



AFTER SALES SERVICE MANUAL

NXW

SOFTWARE VERS. 2.3



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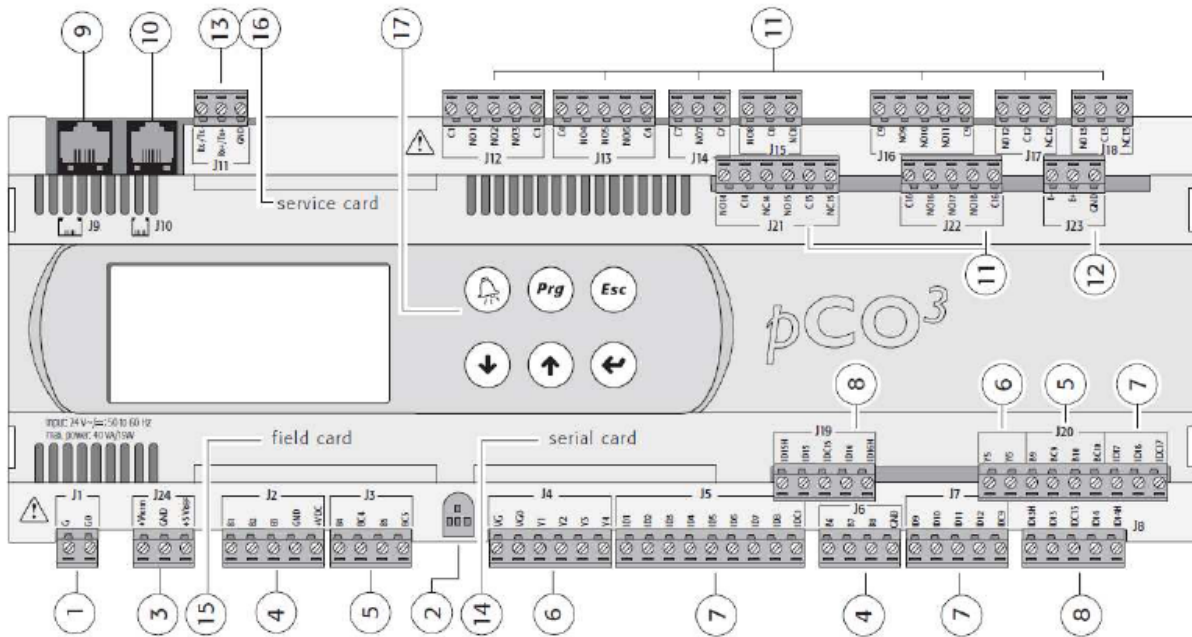
1 Softwares version

Ed	Software	Date	producer	Note
1	AerChiller_1_8	11/01/11	F. Fortin	First version
2	AerChiller_1_9	23/02/11	F. Fortin	2nd version. Software UPGRADE. BIOS 5.14 updating. Inserted "BlackBox"
3	AerChiller_2_0	07/04/11		Antifreeze and condensation pressure control improvements
4	AerChiller_2_1	01/06/11		DK management. New BMS list addresses. New "black box" management. Masks movement. Condenser antifreeze. 2 fans group for E version.
5	AerChiller_2_2	07/07/11		Software improvements. Lon work version
6	AerChiller_2_3	14/10/11		Software improvements. New pumps rotation management

WARNING : on units with more electronic cards they must have same software version



Input / Output configuration



I/O pCO3 Large

	1-4 circ. 1-8 comp. 1-2 evap. 1-2 cond.	
Analogue inputs	Master	Slave
B1	HP circuit 1	HP circuit 3
B2	LP circuit 1	LP circuit 3
B3	TWOUT evaporator	TWOUT evaporator
B4	TWIN evaporator	TWIN evaporator
B5	TWOUTcondenser	TWOUT condenser
B6	HP circuit 2	HP circuit 4
B7	LP circuit 2	LP circuit 4
B8	multifunction input	TWOUT evaporator COMMON SENSOR (option)
B9	Air ext. temperature	TWOUT condenser COMMON SENSOR (option)
B10	TWIN condenser	TWIN condenser
Digital inputs		
ID1	HP circuit 1	HP circuit 3
ID2	LP circuit 1	LP circuit 3
ID3	On/off remote contact	
ID4	HEAT / COOL remote contact	
ID5	FL evaporator	FL evaporator
ID6	CP1 protection circuit 1	CP1 protection circuit 3
ID7	CP2 protection circuit 1	CP2 protection circuit 3
ID8	Phase sequency control	Phase sequency control
ID9	HP circuit 2	HP circuit 4
ID10	LP circuit 2	LP circuit 4
ID11	CP1 protection circuit 2	CP1 protection circuit 4
ID12	CP2 protection circuit 2	CP2 protection circuit 4
ID13	MTP1 protection evaporator	MTP1 protection evaporator
ID14	MTP2 protection evaporator	MTP2 protection evaporator
ID15	MTP1 condenser / Ventilator circ. 1	MTP1 condenser / Ventilator circ. 1
ID16	MTP2 condenser / Ventilator circ. 2	MTP2 condenser / Ventilator circ. 2
ID17	FL condenser	FL condenser
ID18	Multifunction contact enable	

Digital outputs		
NO1	CP1 circuit 1	CP1 circuit 3
NO2	CP2 circuit 1	CP2 circuit 3
NO3	CP1 circuit 2	CP1 circuit 4
NO4	CP2 circuit 2	CP2 circuit 4
NO5	Pump 1 condenser	Pump 1 condenser
NO6	Pump 2 condenser	Pump 2 condenser
NO7	Pump 1 evaporator	Pump 1 evaporator
NO8	Alarm grave	Alarm grave
NO9	Pump 2 evaporator	Pump 2 evaporator
NO10	Solenoid liquid valve circuit 1	Solenoid liquid valve circuit 3
NO11	Solenoid liquid valve circuit 2	Solenoid liquid valve circuit 4
NO12	4 way valve circuit 1 (output always available on W/W too)	4 way valve circuit 1 (output always available on W/W too)
NO13	4 way valve circuit 2 (output always available on W/W too)	4 way valve circuit 2 (output always available on W/W too)
NO14	Recovery bypass valve circuit 1	Recovery bypass valve circuit 3
NO15	Recovery bypass valve circuit 2	Recovery bypass valve circuit 4
NO16	Antifreeze heater	Antifreeze heater
NO17	Condenser fan 1	Condenser fan 1
NO18	Condenser fan 2	Condenser fan 2
Analogue output		
Y1	0-10 Vdc Condenser Inverter pump signal	0-10 Vdc Condenser Inverter pump signal
Y2	0-10 Vdc Evaporator Inverter pump signal	0-10 Vdc Evaporator Inverter pump signal
Y3	0-10 Vdc Inverter fan signal 1	0-10 Vdc Inverter fan signal 1
Y4	0-10 Vdc Inverter fan signal 2	0-10 Vdc Inverter fan signal 2

Table 1 – IO pCO3 large

pCOe – Recovery (add.1)

Analogue inputs	pCOe
B1	SIW-R
B2	SUW-R
B3	SUW-R2 (DK version)
B4	SUCR common output recovery sensor (DK version)
Digital inputs	
ID1	FL
ID2	
ID3	
ID4	
Digital outputs	
NO1	Solen valve circuit 1 from Recovery
NO2	Solen valve circuit 1 from Condenser
NO3	Solen valve circuit 2 from Recovery
NO4	Solen valve circuit 2 from Condenser
Analogue output	
Y1	

Table 2 – IO pCOe

pCOe n.2 – for DK version (add. 2)

Analogue inputs	pCOe
B1	SUW2 (2° evap)
B2	SUCE (common evap sensor)
B3	SUWH2 (Out condenser 2)
B4	SUCC common condensers sensor
Digital inputs	
ID1	
ID2	
ID3	
ID4	
Digital outputs	
NO1	
NO2	
NO3	
NO4	
Analogue output	
Y1	

Table 3 – IO pCOe

pGD1 and pLan setting:



Three Displays PGD1 can be used:

UNIT DISPLAY 1 add. 32 on board

REMOTE DISPLAY 1 add. 31

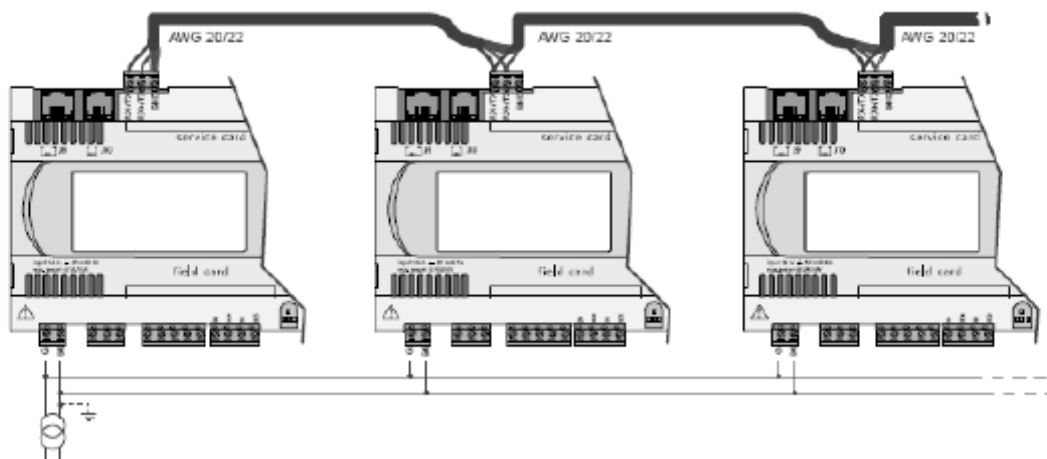
DISPLAY ON SLAVE CARD add. 30

CONNECTION OF TWO NXW units on pLAN network

Connect the cards in parallel throught the pLAN (J11) and to set the PCO3s like

MASTER unit address pLAN = 1

SLAVE unit address pLAN = 2



PROCEDURE TO SET UP THE I/O BOARD ADDRESS by PGD0-1



Usually on the Carel terminals pressing the 3 buttons UP DOWN and ENTER together for some seconds it is possible to receive information about terminals and cards address.



For almost 5 sec.

- the following screen is displayed:

```
Terminal  Adr: 32  
I/O Board Adr: 1
```

Pressing ENTER



It appears

```
Terminal Config  
  
Press ENTER  
to continue
```

And pressing ENTER



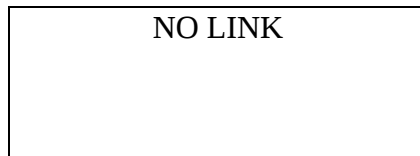
P:01	Adr	Priv/Shared
Trm1	32	Sh
Trm2	None	
Trm3	None	-- Ok? No

- In this screen the Enter button moves the cursor from one field to another, whereas the arrow keys change the current value of the field. The mention P:01 in this case indicates that the I/O board with address 1 has been selected. Trm are the display terminals connected to the network; normally only the terminal with address 32 is present.

- Select the connection mode with terminal 32 as “Sh” that is shared with all the pCO board connected together. (“Pr” would instead mean that terminal display 32 can communicate only with the pCO board with address 01)
- To exit the configuration procedure and store, select the field 'Ok ? no' and use the cursor keys to bring up the answer 'Yes', then press **Enter**. To exit without storing, simply wait for some sec. without pressing a key.

Sometimes the controller (pco) can lose the pLan address

If the terminal does not receive the network synchronization message (token) for more than 10 sec, it wipes the display out completely and posts this message:



Having this fault the LEDs I/O board can be off .

PROCEDURE TO SET UP THE I/O BOARD ADDRESS:

Press UP DOWN and ENTER and to modify the terminal address to 0

```
Terminal  Adr: 0  
I/O Board Adr: 1
```

Switch off and on the board voltage supply

Press ALARM and UP together for some seconds

```
Self test  
Please wait
```

And by UP or DOWN to insert the correct address (usually 1)

```
pLan address :      0  
UP :           increase  
DOWN         decrease  
ENTER : save and exit
```

PS: in case pressing ALARM and UP no screen appears probably there is a hardware fault on the pco.

Switch off and on the board voltage supply and pressing the 3 buttons re-insert the correct display address (32)

```
Terminal  Adr: 32  
I/O Board Adr: 1
```

Where we have to see that now the I/O board address is present

The **user interface** is a 6-key display that can be used to navigate the menus. The arrow keys can be used to navigate from the default screen (see below).



The parameters are displayed in several menus and sub-menus.

DESCRIPTION OF KEYS:

KEY	FUNCTION
	ALARM KEY Press it once to view the current alarm Keep it pressed (at least 5 seconds) to reset the current alarm
	MENU ACTIVATION KEY Press this key to navigate the menus
	EXIT MENU KEY Press this key to view the previous menu
	NAVIGATION KEY (+) Press this key while navigating to view the next menu/parameter Press this key while editing a parameter to increase the selected parameter
	NAVIGATION KEY (ENTER) Press this key while navigating the menus to enter the selected menu Press this key while navigating the parameters to enter the selected parameter and edit it Press this key while editing a parameter to confirm the change in the selected parameter
	NAVIGATION KEY (-) Press this key while navigating to view the next menu/parameter Press this key while editing a parameter to decrease the selected parameter

ICON	DESCRIPTION
	Cooling mode active
	Heating mode active
	Simultaneous defrosting mode active
	Separate defrosting mode active. Only available on bi-circuit models, where each circuit can be separately defrosted
	Solid icon = compressor off Blinking icon= the compressor is being switched on; waiting for the safety time out
	Solid icon = compressor on Blinking icon = the compressor is being switched off; waiting for the safety timeout
	Compressor forced switch-off
	Limited compressor
	Compressor alarm
	Press  to access the Quick Menu

MENU NAVIGATION:



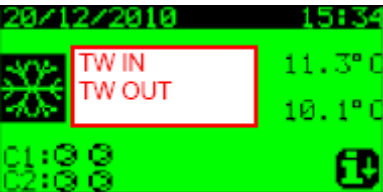
From the MAIN menu, containing information on how to use the unit, press the DOWN arrow key to access the QUICK menu, which displays the chilling circuit and compressor information.

Press ESC to go back to the main menu. Keep ESC pressed to scroll the available menu:

- ON-OFF: Contains the unit on and off controls
- SETPOINT: Contains the machine setpoints
- SEASON: Select the unit operation mode
- TIME PERIODS: Timer set-up
- INPUTS OUTPUTS: Parameters to manage the digital inputs and outputs
- ALARM RECORD: Alarms sorted by date
- SERVICE: password 0442. List of parameters to set up the unit
- MANUFACTURER: password 0375. Parameters to set up the unit

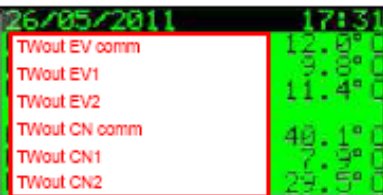
USER INTERFACE

UNIT STATUS



FUNCT MODE
WATER TEMP

COMPRESSORS IN OPERATION

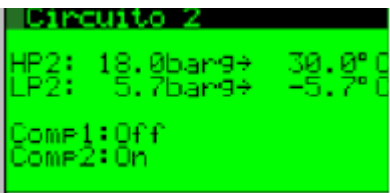


UNIT DANISH VERSION
EVAPORATORS AND
CONDENSERS
WATER TEMP.



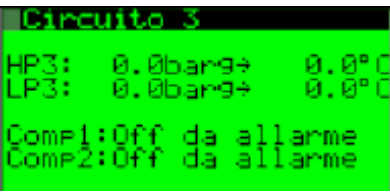
CIRCUIT 1
HP -LP

CP STATUS



CIRCUIT 1
HP -LP

CP STATUS



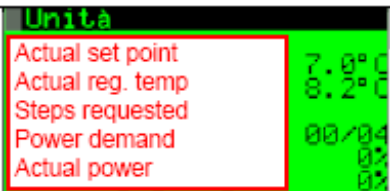
CIRCUIT 3
HP -LP

CP STATUS

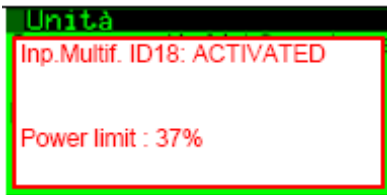


CIRCUIT 4
HP -LP

CP STATUS



ACTUAL SET POINT / ACTUAL WATER TEMPERATURE UNDER CONTROL
STEPS REQUESTED
CAPACITY
REQUESTED
ACTUAL CAPACITY PRODUCED



MULTIFUNCTION CONTACT on ID18

FUNCTION SELECTED VALUE

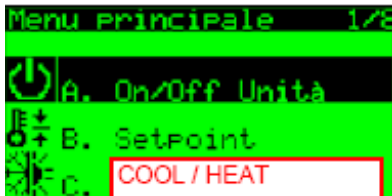


TOTAL RECOVERY WATER TEMP

RECOVERTE ENABLE
Y/N

CAPACITY REQUESTED %

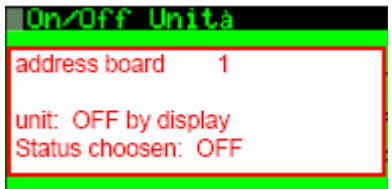
MAIN MENU'



MAIN MENU: SUB MENU
SELECTION

ON-OFF MENU

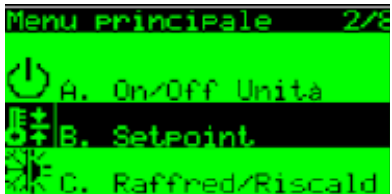
ON-OFF UNIT



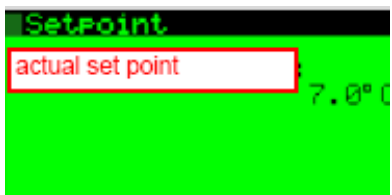
BOARD pLAN
ADDRESS

UNIT STATUS
STATUS REQUESTED

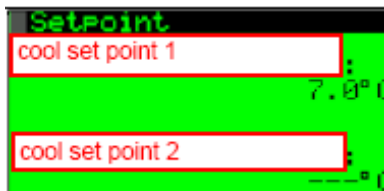
SET POINT



SET POINT MENU

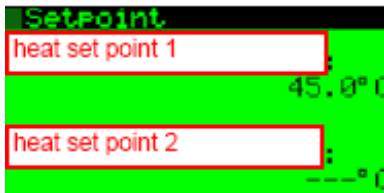


ACTUAL SET POINT



MAIN COOLING SET POINT

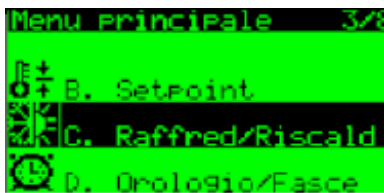
SECOND COOLING SET POINT



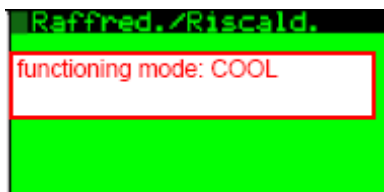
MAIN HEATING SET POINT

SECOND HEATING SET POINT

HEAT / COOL MENU'

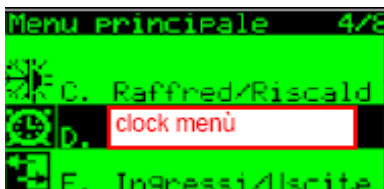


HEATING/COOLING SUB MENU



ACTUAL FUNCT.
MODE

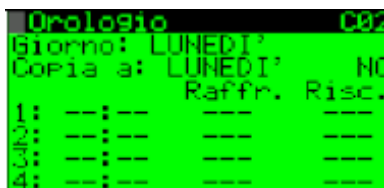
CLOCK / TIMER MENU'



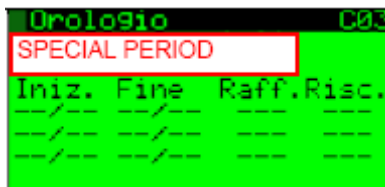
CLOCK AND TIMER SUB MENU



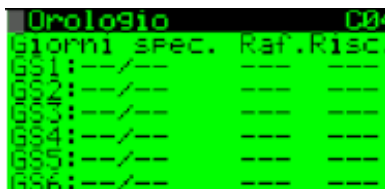
DAY, DATE, TIME SETTING



TIMER SETTING

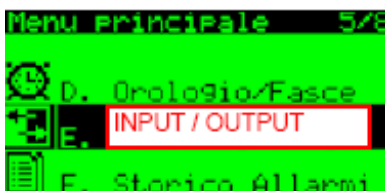


SPECIAL TIMER
DIFFERENT SET POINTS HAVING TIMER
ENABLED

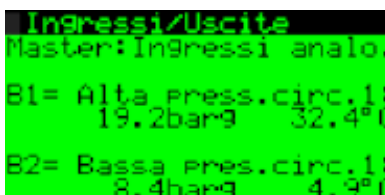


SPECIAL DAYS TO SET A DIFFERENT SET POINT ENABLED UNDER
TIMER

INPUT/OUTPUT



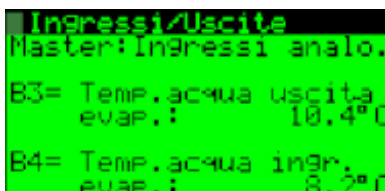
INPUT / OUTPUT SUB MENU



CIRCUIT 1

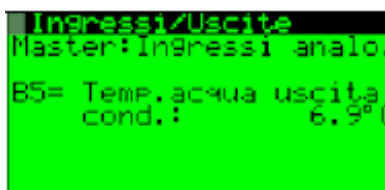
HP

LP

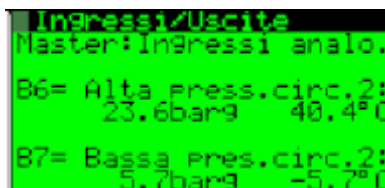


EVAPORATOR OUTLET TEMP

EVAPORATOR INLET TEMP



CONDENSER OUTLET TEMP



CIRCUIT 2

HP

LP

```
Ingressi/Uscite
Master: Ingressi analo.
B10= Temp.acqua ingr.
      cond.: 18.8°C
```

CONDENSER INLET TEMP

```
Ingressi/Uscite
Master: Ingressi dig.
01= Alta Press.circ.1:
      Chiuso
02= Bassa Press.circ.1:
      Chiuso
```

DIGITAL INPUTS STATUS
HP1 SWITCH

LP1 SWITCH

```
Ingressi/Uscite
Master: Ingressi dig.
03= On-Off remoto: ---
04= Raffred./Riscald.: ---
```

DIGITAL INPUTS STATUS
REMOTE ON-OFF CONTACT

REMOTE HEAT/COOL CONTACT

```
Ingressi/Uscite
Master: Ingressi dig.
05= Flusso evap.:
      Chiuso
06= Term.cmp.1 circ.1:
      Chiuso
```

DIGITAL INPUTS STATUS

FLOW SWITCH
DISCHARGE CP1 THERM

```
Ingressi/Uscite
Master: Ingressi dig.
07= Term.cmp.2 circ.1:
      Chiuso
08= Allarme grave:
      Chiuso
```

DIGITAL INPUTS STATUS

DISCHARGE CP2 THERM
SERIOUS ALARM

```
Ingressi/Uscite
Master: Ingressi dig.
09= Alta Press.circ.2:
      Chiuso
10= Bassa Press.circ.2:
      Chiuso
```

DIGITAL INPUTS STATUS

HP2 SWITCH
LP2 SWITCH

```
Ingressi/Uscite
Master: Ingressi dig.
11= Term.cmp.1 circ.2:
      Chiuso
12= Term.cmp.2 circ.2:
      Chiuso
```

DIGITAL INPUTS STATUS

DISCHARGE CP3 THERM
DISCHARGE CP4 THERM

```
Ingressi/Uscite
Master: Ingressi dig.
13= Term.pompa evap.1:
      Chiuso
14= Term.pompa evap.2:
      Chiuso
```

DIGITAL INPUTS STATUS

THERM PROT EVAP PUMP 1
THERM PROT EVAP PUMP 2

```
Ingressi/Uscite
Master: Ingressi di9.

15= Term.Pompa cond.1:
      Chiuso

16= Term.Pompa cond.2:
      ----
```

DIGITAL INPUTS STATUS

THERM PROT COND PUMP 1

THERM PROT COND PUMP 2

```
Ingressi/Uscite
Master: Ingressi di9.

17= Flusso cond.:
      Chiuso
```

DIGITAL INPUTS STATUS

CONDENSER FLOW SWITCH

```
Ingressi/Uscite
Master: Uscite di9.

01= Comp.1 circ.1:
      Aperto

02= Comp.2 circ.1:
      Aperto--
```

DIGITAL OUTPUT

COMPRESSOR 1

COMPRESSOR 2

```
Ingressi/Uscite
Master: Uscite di9.

03= Comp.1 circ.2:
      Aperto

04= Comp.2 circ.2:
      Aperto---
```

DIGITAL OUTPUT

COMPRESSOR 3

COMPRESSOR 4

```
Ingressi/Uscite
Master: Uscite di9.

05= Pompa condensat.1:
      Aperto

06= Pompa condensat.2:
      ----
```

DIGITAL OUTPUT

CONDENSER PUMP 1

CONDENSER PUMP 2

```
Ingressi/Uscite
Master: Uscite di9.

07= Resist.anti9elo:
      Aperto

08= Allarme grave:
      Aperto
```

DIGITAL OUTPUT

ANTIFREEZE HEATER

SERIOUS ALARM

```
Ingressi/Uscite
Master: Uscite di9.

09= Pompa evap.1:
      Aperto
```

DIGITAL OUTPUT

EVAPORATOR PUMP 1

Ingressi/Uscite
Master: Uscite dig.
10= Solenoide liq.1:
Aperto
11= Solenoide liq.2:
Aperto---

DIGITAL OUTPUT

SOLENOID LIQ VALVE CIRC 1
SOLENOID LIQ VALV CIRC 2

Ingressi/Uscite
Master: Uscite dig.
12= Valv.4vie circ.1:
Aperto
13= Valv.4vie circ.2:
Aperto---

DIGITAL OUTPUT

4 WAY VALVE CIRC 1
3 WAY VALVE CIRC 2

SERVICE MENU'

Menu principale 7/8
F. Storico Allarmi
G. SERVICE
H. Costruttore

MENU' SERVICE

Password assistenza
Inserire password
assistenza (PW1): 0000

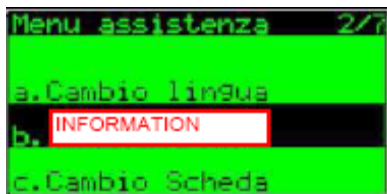
MENU' UNDER PASSWORD : 0442

SERVICE SUB MENU': CHANGE LANGUAGE

Lingua
LANGUAGE ITALIANO
ENTER per cambiare

LANGUAGE
SELECTION

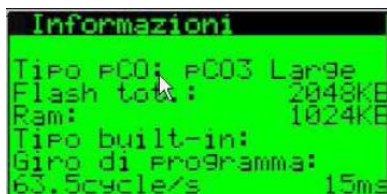
SERVICE SUB MENU': INFORMATION



SOFTWARE INFORMATIONS

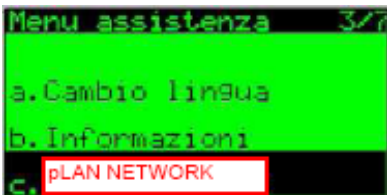


SOFTWARE VERSION



HARDWARE SOFTWARE INFOS

SERVICE SUB MENU': pLAN NETWORK

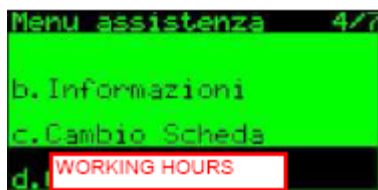


pLAN NETWORK



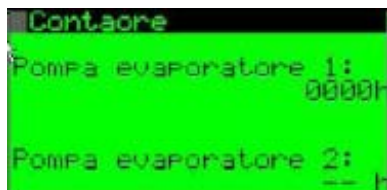
pLAN STATUS

SERVICE SUB MENU': WORKING HOURS



Menu assistenza 4/7
b. Informazioni
c. Cambio Scheda
d. WORKING HOURS

WORKING HOURS



Contatore
Pompa evaporatore 1: 0000h
Pompa evaporatore 2: 00h

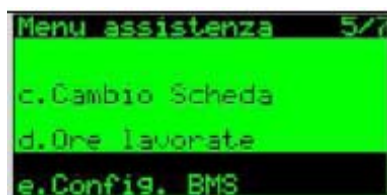
EVAPORATOR PUMPS WORKING HOURS



Contatore
Circuito 1
Compressore 1: 0000h
Compressore 2: 0000h
Compressore 3: 00h

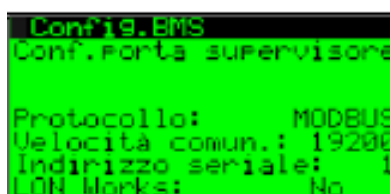
COMPRESSORS WORKING HOURS

SERVICE SUB MENU': BMS CONFIGURATION



Menu assistenza 5/7
c. Cambio Scheda
d. One lavorate
e. Config. BMS

BMS
CONFIGURATION



Config.BMS
Conf. Porta supervisore
Protocollo: MODBUS
Velocità comun.: 19200
Indirizzo seriale: 1
LON Works: No

SUPERVISOR
CONFIG.

PROTOCOL, BAUD RATE, SERIAL ADDRESS SETTING

ENABLE PROTOCOL LON WORKS

WHEN LON: PROTOCOL=CAREL,BAUDRATE 4800, ADDRESS
1

SERVICE SUB MENU': SERVICE PARAMETERS : COUNTER

```
Menu assistenza 6/7
d. One lavorate
e. Config. BMS
f. SERVICE PARAMETERS
Menu assistenza 1/4
a. COUNTER RESET
b. Taratura sonde
c. Termoregolazione
```

SERVICE
PARAMETERS

COUNTER SELECTION

```
Imp. contaore
Pompa evaporatore 1
Soglia:10000h Reset: N
Pompa evaporatore 2
Soglia: -- h Reset: -
```

EVAPORATOR WATER PUMP 1

MAINTENANCE SET - RESET

```
Imp. contaore
Comer.1 circuito 2
Soglia:10000h Reset: N
Comer.2 circuito 2
Soglia:10000h Reset: N
```

COMP 1

MAINTENANCE SET - RESET

COMP 2

MAINTENANCE SET . RESET

```
Imp. contaore
Comer.1 circuito 2
Soglia:10000h Reset: N
Comer.2 circuito 2
Soglia:10000h Reset: N
```

COMP 3

MAINTENANCE SET - RESET

COMP 4

MAINTENANCE SET . RESET

```
Imp. contaore
Pompa condens.1
Soglia:10000h Reset: N
Pompa condens.2
Soglia: -- h Reset: -
```

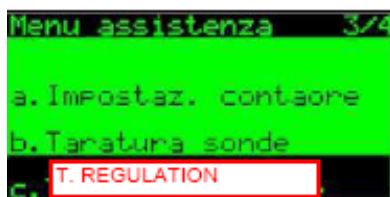
CONDENSER PUMP 1

MAINTENANCE SET - RESET

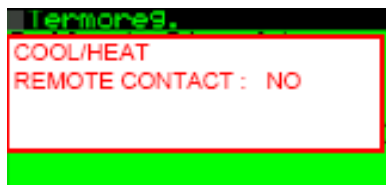
CONDENSER PUMP 2

MAINTENANCE SET - RESET

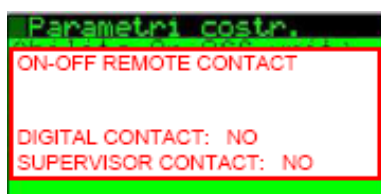
SERVICE SUB MENU': SERVICE PARAMETERS : T. REGULATION



SETTINGS MANAGEMENT REGULATION

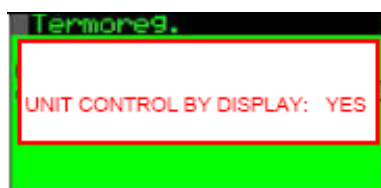


ENABLE HEATING-COOLING REMOTE CONTACT



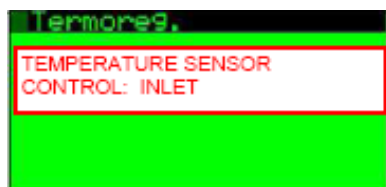
ENABLE REMOTE ON-OFF CONTACT

DIGITAL Y/N
SUPERVISOR
Y/N

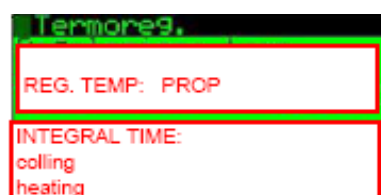


UNIT CONTROL BY UNIT TERMINAL (pgd1)
Y/N

UNIT IS CONTROLLED ONLY VIA REMOTE COMMANDS

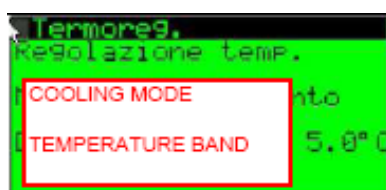


SENSOR WATER TEMPERATURE CONTROL
SELECTION
INLET/OUTLET

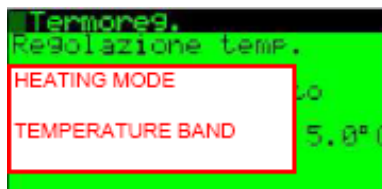


KIND OF
REGULATION : P or
PI

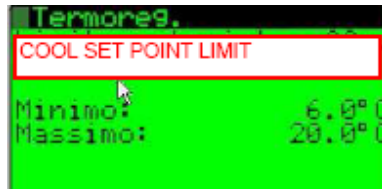
INTEGRAL TIME



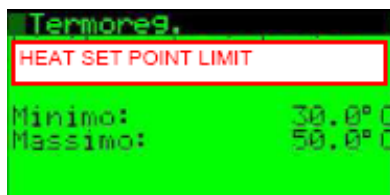
COOLING TEMP
BAND



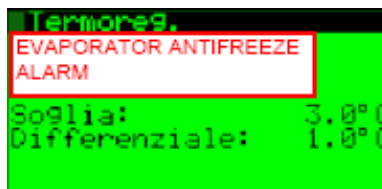
HEATING TEMP BAND



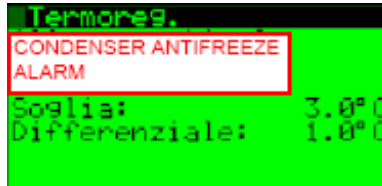
COOLING SETPOINT LIMITS



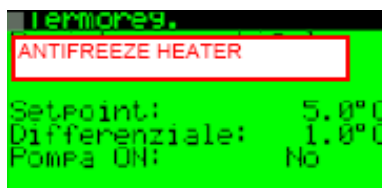
HEATING SETPOINT LIMITS



ANTIFREEZE EVAPORATOR ALARM

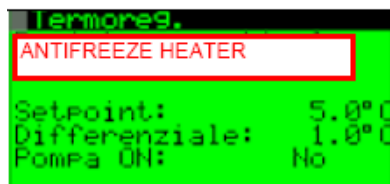


ANTIFREEZE CONDENSER ALARM



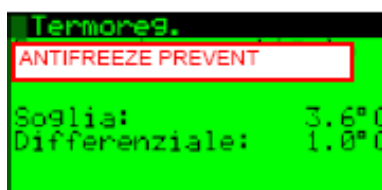
EVAPORATOR ANTIFREEZE SET POINT

BY ELECTRIC HEATER
BY WATER PUMP. UNIT IN STAND BY ONLY



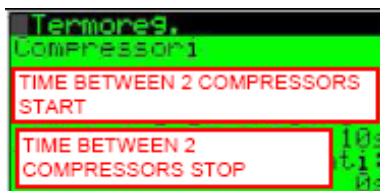
CONDENSER ANTIFREEZE SET
POINT

BY ELECTRIC HEATER
BY WATER PUMP. UNIT IN STAND BY ONLY



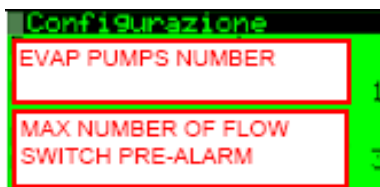
ANTIFREEZE PREVENT

COMPRESSORS ARE FORCED OFF



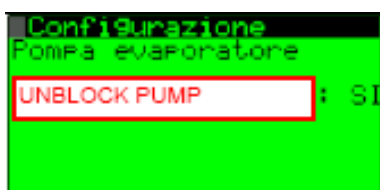
TIME BETWEEN 2 COMPRESSORS START

TIME BETWEEN 2 COMPRESSORS STOP

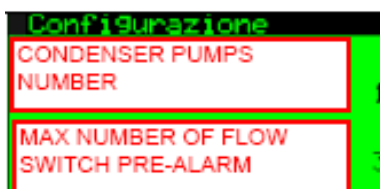


EVAPORATOR PUMPS NUMBER

MAX NUMBER OF FLOW SWITCH PRE-ALARM

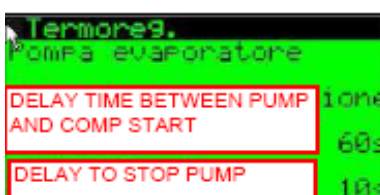


AFTER 7 DAYS WITHOUT TO START, PUMP
IS SWITCHED ON 30 SECONDS



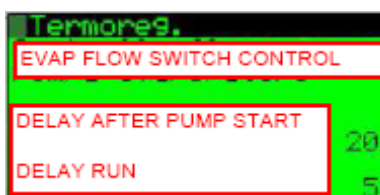
CONDENSER PUMPS NUMBER

MAX NUMBER OF FLOW SWITCH PRE-ALARM



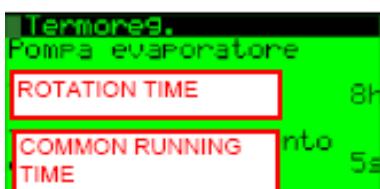
EVAPORATOR PUMP

DELAY TIME BETWEEN PUMP AND COMPR START
DELAY TIME TO STOP PUMP AFTER COMPR STOP



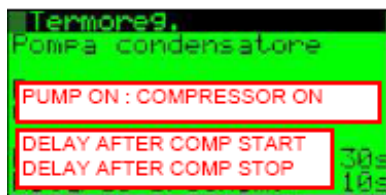
EVAPORATOR FLOW SWITCH ALARM

DELAY TIME AFTER PUMP START
RUNNING DELAY TIME

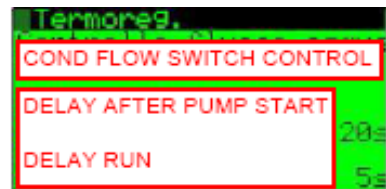


EVAPORATOR PUMP
PUMPS ROTATION TIME

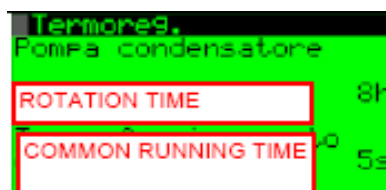
COMMON RUNNING TIME



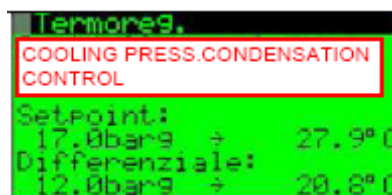
CONDENSER PUMP
PUMP ON : COMPRESSOR ON / UNIT ON
DELAY TIME TO START PUMP AFTER COMPR START
DELAY TIME TO STOP PUMP AFTER COMPR STOP



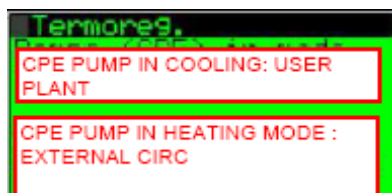
CONDENSER FLOW SWITCH
ALARM
DELAY TIME AFTER PUMP START
RUNNING DELAY TIME



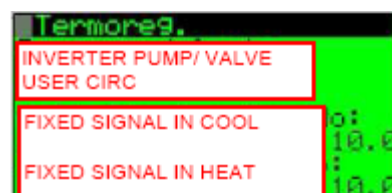
CONDENSER PUMP
PUMPS ROTATION TIME
COMMON RUNNING TIME



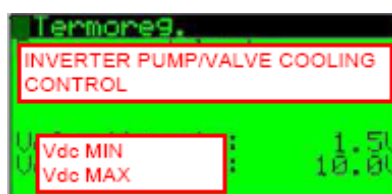
COOLING PRESSURE CONDENSATION
CONTROL
SET
POINT
DIFFERENTIAL



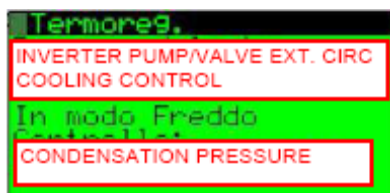
CPE PUMP MANAGEMENT
IN COOLING MODE: USER PLANT
HEATING MODE: EXT. CIRC (WELL, GEOTH, DRYCOOL, H VERSION) /
USER



INVERTER PUMP / VALVE USER CIRCUIT
FIXED SIGNALS

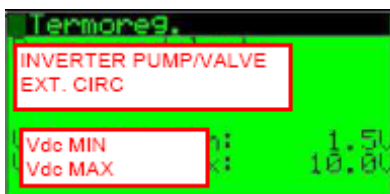


INVERTER PUMP/VALVE EXTERNAL CIRCUIT COOLING CONTROL
MIN SPEED/VOLTAGE
MAX SPEED/VOLTAGE



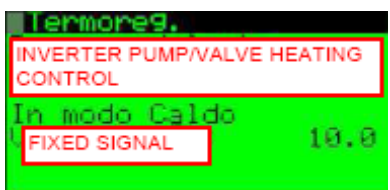
INVERTER PUMP/VALVE EXTERNAL CIRCUIT COOLING CONTROL

CONDENSATION PRESSURE CONTROL BY HP TRASDUCER



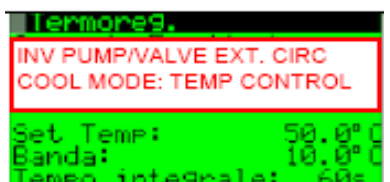
INVERTER PUMP/VALVE EXTERNAL CIRCUIT COOLING CONTROL

MIN / MAX SIGNAL VOLTAGE



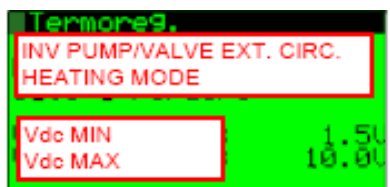
INVERTER PUMP/VALVE EXTERNAL CIRCUIT HEATING CONTROL

FIXED SIGNAL



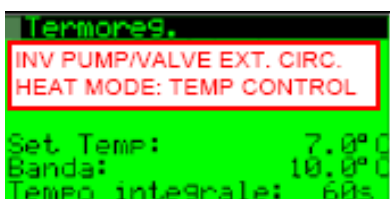
INVERTER PUMP/VALVE EXTERNAL CIRCUIT COOLING CONTROL BY OUTLET WATER TEMP

SET, DIFFERENTIAL, INTEGRAL TIME



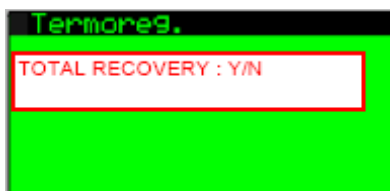
INVERTER PUMP/VALVE EXTERNAL CIRCUIT HEATING CONTROL

FIXED SIGNAL

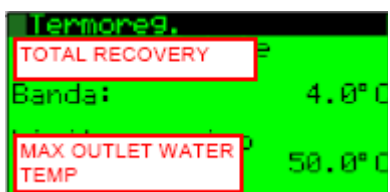


INVERTER PUMP/VALVE EXTERNAL CIRCUIT HEATING CONTROL BY OUTLET WATER TEMP

SET, DIFFERENTIAL, INTEGRAL TIME



ENABLE TOTAL RECOVERY



TOTAL RECOVERY DIFFERENTIAL BAND

MAX OUTLET WATER TEMP ON RECOVERY SIDE

Termoreg.
TOTAL RECOVERY
Tempo min Off: 180s

TOTAL RECOVERY

MIN RECOVERY OFF TIME

Termoreg. Multifunz.
MULTIFUNCTION
ENABLE B8: Y/N
Presso (B8):

MULTIFUNCTION CONTACT

ENABLE INPUT B8

Termoreg. Multifunz.
MULTIFUNCTION
INPUT CONFIG. Presso:
POTENZA
TYPE 0-10V

MULTIFUNCTION CONTACT

INPUT CONFIG: POWER LIMIT/ POWER DEMAND / VARIABLE SET POINT

TYPE: 0-10 VOLT / NTC / 4-20 Ma

Termoreg. Multifunz.
MULTIFUNCTION
Configurazione NTC
Min: 15.0°C
Max: 25.0°C

MULTIFUNCTION CONTACT

CONFIG: NTC

MIN / MAX TEMP

Termoreg. Multifunz.
MULTIFUNCTION
POWER LIMIT Potenza
Min: 0%
Max: 100%

MULTIFUNCTION CONTACT

CONFIG: POWER LIMIT

MIN / MAX %

Termoreg. Multifunz.
MULTIFUNCTION
POWER DEMAND Potenza
Min: 0%
Max: 100%

MULTIFUNCTION CONTACT

CONFIG: POWER DEMAND

MIN / MAX %

Termoreg. Multifunz.
MULTIFUNCTION
VARIABLE SET POINT: COOLING
riabile 000
Min: 7.0°C
Max: 11.0°C

MULTIFUNCTION CONTACT

CONFIG: VARIABLE SET POINT-COOLING

MIN / MAX SET POINT

Termoreg. Multifunz.
MULTIFUNCTION
VARIABLE SET POINT: HEATING
riabile 00
Min: 45.0°C
Max: 50.0°C

MULTIFUNCTION CONTACT

CONFIG: VARIABLE SET POINT-HEATING

MIN / MAX SET POINT

SERVICE SUB MENU': SERVICE PARAMETERS : MANUAL MANAGEMENT

```
Menu assistenza 7/7
e.Config. BMS
f.Param.Assistenza
g. MANUAL MANAG.
```

```
Gestione manuale
Disabilita compressori
Comp.1 circ.1: NO
Comp.2 circ.1: NO
Comp.3 circ.1: --
```

COMPRESSORS CAN MANUALLY FORCED OFF

```
Gestione manuale
Forzatura manuale
Comp.1 circ.1: NO
Comp.2 circ.1: NO
Comp.3 circ.1: --
Solen. liq. circ.1: NO
```

UNIT IN STAND BY
ONLY
COMPRESSORS CAN
FORCED ON

SOLENOID LIQUID VALVES CAN FORCED ON

```
Gestione manuale
Forzatura manuale
Pompa evaporat.1: NO
Pompa evaporat.2: --
```

UNIT IN STAND BY
ONLY

EVAPORATOR PUMPS CAN FORCED ON

```
Gestione manuale
Forzatura manuale
Pompa condensat.1: NO
Pompa condensat.2: --
```

UNIT IN STAND BY
ONLY

CONDENSER PUMPS CAN FORCED ON

```
Gestione manuale
Forzatura manuale
Valvola 4vie circ.1: NO
Valvola 4vie circ.2: NO
```

UNIT IN STAND BY
ONLY

4 WAY VALVES CAN
FORCED ON

```
Gestione manuale
Forzatura manuale
Resist. antigelo: NO
```

UNIT IN STAND BY
ONLY

ANTIFREEZE ELECTRIC HEATER CAN FORCED
ON

SERVICE SUB MENU': SERVICE PARAMETERS : DEFAULT RESET /CHANGE PASSWORD

Menu assistenza 3/3
a. Impostaz. contatore
b. Termoregolazione
c. DEF. USER/CHANGE PASS

Default utente

Nuova Password
assistenza (PW1): 0442

CHANGE USER PASSWORD

Default utente
DEFAULT USER PAR.
RESET
DATE LAST
RESET 10/06/11

USER PARAMETERS DEFAULT
RESET: Y/N

DATE OF LAST
RESET

SERVICE SUB MENU': SERVICE PARAMETERS : CONFIGURATION

Menu assistenza 8/8
f. Param. Assistenza
g. Gestione manuale
h. CONFIGURATION

Configurazione
UNIT SELECTION
ACQUA/ACQUA
CHILLER/POMPA CALORE

UNIT SELECTION:

WATER / WATER
AIR / WATER (CONDENSER ON
AIR SIDE)

WATER / WATER HEAT PUMP
WATER / WATER ONLY
CHILLER

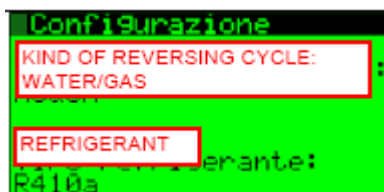
Configurazione
CONDENSATION TYPE
SINGLE / SEPARATED

TYPE OF CONDENSATION:

SINGLE: COND PRESS CONTROLLED ON HIGHER HP BY NO17
AND Y3(0-10V)

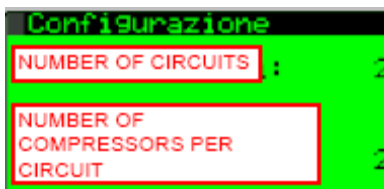
SEPARATED: EVERY CIRCUIT CONTROLS OWN HP
BY NO17-Y3 ON CIRC1

AND NO18-Y4 ON CIRC2



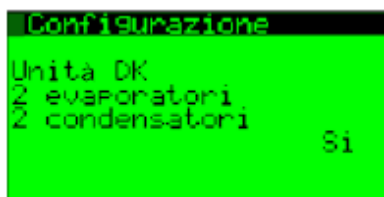
TYPE OF REVERSING CYCLE: WATER / GAS

REFRIGERANT TYPE



NUMBER OF REFRIGERANT CIRCUITS

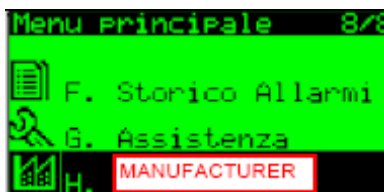
NUMBER OF COMPRESSORS PER CIRCUIT



UNIT DANISH VERSION: Y/N

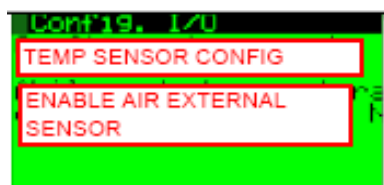
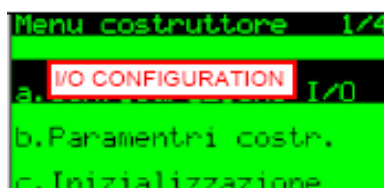
2 EVAPOR / 2 CONDENS.

MANUFACTURER MENU'



INSERT NEW MANUFACTURER PASSWORD

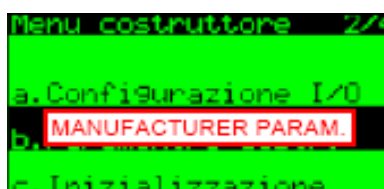
MANUFACTURER SUB MENU': I/O CONFIGURATION



TEMP SENSOR CONFIGURATION

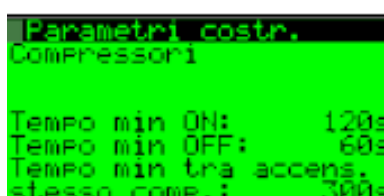
ENABLE AIR EXTERNAL TEMP SENSOR

MANUFACTURER SUB MENU': MANUFACTURER PARAMETERS



DATA FORMAT:

GG / MM / AA

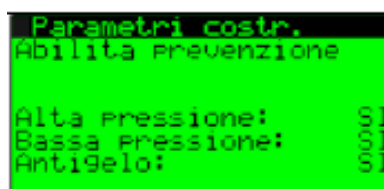


COMPRESSORS

TIME MIN ON

TIME MIN OFF

TIME MIN BETWEEN 2 SAME COMPRESSOR STARTS

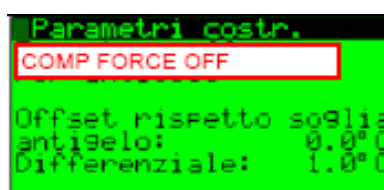


ENABLE PREVENT ALARMS FUNCTION

HIGH PRESSURE Y/N (COMP SWITCHED OFF)

LOW PRESSURE Y/N (COMP SWITCHED OFF)

ANTIFREEZE Y/N (COMP SWITCHED OFF)



ANTIFREEZE COMPRESSORS FORCE OFF

OFFSET FROM ANTIFREEZE SET POINT

DIFFERENTIAL

Parametri costr.
BP Low

Soglia: 1.6bar
Tempo bypass: 5s

LOW PRESSURE LOW ALARM

SET
BY PASS TIME AFTER COMPRESSORS START

Termoreg.
LOW PRESSURE ALARM

Soglia: 2.0bar
Diff.: 0.5bar

LOW PRESSURE ALARM

SET
DIFFERENTIAL

Termoreg.
Allarme bassa Press.

START UP DELAY 180s

LOW PRESSURE ALARM

DELAY TIME AFTER COMPRESSOR START

Termoreg.
HIGH PRESSURE ALARM

Soglia: 39.0bar
Diff.: 2.0bar

HIGH PRESSURE ALARM

SET
DIFFERENTIAL

Termoreg.
HIGH PRESSURE PREVENT

Soglia: 38.0bar
Diff.: 2.0bar

HIGH PRESSURE PREVENT

SET
DIFFERENTIAL

Termoreg.
HIGH PRESSURE PREVENT
MAX NUMBERS
PREVENT DELAY TIME

HIGH PRESSURE PREVENT

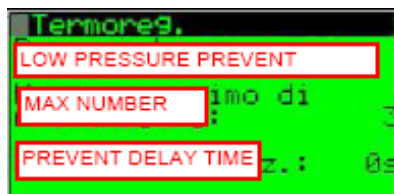
MAX PREVENT
NUMBER
PREVENT DELAY TIME

Termoreg.
LOW PRESSURE PREVENT

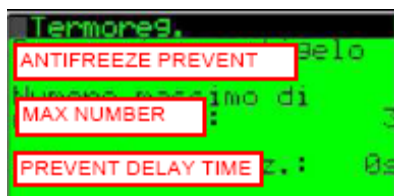
Soglia: 2.5bar
Diff.: 0.5bar

LOW PRESSURE PREVENT

SET
DIFFERENTIAL

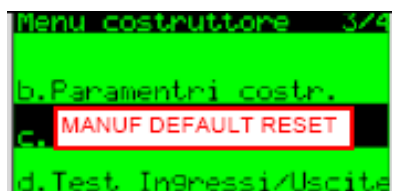


LOW PRESSURE PREVENT
MAX PREVENT
NUMBER
PREVENT DELAY TIME

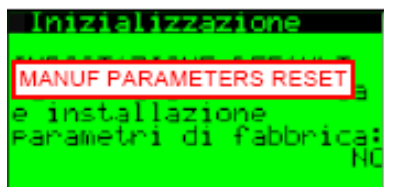


ANTIFREEZE PREVENT
MAX PREVENT
NUMBER
PREVENT DELAY TIME

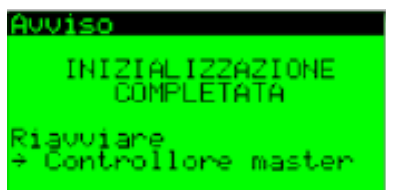
MANUFACTURER SUB MENU': MANUFACTURER DEFAULT RESET



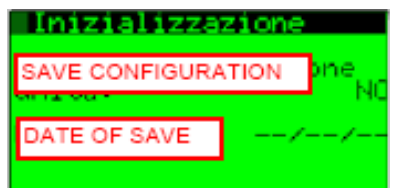
INSERT NEW MANUFACTURER PASSWORD



RESET MANUFACTURER PARAMETERS
BASE MODEL PARAMETERS ARE UPDATED, THEN UNIT MUST BE
CORRECTELY SETTED



WARNING MESSAGE: RESET DONE
POWER OFF AND RESTART CONTROLLER



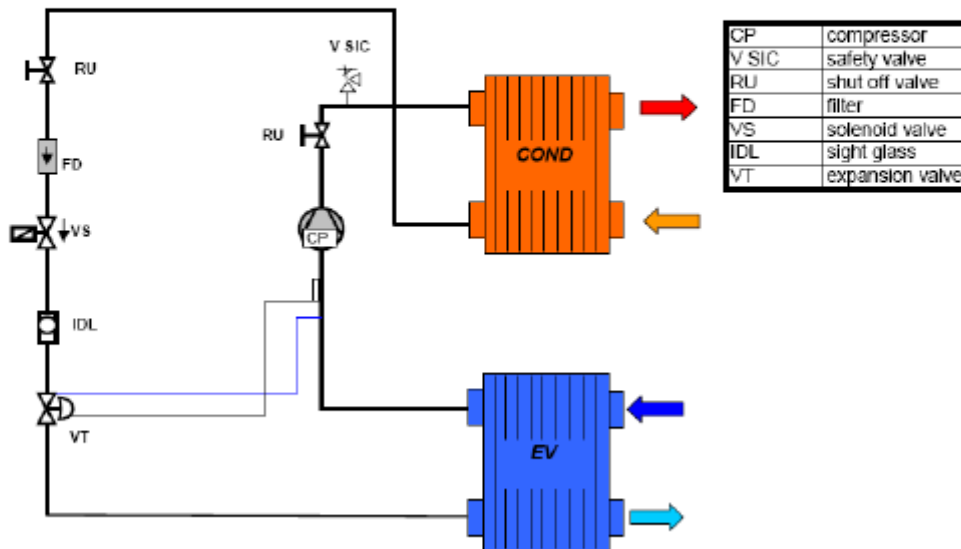
SAVE
CONFIGURATION
IT'S POSSIBLE TO SAVE LAST PARAMETERS CONFIGURATION

UNIT CONFIGURATION

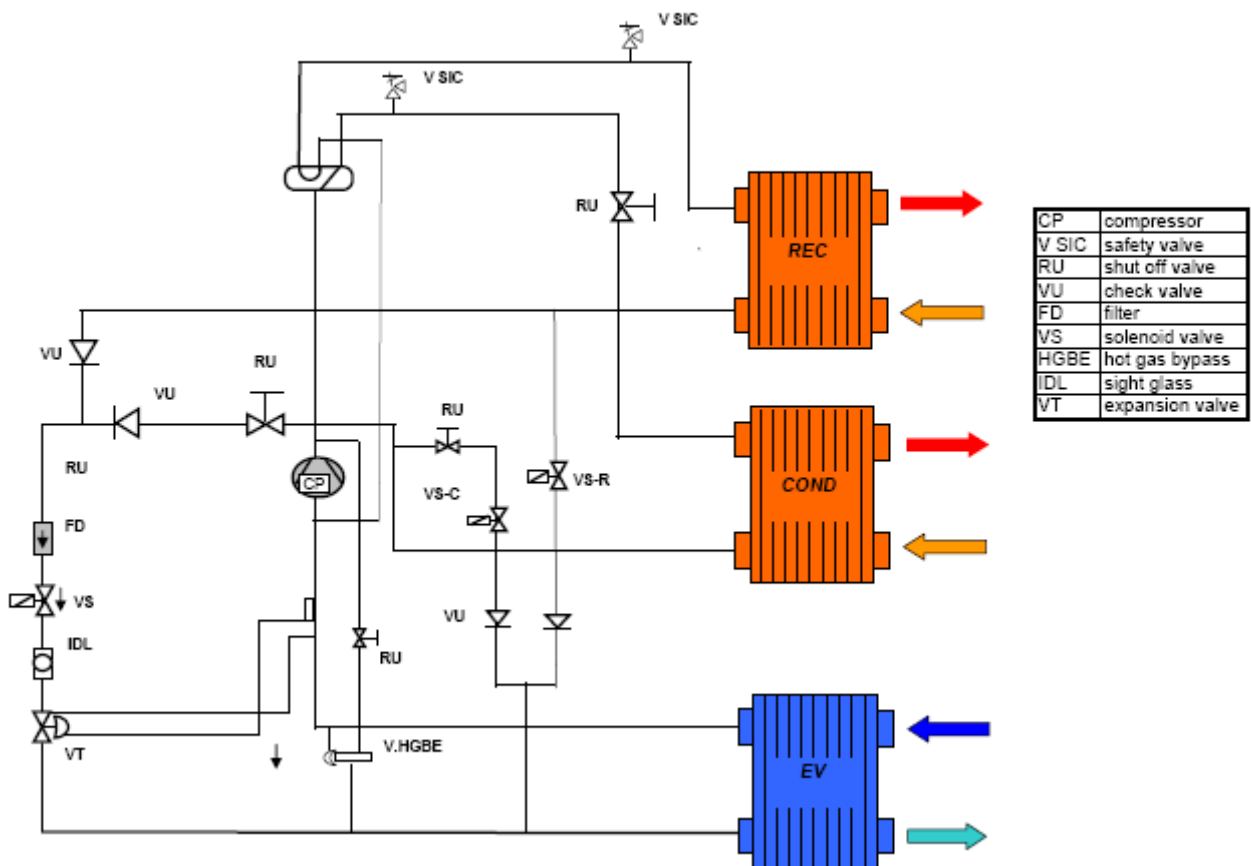
<u>GROUP</u>	<u>TYPE OF UNIT</u>	<u>ORIGINAL PARAM. SETTING</u>	<u>NEW PARAMETER ADJUSTED</u>	<u>MENU (Prg button)</u>
<u>A</u>	E-VERSION (only Evaporator)	UNIT SELECTION: WATER / WATER	AIR / WATER	SERVICE CONFIGURATION PSW 0442
		UNIT SELECTION: CHILLER	CHILLER	SERVICE CONFIGURATION PSW 0442
		TYPE OF CONDENSATION	SINGLE or SEPARATED	SERVICE CONFIGURATION PSW 0442
<u>B</u>	UNIT WITH REVERSING CYCLE ON GAS SIDE	REVERSING CYCLE:	TYPE OF REVERSING CYCLE: GAS	SERVICE CONFIGURATION PSW 0442
<u>C</u>	UNIT TOTAL RECOVERY VERSION	Pcoe dip switch setting: dip 1 = ON dip2 = OFF dip3 = OFF dip4 = OFF	TOTAL RECOVERY: YES	SERVICE SERV. PARAM TH. REGULATION PSW 0442
<u>D</u>	DK version 2 evap 2 cond	Pcoe dip switch setting: dip 1 = OFF dip2 = ON dip3 = OFF dip4 = OFF	DK version	SERVICE CONFIGURATION PSW 0442
<u>E</u>	Y version	ANTIFREEZE ALARM	ANTIF. ALARM: - 10°C	SERVICE SERV. PARAM TH. REGULATION PSW 0442
		COOLING SET POINT LIMIT	LOW LIMIT: -8°C	SERVICE SERV. PARAM TH. REGULATION PSW 0442
		ANTIFREEZE HEATER	SETPOINT: -8°C	SERVICE SERV. PARAM TH. REGULATION PSW 0442
		ANTIFREEZE PREVENT	SETPOINT: -9.4°C	SERVICE SERV. PARAM TH. REGULATION PSW 0442
		COOLING SET POINT 1	SETPOINT: -6°C	SET POINT

REFRIGERANT CIRCUIT:

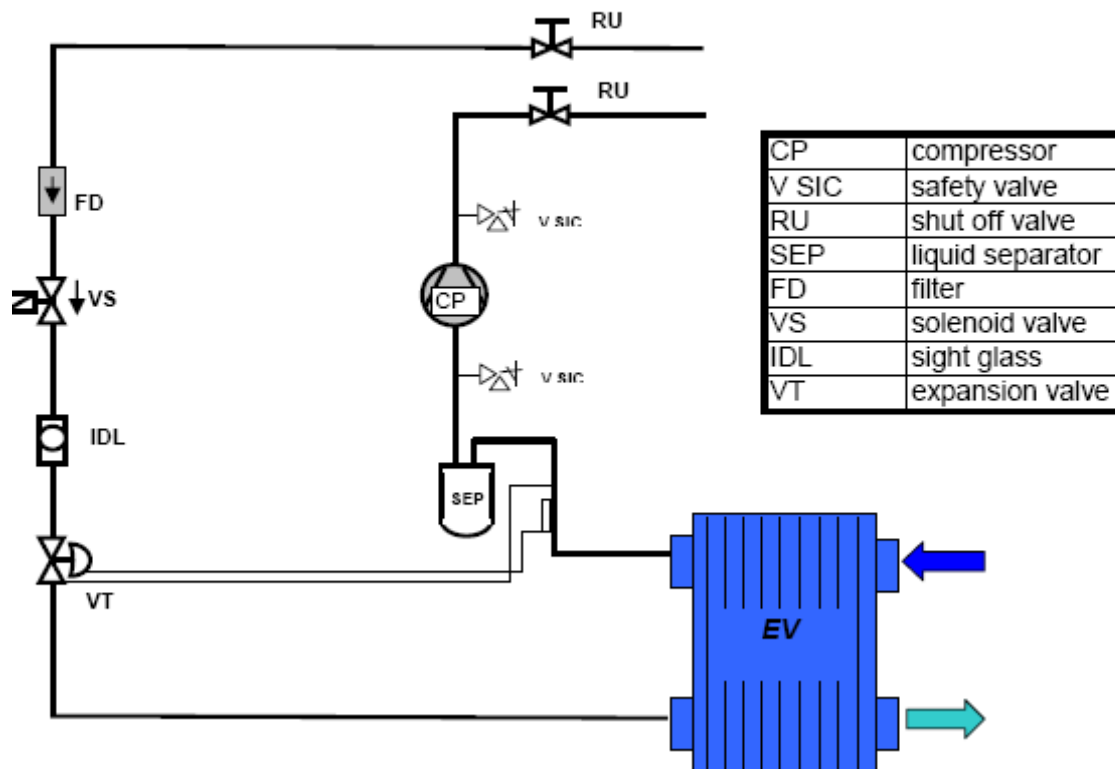
NXW heat pump with water side inversion



NXW heat pump with water side inversion, with heat recovery



NXW heat pump with water side inversion, condenserless

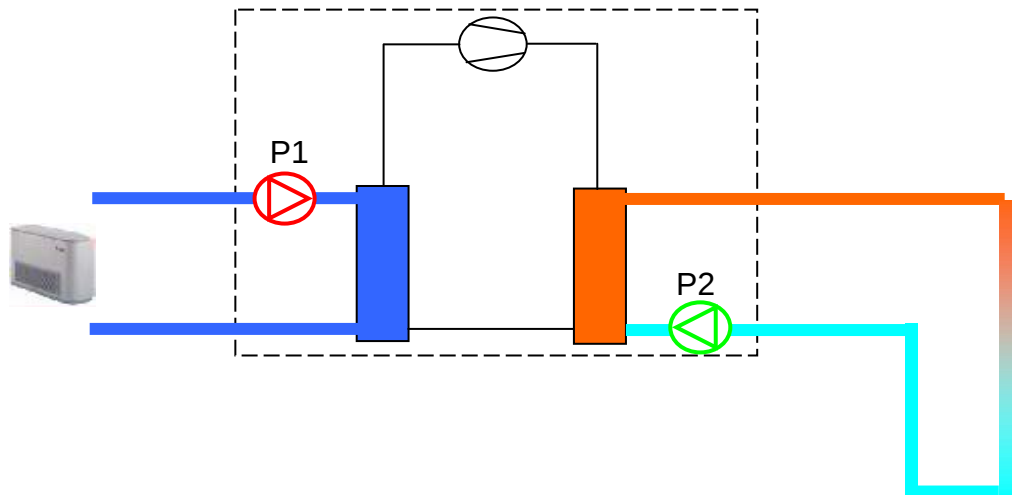


Pumps management

Unit with reversing cycle gas side

Pumps on board or not

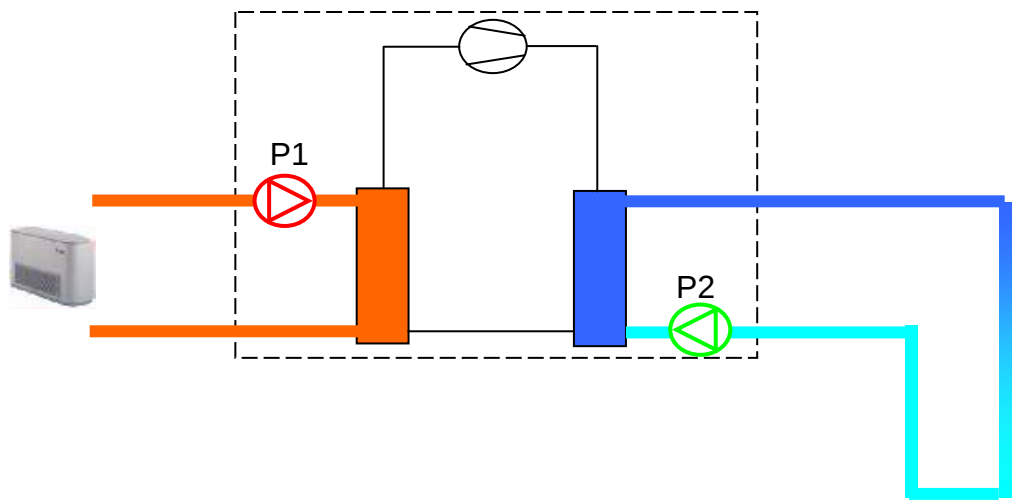
Cooling mode



P1: User pumps: ON-OFF or adjustable with fixed speed

P2: External pump adjustable to condensation control (HP) or water temperature control

Heating mode

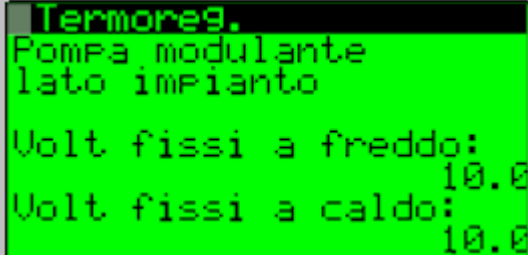
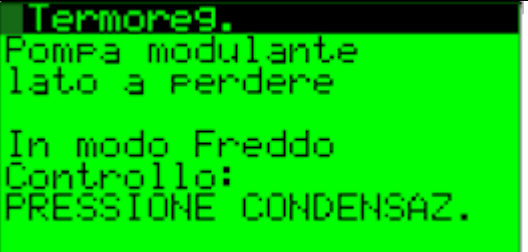


P1: User pumps: ON-OFF or adjustable with fixed speed

P2: External pump adjustable to water temperature control or fixed speed

Parameter setting to control this kind of installation

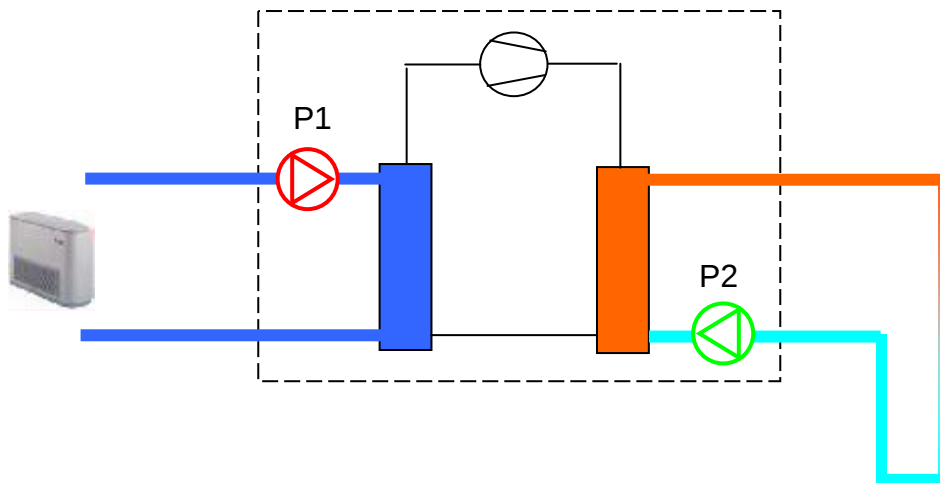
See: **Errore. L'origine riferimento non è stata trovata.**

	P1: It is possible to set a fix speed on user inverter pump in cooling and heating mode.
	P2: In caso inverter pump on external circuiti s presenti t is possible to set the CONDENSATION PRESSURE CONTROL or OUTLET WATER TEMPERATURE CONTROL

Unit with reversing cycle water side

Pumps on board or not but before the water valves

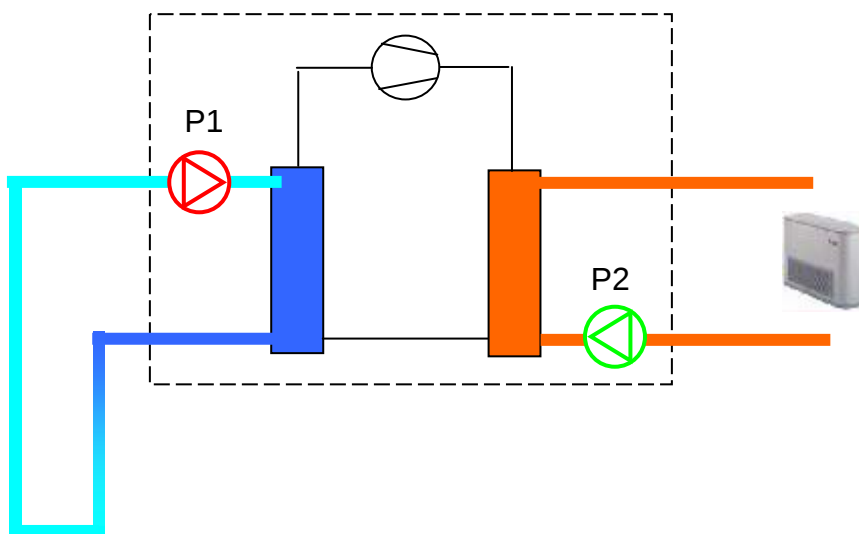
Cooling mode



P1: User pumps: ON-OFF or adjustable with fixed speed

P2: External pump adjustable to condensation control (HP) or water temperature control

Heating mode



P1: External pump adjustable to water temperature control or fixed speed

P2: User pumps: ON-OFF or adjustable with fixed speed

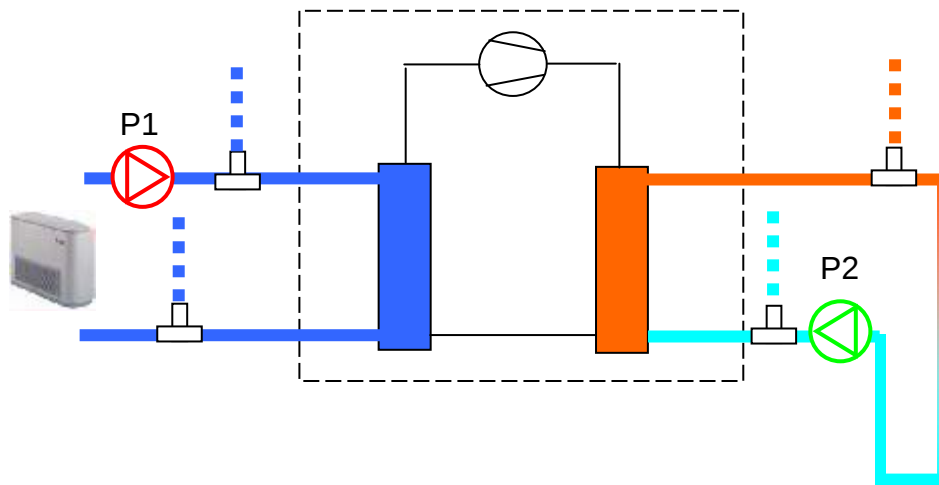
Parameter setting to control this kind of installation

See: **Errore. L'origine riferimento non è stata trovata.**

<pre> Termoreg. Pompa (CPE) in modo freddo: IMPIANTO Pompa (CPE) in modo caldo: LATO ESTERNO </pre>	P1: Evaporator pump in cooling is always on USER side. In heating is on external circuit side it means that water valves are installed after the pumps so P1 is always evaporator pump.
<pre> Termoreg. Pompa modulante lato impianto Volt fissi a freddo: 10.0 Volt fissi a caldo: 10.0 </pre>	In case inverter pump on USER side is possible to set fix speed for cooling mode P1. In heating will be P2 that works with fixed speed.
<pre> Termoreg. Pompa modulante lato a perdere In modo Freddo Controllo: PRESSIONE CONDENSAZ. </pre>	When inverter pump/Valve is on external circuit it is possible to choose the control HP by CONDENSATION PRESSURE CONTROL or controlling the OUTLET WATER TEMPERATURE. On first case pump speed P2 is adjusted to have the HP set point setted. In cooling while in heating will have fixed speed. On second case by water temp control, P2 speed will aduste in cooling mode while P1 will adjusts speed in heating to control the outlet water temp.
<pre> Termoreg. Pompa modulante lato a perdere In modo Caldo Volt fissi : 10.0 </pre>	In case inverter pump is on external circuiti s possible to set a fixed speed in heating fot the pump P2.

PUMPS NOT ON BOARD BUT AFTER WATER VALVES

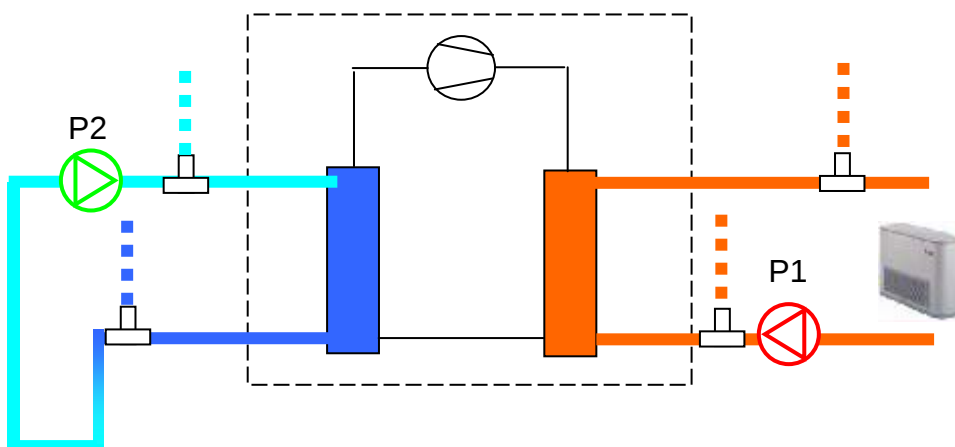
Cooling mode



P1: User pumps: ON-OFF or adjustable with fixed speed

P2: External pump adjustable to condensation control (HP) or water temperature control

Heating mode

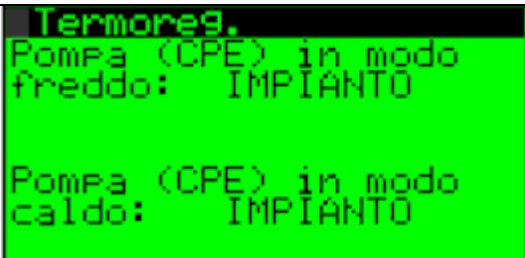
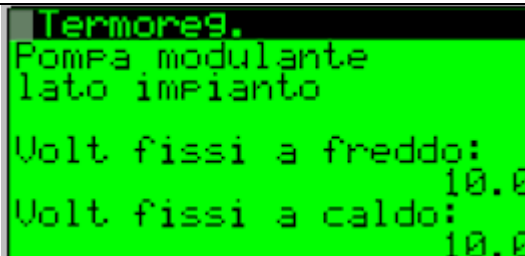
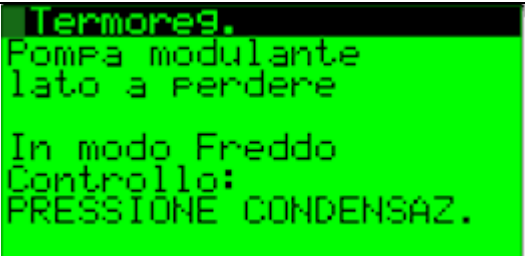
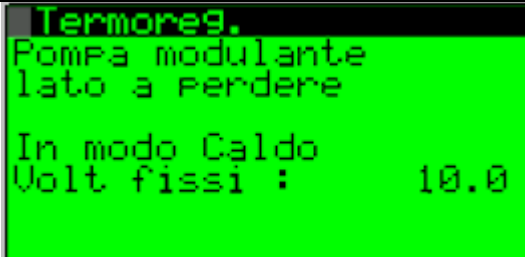


P1: : User pumps: ON-OFF or adjustable with fixed speed

P2: Variable speed pump on ecternal circuit to control water temp or with fixed speed

Parameters to adjust to control this kind of plant

See: **Errore. L'origine riferimento non è stata trovata.**

	P1: The evap pump in cooling is always on USER side. If in heating mode pump serves the user circuit it means that valve is before the pump so P1 supplies the evaporator in cooling and condenser in heating Viceversa P2 supplies condenser in cooling and evaporator in heating
	P1: Inverter pump on USER side. It is possible to set fixed speed on both functioning mode.
	When inverter pump is on external circuit it is possible to set the HP control by CONDENSATION PRESSURE or by OUTLET TEMPERATURE. By CONDENSATION PRESSURE P2 change speed to satisfy the HP setpoint while will work with fixed speed in heating. By OUTLET WATER TEMPERATURE CONTROL P2 speed is adjusted in cooling while P1 adjusts speed in heating to arrive at the temperature requested.
	In case inverter pump P2 is on external side it is possible to set fixed speed in heating mode

Regulation

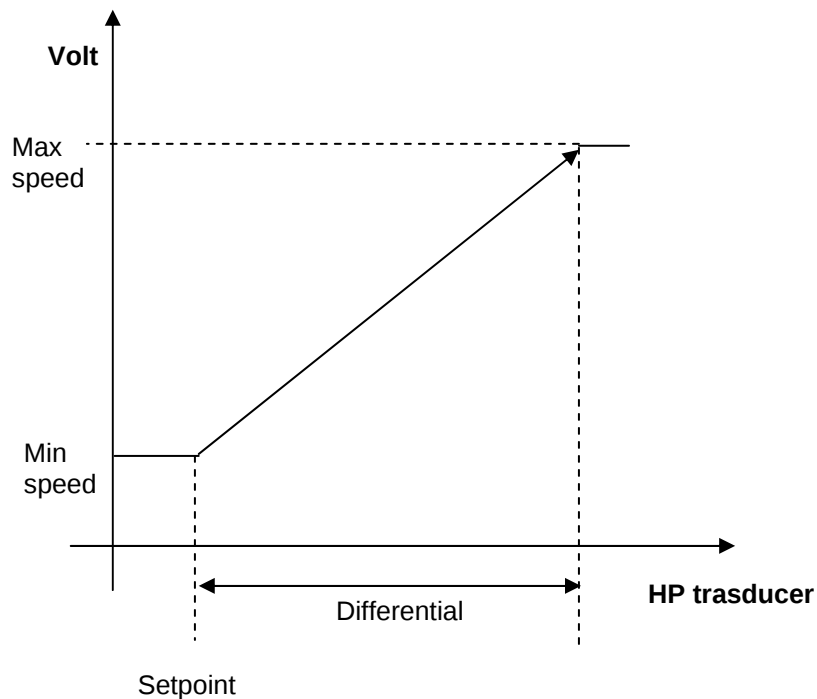
1.1 Double pump management

From 2.3 SW version it is possible to manage the pumps rotation by TIME SETTED or in case of ALARM (second pump will be immediately activated)

1.2 Condensation control

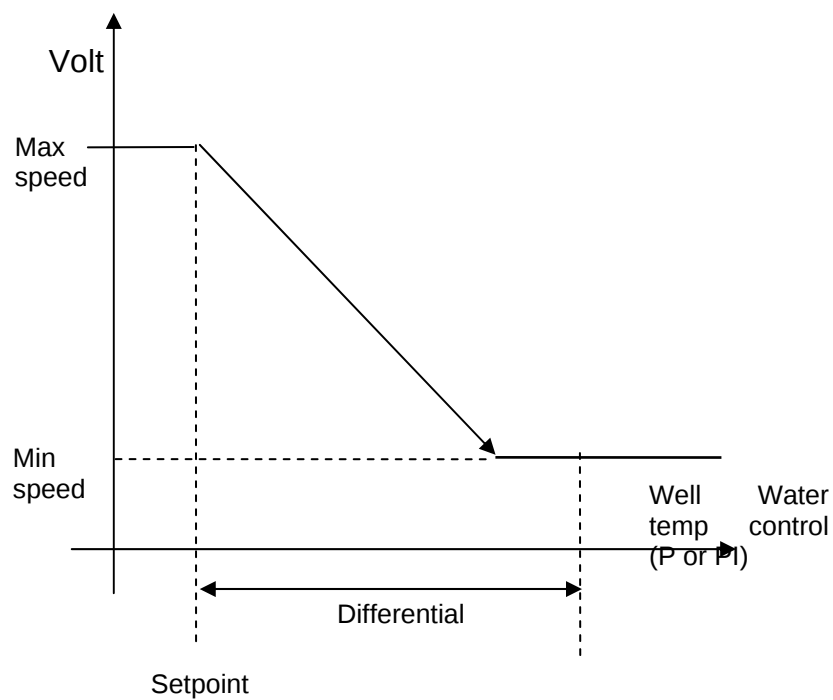
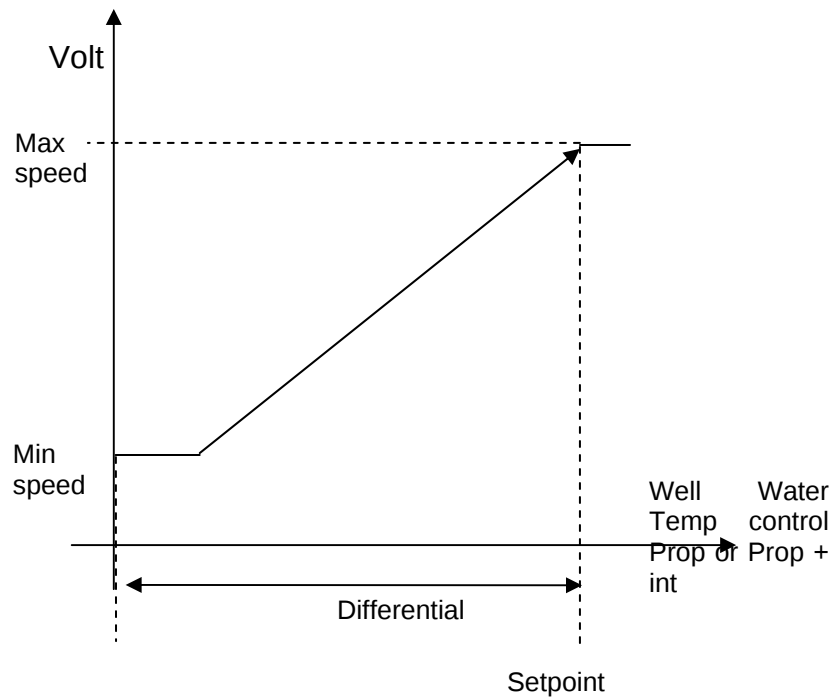
To control the HP pressure is used an analogue output 0-10V. It is necessary to set the HP setpoint and differential, the minimum and maximum speed. The regulation is PROPORTIONAL.

The regulation is done following the circuit with higher HP.



1.3 Temperature control

It is also possible control the pumps speed according to the OUTLET WATER TEMP (condenser side, well water, geothermic plant, Drycoolers). The regulation is PI setting the integral time or only PROP if integral time = 0.



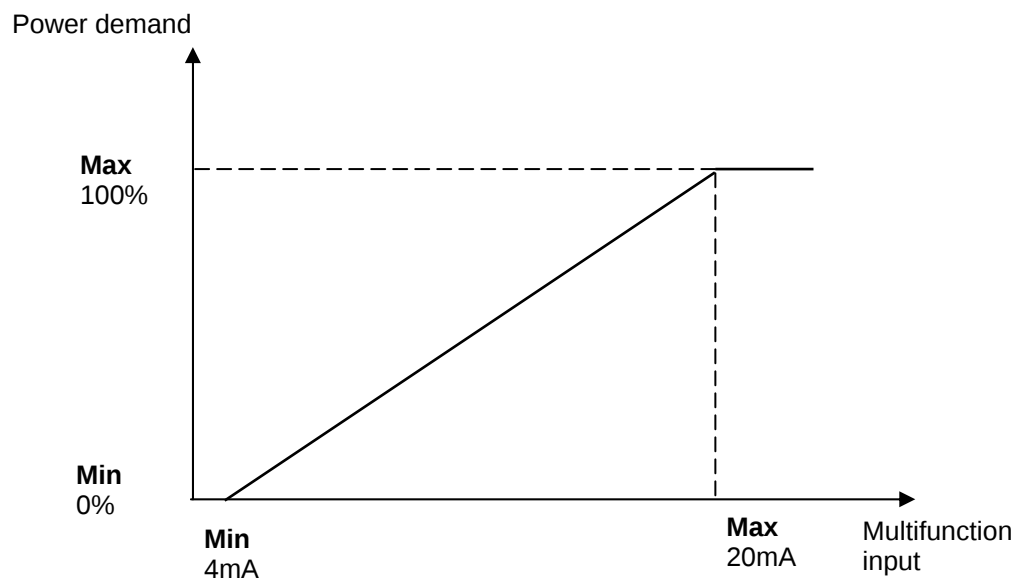
1.4 Multifunction contact

B8 is used like multifunction input

Enable this function on

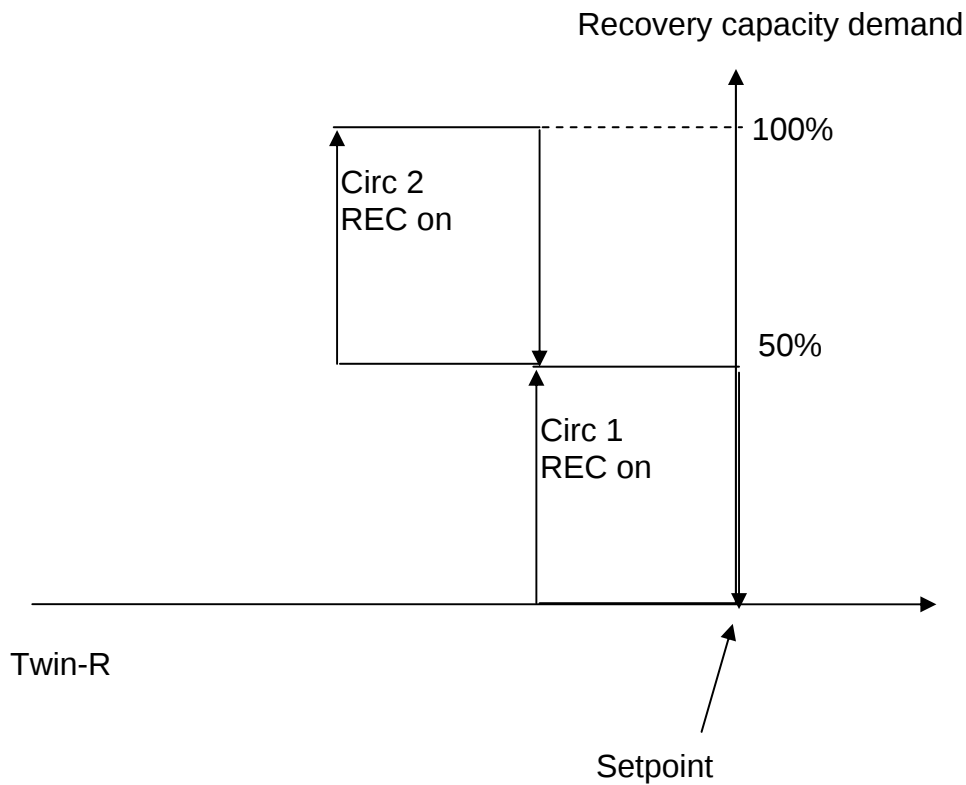
Selecting the type of input, then the max e min limits used.

Ex. 4-20mA to control POWER produced select POWER DEMAND type of input 4-20mA and the min limit at 4 mA and max limit at 20mA.



1.5 Total recovery

This type of unit has a third exchanger that can be used ONLY IN COOLING MODE. Recovery activation is done by 3 way valve (see Table 1 – IO pCO3 large). 2 water probes read the IN-OUT water temperatures. Control is done by SETPOINT and DIFF setted



1.6 Antifreeze management

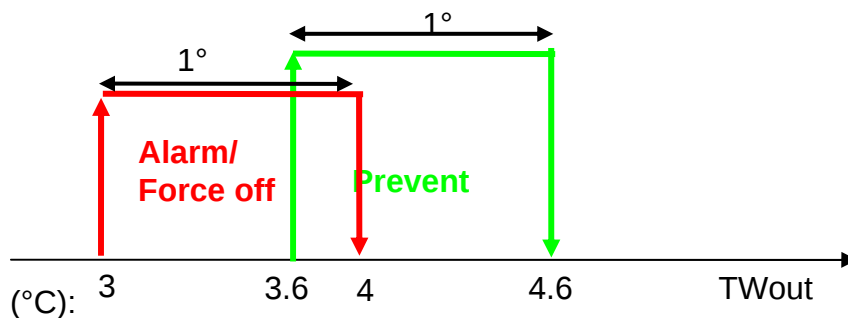
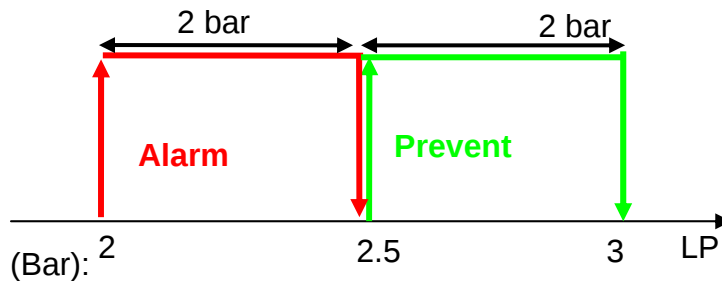
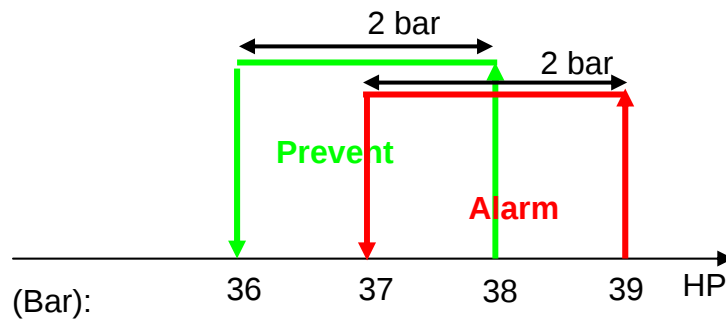
For UNIT Y version able to produce water up to -6°C parameters have to be adusted:

- A: MIN COOLING SET POINT LIMIT
- B: ANTIFREEZE ALARM
- C: ANTIFREEZE ELECTRIC HEATER SETPOINT
- D: ANTIFREEZE PREVENT SETPOINT

2 Alarms

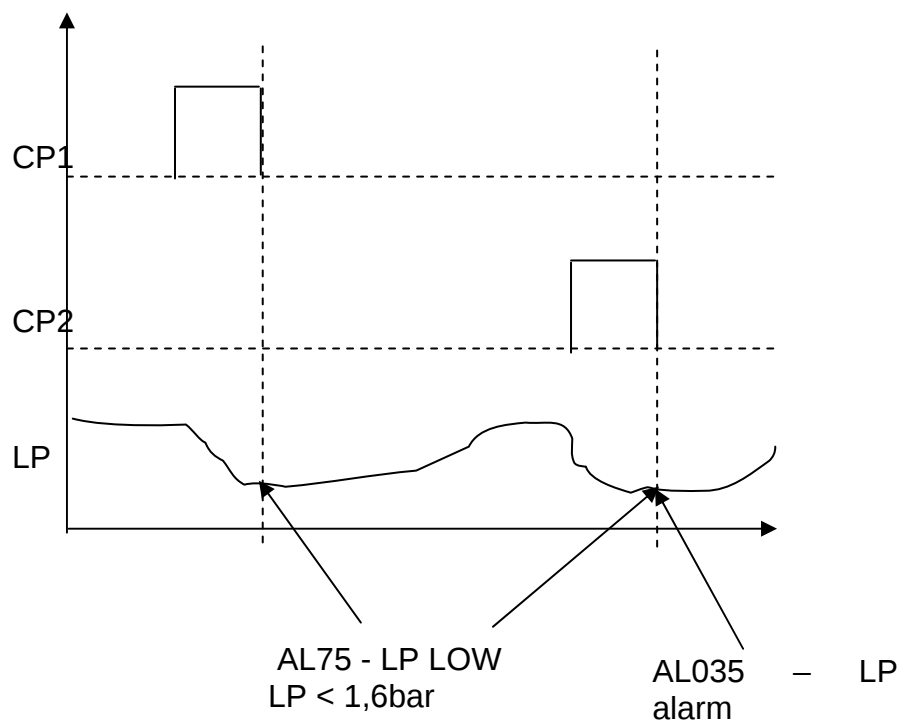
2.1 Alarms and prevent: High, Low pressure and Antifreeze

Prevent is a limit to force off compressor. If after 10 sec (fixed time not adjustable) we are under/over limit a compressor is force off. Procedure is repeated until to have only one compressor in operation. Prevent calls can be set by parameter but if this number is satisfy in a certain time (60 minutes not adjustable) unit will stay in operation until to reach alarm limit



2.2 Low pressure alarm LOW

The LP LOW alarm stop the compressors start when refrigerant pressure is too low (refrigerant circuits empty). Unit tries to start one by one the compressors before to go on alarm.



2.3 Alarms table

Codice Allarme	Descrizione
ALG01	Clock board broken or not connected
ALG02	Expansion memory damaged
ALR03	Grave Alarm by (ID8) Phase monitor
ALO04	Slave offline Check J10 and J11 if are connected
ALA05	HP1 trasducer broken or not connected
ALA06	HP2 trasducer broken or not connected
ALA07	HP3 trasducer broken or not connected (SLAVE)
ALA08	HP4 trasducer broken or not connected (SLAVE)
ALA09	LP1 trasducer broken or not connected
ALA10	LP2 trasducer broken or not connected
ALA11	LP3 trasducer broken or not connected (SLAVE)
ALA12	LP4 trasducer broken or not connected (SLAVE)
ALA13	Evap inlet water probe broken or not connected
ALA14	Cond inlet water probe broken or not connected
ALA15	Evap outlet water probe broken or not connected
ALA16	Evap outlet water probe 1 broken or not connected (DK version)
ALA17	Evap outlet water probe 2 broken or not connected (DK version)
ALA18	Evap outlet water probe 3 broken or not connected (DK version) (SLAVE)
ALA19	Evap outlet water probe 4 broken or not connected (DK version) (SLAVE)
ALA20	Cond outlet water probe broken or not connected
ALA21	Cond outlet water probe 2 broken or not connected
ALA22	Cond outlet water probe 3 broken or not connected (SLAVE)
ALA23	Cond outlet water probe 4 broken or not connected (SLAVE)
ALA24	Sonda temperatura acqua evaporatore rotta o non connessa
ALA25	Evap temperature probe broken or not connected
ALT26	Maintenance CP1 maintenance countdown is finished
ALT27	Maintenance FAN GROUP 1. maintenance countdown is finished
ALT28	Maintenance Condenser PUMP. maintenance countdown is finished
ALT29	Maintenance Evaporator PUMP. maintenance countdown is finished
ALC30	Thermal compressor 1
ALW31	Compressors circ 1 forced off by antifreeze limit
ALW32	End defrost for max time Circ.1:
ALW33	End pump-down for max time Circ.1:
ALB34	Low pressure alarm by pressure switch Circ.1:
ALB35	Low pressure alarm by trasducer Circ.1:
ALB36	High pressure alarm by pressure switch Circ.1:
ALB37	High pressure alarm by trasducer Circ.1:
ALP38	Warning Flow switch evaporat. P1
ALP39	Warning Flow switch evaporat. P2
ALP40	Flow switch evaporat. P1
ALP41	Flow switch evaporat. P2
ALP42	Thermal protection evap. Pump P1
ALP43	Thermal protection evap. Pump P2
ALP44	Warning Flow switch conden. P1

ALP45	Warning Flow switch conden. P2
ALP46	Flow switch conden. P1
ALP47	Flow switch conden. P2
ALB48	Antifreeze Circ.1:
ALB49	Antifreeze Circuit 1 e 2 or Circuit 3 e 4:
ALU50	Unit Antifreeze alarm
ALB51	Warning circ.1 HP / LP / Antifreeze
ALB52	Warning circ.2 HP / LP / Antifreeze
ALB53	Warning circ.3 HP / LP / Antifreeze (SLAVE)
ALB54	Warning circ.4 HP / LP / Antifreeze (SLAVE)
ALB55	Warning Antifreeze Circuit 1 e 2 or Circuit 3 e 4:
ALU56	Warning unit Antifreeze
AL63	Therm. Protection Condenser pump1
AL64	Therm. Protection Condenser pump2
AL65	Therm. Protection VENT1
AL66	Therm. Protection VENT2
AL67	Flow switch evaporat. P1 Slave
AL68	Flow switch evaporat. P2 Slave
AL69	Warning Flow switch evaporat. P1 Slave
AL70	Warning Flow switch evaporat. P2 Slave
AL71	Flow switch conden. P1 Slave
AL72	Flow switch conden. P2 Slave
AL73	Warning Flow switch conden. P1 Slave
AL74	Warning Flow switch conden. P2 Slave
AL75	LP Low Circuit 1
AL76	LP Low Circuit 2
AL77	LP Low Circuit 3 (SLAVE)
AL78	LP Low Circuit 4 (SLAVE)
AL79	Thermal protection evap. P1 (SLAVE)
AL80	Thermal protection evap. P2 (SLAVE)
AL81	Evap outlet water probe broken or not connected (slave)
AL82	Evap common outlet water probe broken or not connected (slave)
AL83	Cond. common outlet water probe broken or not connected (slave)
AL84	Therm. Protection Condenser pump1 (slave)
AL85	Therm. Protection Condenser pump2 (slave)
AL86	Evap inlet water probe broken or not connected (slave)
AL87	Cond. inlet water probe broken or not connected (slave)
AL88	Cond. outlet water probe broken or not connected (slave)
AL89	pCOe: pCOe offline
AL90	pCOe: Analogic inlet probe Ch. 1 broken or not connected
AL91	pCOe: Analogic inlet probe Ch. 2 broken or not connected
AL92	pCOe: Analogic inlet probe Ch. 3 broken or not connected
AL93	pCOe: Analogic inlet probe Ch. 4 broken or not connected
AL94	pCOe: I/O alarm mismatch (no confirm of for 10s)
AL95	pCOe Slave: offline
AL96	pCOe Slave: Analogic inlet probe Ch. 1 broken or not connected
AL97	pCOe Slave: Analogic inlet probe Ch. 2 broken or not connected

AL98	pCOe Slave: Analogic inlet probe Ch. 3 broken or not connected
AL99	pCOe Slave: Analogic inlet probe Ch. 4 broken or not connected
AL100	pCOe Slave: I/O alarm mismatch (no confirm of pattern for 10s)
AL101	pCOe number 2: Offline (exp probes DK version)
AL102	pCOe number 2: Analogic inlet probe Ch. 1 broken or not connected (exp probes DK version)
AL103	pCOe number 2: Analogic inlet probe Ch. 1 broken or not connected (exp probes DK version)
AL104	pCOe number 2: Analogic inlet probe Ch. 1 broken or not connected (exp probes DK version)
AL105	pCOe number 2: Analogic inlet probe Ch. 1 broken or not connected (exp probes DK version)
AL106	pCOe number 2: : I/O alarm mismatch (no confirm of for 10s) (exp probes DK version)

START UP

Before starting the chiller, the **external hydraulic system** going to the unit and the pipe connections should be checked; remove any contaminating matter and make sure that the water pipes are properly supported.

If the unit does not feature a hydronic kit, the following **must be installed** to prevent the warranty from becoming null and void: FLOW SWITCH and MECHANICAL FILTER; the mesh hole diameter must be ≤ 1 mm

A flow switch and a kit are installed on the machine in the models that feature a hydronic kit, but the following should be installed on the external hydraulic circuit:

- Pressure gauges
- Antivibration couplings
- Stop valves
- Safety valve

After checking the appropriateness of the hydraulic system, fill the system (1-2 bar) and check the air bleeds.

If necessary, due to the working temperature, a suitable quantity of glycol will be added; the glycol must not be released in the surrounding environment when maintenance activities are carried out.

The **electrical wiring requirements** must be met.

Voltage should not vary by $\pm 10\%$ compared to the rated value and the unbalance between the phases should not exceed 3%.

The following is compulsory:

- Use double-insulation cables in accordance with the standards in force
- Install a magnetothermal switch
- Proper cable grounding
- Make sure that the power conductor terminals are tight (after 30 days and every 6 months)

Recommended cable section for a max. cable length of 50 metres

ELECTRICAL DATA VERSION * WITHOUT PUMPING GROUP (ALL VERSIONS)

Model	MAX. RECOMMENDED LENGTH (metres)	SECT. A (400V-3)	SECT. B	EARTH (400V-3)	IL (400V-3)
		U.M.	U.M.	U.M.	U.M.
		mm ²	mm ²	mm ²	A
NOXW 0500	50	16	1.5	16	80
NOXW 0550		16		16	100
NOXW 0600		25		16	100
NOXW 0650		25		16	125
NOXW 0700		35		16	160
NOXW 0750		50		25	160
NOXW 0800		70		35	200
NOXW 0900		70		35	200
NOXW 1000		70		35	250
NOXW 1250		95		50	250
NOXW 1400		95		50	250

ELECTRICAL DATA VERSION WITH PUMPING GROUP (ALL VERSIONS)

Model	MAX. RECOMMENDED LENGTH	SECT. A (400V-3)	SECT. B	EARTH (400V-3)	IL (400V-3)
		U.M.	U.M.	U.M.	U.M.
		MT	mm ²	mm ²	A
NOXW 0500	50	16	1.5	16	100
NOXW 0550		25		16	100
NOXW 0600		25		16	125
NOXW 0650		35		16	125
NOXW 0700		50		25	160
NOXW 0750		50		25	160
NOXW 0800		70		35	200
NOXW 0900		70		35	200
NOXW 1000		95		50	250
NOXW 1250		95		50	250
NOXW 1400		95		50	250

KEY

Sec. A: Power supply

Sec. B: Controls and safety connection

Earth

IL: Main switch

Start-up data table

Unit:.....

Serial No.....

Accessories installed.....

NOTES:

.....

1.2 DESCRIPTION	ENERA L	CIRC. 1	CIRC. 2	NOTES
1. Preliminary procedures				
1.1. Cables section				
1.2. Earthing:				
1.3. Cable fastening:				
1.4. Rated volt value:				
1.5. Voltage downstream of the main switch:				
1.6. Display activation:				
1.7. External connections:				
1.8. Compressor guarding resistances				
2. Hydraulic circuit				
2.1. Hydraulic connections:				
2.2. Water filter				

2.3. Hydraulic circuit:				
2.4. Valves:				
2.5. Pumps:				
2.6. Water flow rate:				
2.7. Flow switch:				
2.8. Cleaning:				
2.9. Glycol:				
3. Start UP				
3.1. Unit start-up:				
3.2. Set Points:				
3.3. Phase rotation:				
3.4. Rated current (as per catalogue):				
3.5. Rated Freon load				
3.6. High pressure				
3.7. Low pressure				
3.8. Solenoid water temperature				
3.9. CN water temperature				
3.10. Current absorbed by compressors				
3.11. Current absorbed by pumps				
3.12. Leaks:				
3.13. Oil level:				
3.14. Overheating:				
3.15. Undercooling				

3.16. Pressing temperature:				
4. SAFETY DEVICES				
4.1. General:				
4.2. HIGH PRESSURE:				
4.3. LOW PRESSURE				
4.4. ANTIFREEZE				
4.5. CP THERMAL SWITCH				
4.6. PUMP THERMAL SWITCH				

MAINTENANCE:

Scheduled maintenance is essential to preserve the efficiency of the unit.
The following is recommended:

HYDRAULIC CIRCUIT:

- Fill and drain the hydraulic system
- Clean the water filter
- Check the flow switch
- Check the water flow rate
- Check the pipe insulation
- Check glycol

ELECTRICAL SYSTEM:

- Efficiency of safety devices
- Check the power supply
- Electrical absorption
- Make sure that the terminals are tight
- Check the compressor oil resistance

CHILLING SYSTEM:

- Compressor conditions
- Check the antifreeze resistance
- Working pressure
- Test the leak detector
- Check the safety devices

MECHANICAL CHECKS:

- Make sure that the screws are tight
- Check for noise or vibration
- Check the overall structure

TABLES R410A

<i>Pressione (barA)</i>	<i><u>Pressione (barR)</u></i>	<i>Temp. p.to rug. (°C)</i> Dew point	<i>Temp. p.to bolla (°C)</i> Bubble point
1	0	-37,1	-44,26
1,5	0,5	-28,45	-35,45
2	1	-21,83	-28,71
2,5	1,5	-16,4	-23,17
3	2	-11,75	-18,43
3,5	2,5	-7,66	-14,27
4	3	-4	-10,54
4,5	3,5	-0,68	-7,15
5	4	2,37	-4,03
5,5	4,5	5,19	-1,14
6	5	7,82	1,55
6,5	5,5	10,29	4,08
7	6	12,62	6,47
7,5	6,5	14,82	8,73
8	7	16,92	10,87
8,5	7,5	18,91	12,93
9	8	20,82	14,89
9,5	8,5	22,65	16,77
10	9	24,4	18,58
10,5	9,5	26,09	20,32
11	10	27,72	22
11,5	10,5	29,29	23,62
12	11	30,81	25,19
12,5	11,5	32,28	26,72
13	12	33,71	28,19
13,5	12,5	35,1	29,63
14	13	36,44	31,03
14,5	13,5	37,75	32,39
15	14	39,03	33,71
15,5	14,5	40,27	35,01
16	15	41,48	36,27
16,5	15,5	42,67	37,5
17	16	43,82	38,71
17,5	16,5	44,95	39,89
18	17	46,05	41,04
18,5	17,5	47,13	42,18
19	18	48,19	43,28
19,5	18,5	49,23	44,37
20	19	50,24	45,44
20,5	19,5	51,24	46,49
21	20	52,21	47,52
21,5	20,5	53,17	48,53
22	21	54,11	49,52
22,5	21,5	55,03	50,5
23	22	55,94	51,46
23,5	22,5	56,83	52,4
24	23	57,71	53,34

Table of ohmmic values about NTC probes
 $T^{\circ} = 25^{\circ}\text{C}$ probe value = 10 Kohm $\pm 1\%$

$^{\circ}\text{C}$	Sonda	$^{\circ}\text{C}$	Sonda	$^{\circ}\text{C}$	Sonda	$^{\circ}\text{C}$	Sonda
-50	359408,6	-9	40559,96	23	10769,75	64	2670,285
-49	335625,1	-8	38773,06	24	10371,01	65	2589,295
-48	313872,7	-7	37073,87	25	9989,155	66	2511,055
-47	293933,8	-6	35457,69	26	9623,39	67	2435,46
-46	275617,7	-5	33920,08	27	9272,961	68	2362,405
-45	258757	-4	32456,89	28	8937,149	69	2291,794
-44	243204,9	-3	31064,18	29	8615,271	70	2223,534
-43	228831,7	-2	29738,25	30	8306,681	71	2157,534
-42	215523,6	-1	28475,62	31	8010,764	72	2093,709
-41	203179,5	0	27273	32	7726,935	73	2031,977
-40	191710,4	0,1	27155,92	33	7454,64	74	1972,26
-39	181037	0,2	27039,4	34	7193,35	75	1914,482
-38	171089,1	0,3	26923,45	35	6942,564	76	1858,573
-37	161804,1	0,4	26808,05	36	6701,807	77	1804,463
-36	153126	0,5	26693,22	37	6470,625	78	1752,086
-35	145004,8	0,6	26578,93	38	6248,588	79	1701,379
-34	137395,7	0,7	26465,2	39	6035,286	80	1652,282
-33	130258,5	0,8	26352,02	40	5830,33	81	1604,736
-32	123556,8	0,9	26239,38	41	5633,349	82	1558,686
-31	117257,9	1	26127,28	42	5443,991	83	1514,08
-30	111332,2	2	25035,54	43	5261,921	84	1470,864
-29	105752,7	3	23995	44	5086,819	85	1428,992
-28	100495,1	4	23003,05	45	4918,383	86	1388,414
-27	95537	5	22057,22	46	4756,323	87	1349,088
-26	90858,18	6	21155,17	47	4600,363	88	1310,968
-25	86440	7	20294,69	48	4450,242	89	1274,013
-24	82265,39	8	19473,69	49	4305,709	90	1238,184
-23	78318,7	9	18690,2	50	4166,528	91	1203,441
-22	74585,47	10	17942,33	51	4032,472	92	1169,748
-21	71052,41	11	17228,32	52	3903,324	93	1137,07
-20	67707,2	12	16546,48	53	3778,88	94	1105,372
-19	64538,47	13	15895,24	54	3658,942	95	1074,622
-18	61535,65	14	15273,08	55	3543,325	96	1044,788
-17	58688,94	15	14678,57	56	3431,849	97	1015,839
-16	55989,22	16	14110,37	57	3324,344	98	987,7472
-15	53428	17	13567,19	58	3220,649	99	960,4835
-14	50997,34	18	13047,81	59	3120,609	100	934,0211
-13	48689,87	19	12551,09	60	3024,076		
-12	46498,66	20	12075,94	61	2930,908		
-11	44417,25	21	11621,31	62	2840,972		
-10	42439,58	22	11186,23	63	2754,139		

Length 3 meters spare part code **9106849**
 Length 6 meters spare part code **9106994**
 Length 12 meters spare part code **9107494**
 Length 16 meters spare part code **9112238**

PCO Log management

On software AerChiller (since version 1.8) actually on NXW series there is a new data logging function to help diagnostic during failure analysis.

It is a pCO3 internal memory that recorder factory datas selected.

Memory it isn't so big so actually all probes and digital I/O are recorderd every 2 seconds and using this setting 7 working hours datas can be saved.

Next working hours will be re-write (circular logic). From SW version 2.1 data recording write is stopped when an alarm occurred to restart after alarm manual reset.

There is a stop data writing option in order to have working parameters datas before an alarm. This is done to help the recovery-data and to have complete information about faults.

Log Enable

After an alarm except one of the list above it is necessary to enable the log for next logging

How to re-set the log:

1. ATTENTION : Unit must be in standby , VERY DANGEROUS because software can be damaged losing safeties control.
2. No ALARMS ACTIVATED because the log would be immediately blocked by the actual alarm not resetted.
3. Press AL + "Enter" up to see following mask

➤ SYSTEM INFORMATION
LOG DATA
OTHER INFORMATION

4. By "DOWN" select *LOG DATA*

SYSTEM INFORMATION
➤ LOG DATA
OTHER INFORMATION

5. Press "ENTER"

1 DISPLAY LOG DATA
Wich memory

INTERNAL MEMORY

6. Press "ENTER"

5
Log status : DISABLED

UP or DOWN: change

7. Press "DOWN" or "UP" to ENABLE the log. Now log is activated and it starts to recorder up to next alarm.

From version 2.1 this procedure is by-passed because the reset is done AUTOMACTELY

2 Download of ALARM MEMORY by SmartKey

Procedure:

1. Powered OFF the pCO
2. Connect the SmartKey removing display connection
3. Powered IN the pCO
4. Wait to see on the SmartKey the "paper" symbol
5. Press "Start" to start datas download
6. When download is finished a "bip" comes out
7. Powered OFF the pCO and reconnect the display
8. Datas are now on SmartKey and by pc can be analyzed.

3 Download ALARM MEMORY from SmartKey to PC

Tools:

- Carel SmartKey



- Carel SmartKey USB Adapter



- Software SmartKey Programmer

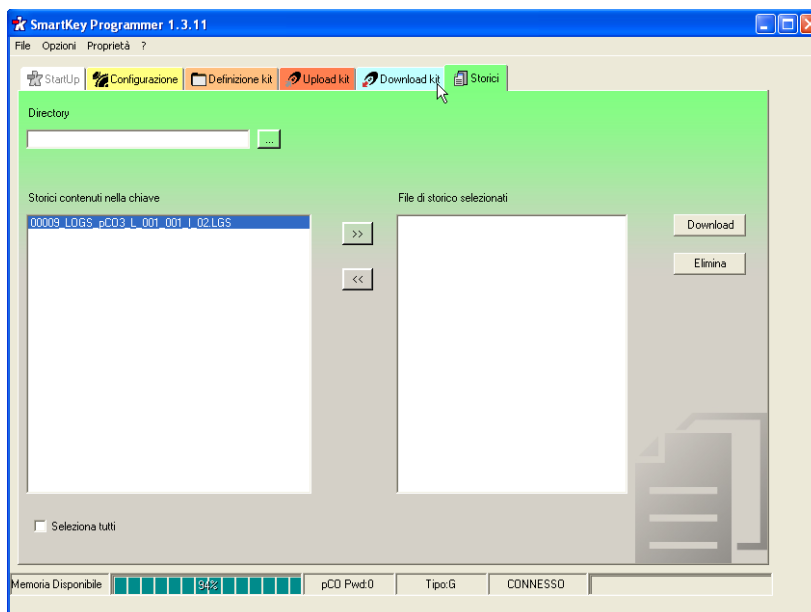


Procedure:

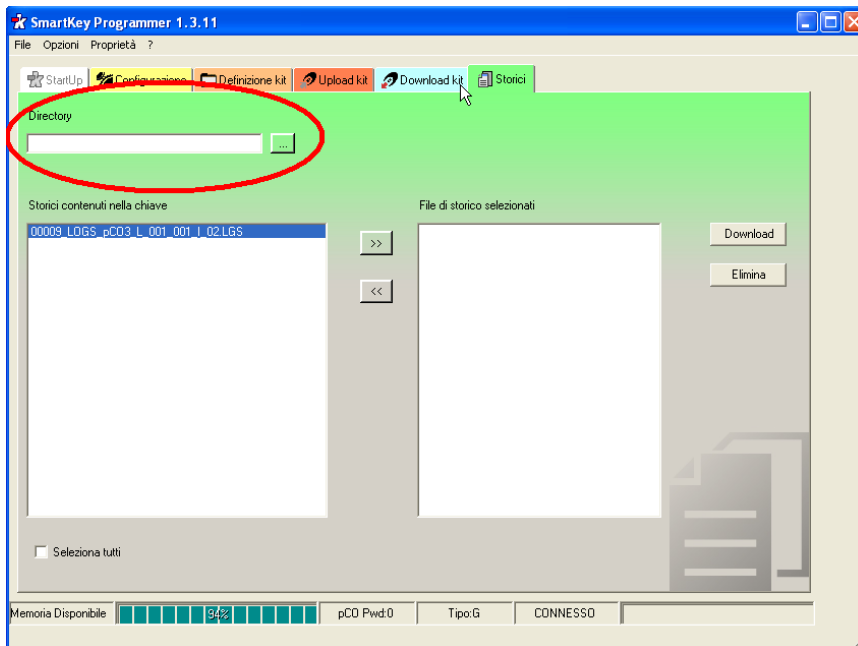
1. Connect the SmartKey to the SmartKey USB Converter (cod. Carel PCOS00AKC0)
2. Start software SmartKey Programmer and next window appears



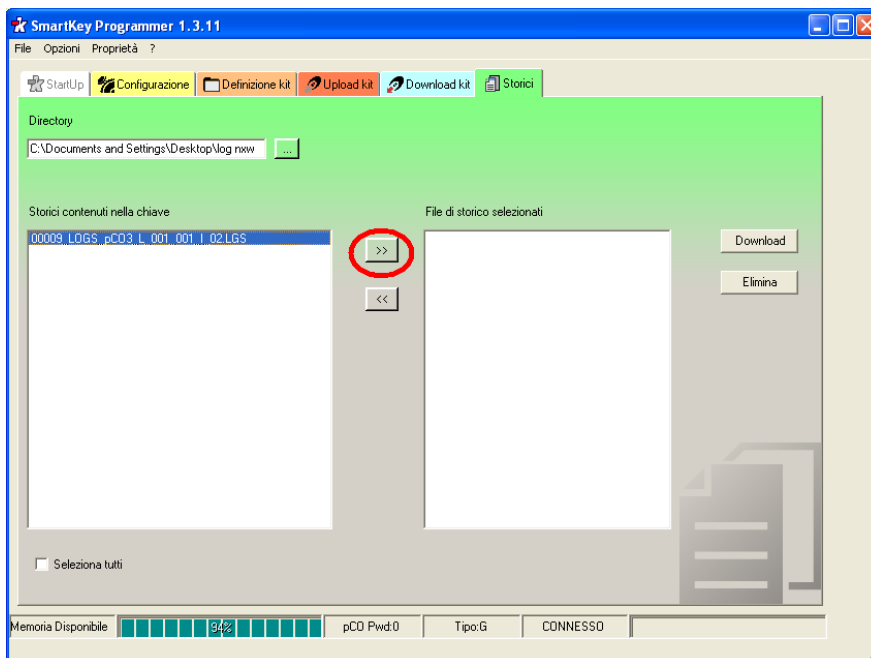
3. Press "GO"
4. Enter on area "Memory alarm". And next windows appears

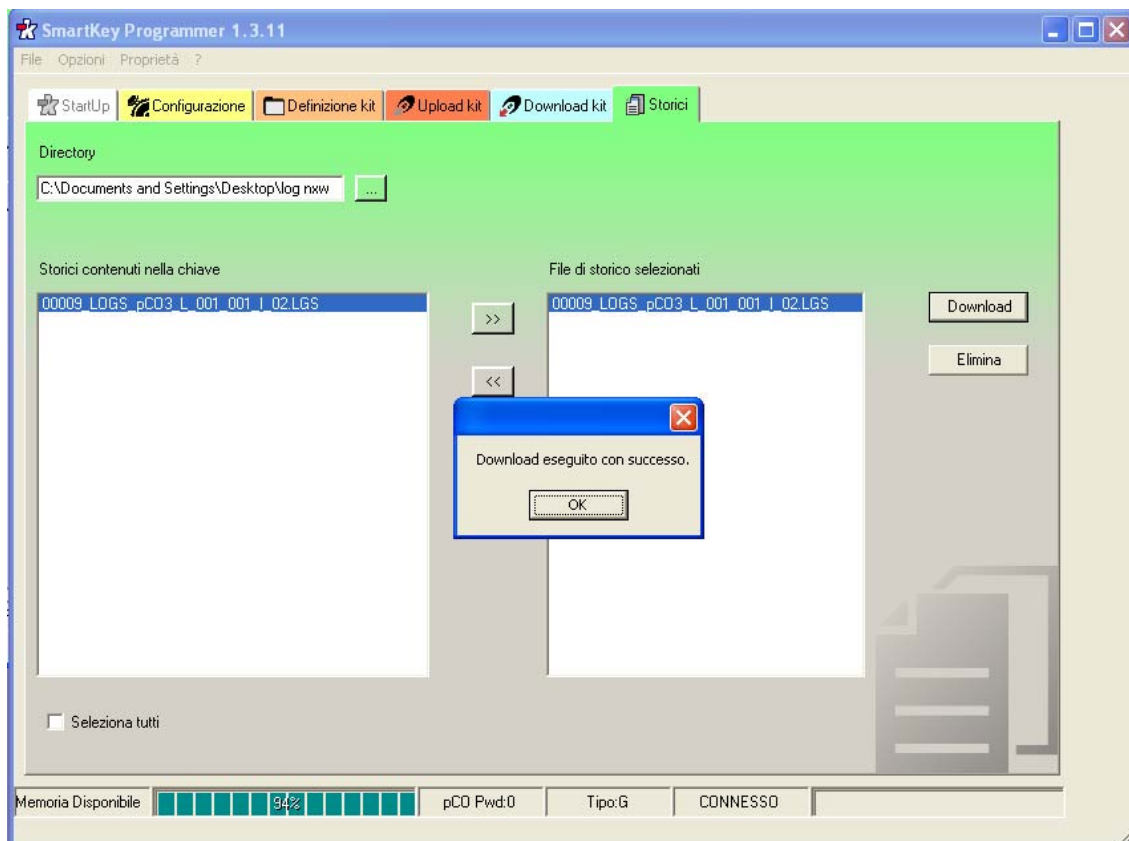
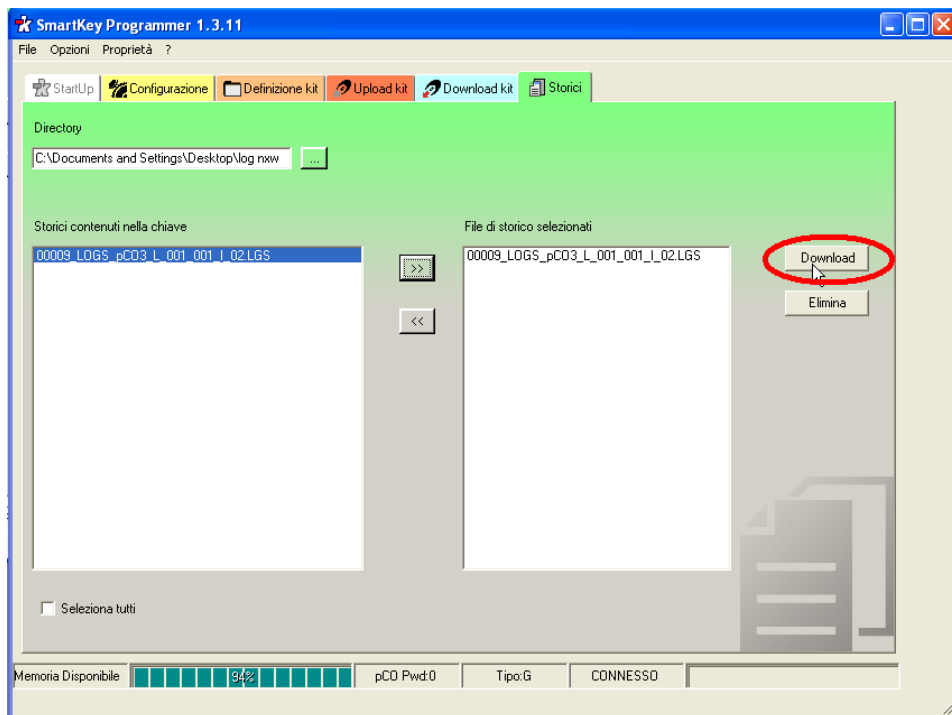


5. Select directory where to save files on red circle showed below



6. Select on left list the log data that must saved in the PC by red indicator showed below and check that datas moved on right list.





OK

Now by Excel datas can be analyzed. Importing datas present on "BlackBoxEvent_GRAPH.csv" graphics can be created.

Datas follows Comma separated Value. On Excel to use "Data->Imported external data" and select file "BlackBoxEvent_GRAPH.csv" on directory before selected at point 5.

Select options showed below.

Importazione guidata testo - Passaggio 1 di 3

Creazione guidata Testo ha riscontrato che i dati sono a larghezza fissa.
Scegliere Avanti o il tipo dati che meglio si adatta ai dati.

Tipo dati originali
Scegliere il tipo di file che meglio si adatta ai dati:

☒ Delimitati - Con campi separati da caratteri quali virgole o tabulazioni.
☐ Larghezza fissa - Con campi allineati in colonne e separati da spazi.

Inizia ad importare alla riga: Origine file:

Anteprima del file C:\Documents and Settings\FortinF\Desktop\log NXW\BlackBoxEvent_GRAPH.csv.

6	EVENT,EVENT FINAL VALUE,EVENT INITIAL VALUE,TIME,B01 ,B03 ,B02 ,B04
7	Event Write Log ,0,1,2011/06/01 20:01:23,241,31,73,146,174,254,69,00
8	Event Write Log ,1,0,2011/06/01 20:01:22,241,34,73,145,174,254,69,00
9	Event Write Log ,0,1,2011/06/01 20:01:20,241,70,73,145,174,254,69,00
10	Event Write Log ,1,0,2011/06/01 20:01:18,241,74,73,145,174,254,69,00

Importazione guidata testo - Passaggio 2 di 3

In questa finestra di dialogo è possibile impostare i delimitatori contenuti nei dati.
L'anteprima mostra come si presenta il testo.

Delimitatori

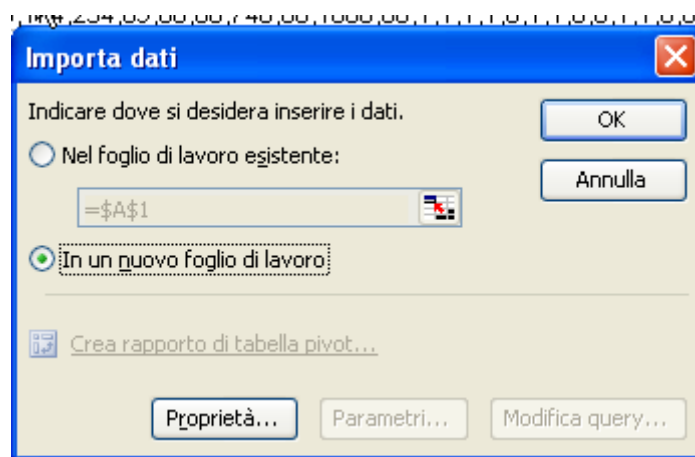
☒ Tabulazione ☐ Punto e virgola ☒ Virgola
☐ Spazio ☐ Altro:

☐ Considera delimitatori consecutivi come uno solo

Qualificatore di testo:

Anteprima dati

EVENT	EVENT FINAL VALUE	EVENT INITIAL VALUE	TIME
Event Write Log	0	1	2011/06/01 20:01:
Event Write Log	1	0	2011/06/01 20:01:
Event Write Log	0	1	2011/06/01 20:01:
Event Write Log	1	0	2011/06/01 20:01:



Select interested datas and make a graph by (XY).

