PRESSURE
|    TOO LOW
|
|ENTER to RESET
+-----+
```

**Description :**

This alarm occurs the pressure at the suction line of the pumps is too low

**Causes :**

Hydraulic system charging not correctly done, valves or filters closed in the back line of the system

**Fast solution :**

- 1)Check all the valve and the filters in the hydraulic lines
- 2)Check the charge pressure looking at the manometer placed on the automatic fill-in device

**Reset:**

Push the ENTER key on the display as written on the display;

```
+-----+
|COOLING ALARM   AL33|
|
|DIFFERENTIAL PRESSURE
|    TOO LOW
|
|ENTER to RESET
+-----+
```

```
+-----+
|ALARM
|
|PUMP 1 BROKEN
|OR PRIMING NOT OK
|
+-----+
```

```
+-----+
|ALARM
|
|PUMP 2 BROKEN
|OR PRIMING NOT OK
|
+-----+
```



**Description :**

This alarm occurs when the difference between the suction line and the discharge line of the pumps is too low

**Causes :**

The pump doesn't run or the pump is not correctly primed

**Fast solution :**

1) Check that the pump is running and all the air is pulled out of the hydraulic system

**Reset:**

Push the ENTER key on the display as written on the display;





