Comfort Flex®
Air Conditioning
a member of DAIKIN group

Control Manual

CM

Group: Chiller
Part Number: CM CLIC
Date: 2 August 2023

CLIC Series
Air-Cooled Scroll Compressor Chiller
Water Generator Unit

Model

25 to 250 TR

Refrigerant HFC-410A

50/60 Hz

Table of Contents

Manufactured in an ISO 9001 certified facility

Safety Warnings

This manual provides information on the control data of the Comfort Flex CLIC series.

NOTES: Installation and maintenance must be performed only by qualified personnel who are familiar with local codes and regulations and who have experience with this type of equipment.

⚠ DANGER ⚠

LOCK OUT/LABEL all power sources before starting, pressurizing, depressurizing or shutting down the chiller.

Disconnect electrical power before servicing equipment. More than one disconnection may be required to de-energize the unit. Failure to follow this warning to the letter can result in serious injury or death. Be sure to read and understand the installation, operating and service instructions in this manual.

⚠ WARNING ⚠

Electric shock danger. Improper handling of this equipment can cause personal injury or equipment damage. This equipment must be properly grounded. Control panel connections and maintenance should be performed only by personnel knowledgeable in the operation of the equipment being controlled. Disconnect electrical power before servicing equipment.

⚠ CAUTION ⚠

Static sensitive components. Static discharge during handling of the electronic circuit board can cause damage to components. Use a static strap before performing any service work. Never unplug any cables, circuit board terminal blocks, or power plugs while power is applied to the panel.

⚠ CAUTION ⚠

When moving refrigerant to/from the cooler using an auxiliary tank, a grounding strap should be used. An electrical charge builds up when halo-carbon refrigerant travels in a rubber hose. A grounding strap should be used between the auxiliary refrigerant tank and the cooler end sheet (ground to ground), which will safely carry the charge to ground. Failure to follow this procedure may result in damage to sensitive electronic components.

⚠ WARNING ⚠

If refrigerant leaks from the unit, there is a potential choking danger as the refrigerant will displace air in the immediate area. Be sure to follow all applicable published industry-related standards and local, state, and federal statutes, regulations, and codes if refrigerant is produced. Avoid exposing refrigerant to an open flame or other ignition source.

⚠ WARNING ⚠

Polyolester oil, commonly referred to as POE oil, is a synthetic oil used in many refrigeration systems and may be present in this Comfort Flex product. POE oil, if it ever comes in contact with PCV/CPVC, will coat the inside wall of the PVC/CPVC pipe and cause environmental stress fractures. Although there is no PCV/CPCV pipe in this product, keep this in mind when selecting piping materials for your application, as system failure and property damage could occur. Consult the pipe manufacturer's recommendations to determine appropriate pipe applications.

DANGER IDENTIFICATION INFORMATION

⚠ DANGER ⚠

Danger indicates a dangerous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING ⚠

Warning indicates a potentially dangerous situation which may result in property damage, personal injury or death if not avoided

⚠ CAUTION ⚠

Caution indicates a potentially dangerous situation which may result in minor injury or equipment damage if not avoided.

Notes: Indicate important details or clarifying statements for the information presented.

Our units are built with design and control in mind, so we use specialized technical control software. Some of our special features are our own piping and wiring, Scroll type compressors, new generation evaporators, air cooler condensers, optional hydraulic components and various safety protections.

Our units are environmentally friendly and operate with R-410A refrigerant.

NOMENCLATURE

CLIC-300-VL-C-1-A-N-D-F-M-M-N-N-0-2-S-N-D-N-4-C-0

FAMILY

CAPACITY (BTU)
300 - 300,000

AIR DISCHARGE
VL - Vertical Large

OPERATION
C - Cooling Only
H - Heat Pump

UNITS
1 - Stand alone
2 - 2 units
3 - 3 units
4 - 4 units
5 - 5 units
6 - 6 units
7 - 7 units
8 - 8 units
9 - units
10 - 10 units

CONDENSER FAN
A - Axial Fixed

ANTICORROSION
C - Coat in Condenser
I - Coat in Components
M - Total Coating
N - None

VOLTAGE
C - 208-230 / 3 / 60
D - 460 / 3 / 60

COMPRESSOR
F - Fixed
V - Inverter
T - Tandem

CONDENSER
M - Microchannel
C - Cu-Al

EXTRA
0 - TBD

CONTROL
P - Parametric
(Only standalone)
C - pCO / pGD

REFRIGERANT
4 - R410-A

SINGLE SKID
O - With base
N - N/A

PACKAGING
D - Domestic
I - Internacional

HIDRAULIC CONNECTION
N - Not included
Y - Yes included

ELECTRICAL CONNECTION
M - Multipoint
S - Single Point

PIPE
6 - 6”

GRILLS
1 - Painted Grill
0 - N/A

FREE COOLING
N - No

HEAT RECOVERY
N - N/A
R - Heat recovery

PROTOCOL
M - Modbus
B - BACnet IP

Features / Benefits

EFFICIENCY

Our units are designed to meet the needs of any project.
Our intelligent process controllers and smart temperature sensors provide maximum performance and energy savings.

The system automatically modifies the operating mode to maintain optimum system conditions, making it very easy to operate.

All temperature sensors are calibrated and adjusted at the factory prior to shipment. Start-up should be performed by a qualified technician, during initial start-up the unit will be adjusted to local conditions and all operating points will be checked.

Once the unit has been placed in place, operation is a matter of pressing the start/stop button until it is certain that the unit is operating properly, after which the unit will operate automatically, turning itself on according to the demand of the refrigeration system and local conditions.

FLEXIBILITY

The units feature intelligent processors and sensors that automatically control the temperature at optimum operating conditions.

The units were designed to be coupled with each other and combined to meet different load variations (Tandem Installation). Up to 10 modules can be combined; these combinations can be made with Water Chiller Units of different capacities ranging from 25 to 250 tons. Capacities vary depending on the number and type of units

SAFETY

All frames are manufactured from galvanized sheet steel, coated with electrostatic baked-on paint to ensure long durability and freedom from corrosion under all weather conditions, such as direct sunlight, rain and wind.

All units are designed to fit into a small installation space, thus eliminating large installation areas. We use only high quality components to ensure durability and safety even in harsh environmental conditions.

NOTE: For applications in tropical climates, our units are coated inside and out with corrosion protection (over-ordering).

Our products have AHRI efficiency certifications and ETL safety certifications, in addition to meeting all industry safety standards.
We are members of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). To show our commitment to our customers and stakeholders; our equipment comes with a 1 year major warranty after start-up.

Our units use R410A refrigerant, which is harmless to the ozone layer and is non-toxic and non-flammable, even in case of leakage.

Finally, the efficiency of the heat exchanger and its modular design allow for quick and easy installation.

DESIGN

Research conducted by the Engineering Department has resulted in units with high design efficiency and optimum performance. The selection of the main components, our quality and control system guarantee high performance and safety.

All major components are rigorously tested and qualified before installation. Each designed unit has undergone long hours of rigorous testing to ensure the safety, durability and quality of the entire system.

COMMUNICATION

The units can be controlled in tandem mode and/or can be connected to a central control unit. Operation and user access will be through a 7” color touch screen.

Our units can be managed through different communication protocols; such as Modbus and BACnet, the most commonly used protocols in the Air Conditioning industry.

Our units keep track of all programmable variables in real time, such as performance monitoring, refrigeration cycle specific alarms and electrical system.

The control and monitoring system ensures the correct operation of the unit by monitoring in real time the condition of the major components (high or low refrigerant pressure, compressor and fan motor conditions, etc.).

In case of failure, the event will be recorded for later analysis, facilitating the localization of a possible failure and its solution.

INSTALLATION

The units have been designed for easy installation. Screw connections provide easy installation of the water piping, which are located on both sides of the unit, so that the piping can be connected to either side of the unit.

The individual assembly of the units reduces installation cost, the units have a rigid base that balances the weight of the unit and allows for easy installation.

MAINTENANCE

The simplicity in the design of each unit allows for maximum ease of maintenance. All major components are available to maintenance personnel by simply opening the service panel.

If an emergency shutdown occurs, the control section will indicate in detail the cause of the failure, helping to facilitate and accelerate troubleshooting.

TESTING

Each unit is pressure and vacuum tested and then charged with the refrigerant required for proper operation based on the customer's installation conditions.

The units are evaluated at full load operation with water flow, heat load and line voltage placed at actual operating conditions.

NOTE: The warranty policy requires that commissioning be performed by qualified personnel authorized by the company.

INSITUM ® CORROSION PROTECTION

Spray for coating hvac/r products

Coating is a flexible, water-based, water-reducible, synthetic polymer corrosion coating designed specifically for the protection of HVAC/R coils and components. Insitu® Spray Applied Coating contains ES2 (embedded stainless steel pigment) technology, an anti-corrosion coating specifically designed for the protection of coils mounted in corrosive areas.

HVAC/R coils, components and enclosures will have a permanent water-based synthetic coating with ES2 pigment applied to all areas of the coating surface with no bridging of material between fins. Therefore, ES2 pigments are suitable for even the most corrosive environments and will maintain their appearance after many years of exposure. UV degradation ES2 pigments form a multilayer structure throughout the paint film.

This creates a barrier layer that reflects sunlight away from the paint film preventing UV rays from penetrating. As a result, UV degradation of individual polymer molecules is eliminated, film integrity is maintained and the pigment particles remain well anchored to the substrate.

The resulting smooth, hard finish prevents dirt build-up. The multilayer structure of ES2 pigments delays the passage of water molecules into the film and acts as an effective moisture barrier

Ideal applications for Insitu® spray-applied coatings.

- Mini-splits
- Packaged enclosures
- Condensing units
- Modular air handlers
- Air-cooled chillers
- Indoor and outdoor HVAC cabinets and copper tubing
- Heat exchange coils (water, condenser, evaporator, DX)

PCO SYSTEM

The system is designed to handle one unit with capacity control by means of a drive or a typical unloading valve on a digital fixed compressor, this is a unit called “Mother” and up to 9 additional units without capacity control called “Sons” can be added.

FUNCTION

The “Mother” unit is managed directly by the main control, the pCO. Each “Child” unit is controlled by a pCOE expansion module. If the units are water-cooled, they require one expansion module per “Child” unit. Each “Mother” unit is equipped with a 7” pGD touchscreen terminal.

PCO (CONTROL)

The pCOOEM+ is an electronically programmable microprocessor-based controller that is fully compatible (software and hardware) with the pCO family of products and systems that include programmable controllers, user terminals, gateways, communication devices and remote device management.

These devices represent a powerful control system that can be easily linked with the vast majority of Building Management Systems (BSM) available on the market.

Figure 1. Pco(Control) Optional Equipment

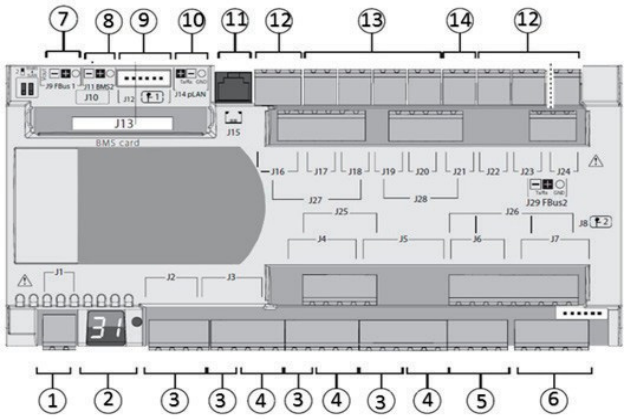


Table 1. Description of PCO Control Equipment

REF	DESCRIPCIÓN
1	Power connector [G(+), G0(-)].
2	pLAN address setting button and secondary display, LEDs.
3	Universal inputs/outputs
4	+Vdc: Power for active probes +5 VR Power for radio metric probes
5	Analog Outputs
6	DI: Voltage-free digital inputs
7	Fieldbus connector 1
8	BMS Connector 2
9	Single-pole valve connectors
10	pLAN plug in connector
11	Connector for pLAN telephone terminal / Download application for programming
12	Digital Relay Outputs
13	Digital Relay Outputs for power on
14	Alternating power supply for "Power on digital relay outputs".

PGD TOUCH (HMI)

The pDG 7” touch screen graphic terminal belongs to the family of touch screens designed to make the interaction with the pCO system controls easier and more intuitive. The electronic technology used and the new 64,000 color display allow for high image quality and high aesthetic quality.

The touch screen panel also facilitates user-machine interaction by making it easier to navigate between the different screens.

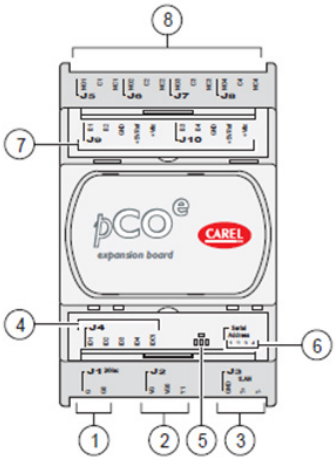
Figure 2. Pco(Control) Optional Equipment

Table 2. Description of PGD Touch Screen

REF	DESCRIPTION
1	SD card connector
2	Membrane keypad programming
3	Optically Isolated RS485 port
4	Ethernet port 1 (internal switch)
5	Ethernet Port 2 (Internal switch)
6	USB Host Port
7	RS485 port without optical isolation
8	Power Supply
9	Plug-in connector (on the back)

EXPANSION TABLE

Figure 3. Expansion Table or Module



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7	RS485 port without optical isolation
8	Power Supply

MOTOR SAVER

It is designed so that 3-phase loads are not damaged by power supply conditions.

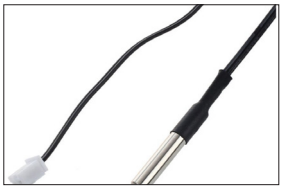
- Loss of any of the phases
- Low voltage
- High voltage
- Voltage spikes
- Phase reversal
- Fast cycling

Table 4. Diagnostic Indicator Lights

DIAGNOSTIC INDICATOR LIGHTS	
REGULAR OPERATION	STEADY GREEN
START DELAY	FLASHING GREEN
INVERSE PHASE	FLASHING RED
UNBALANCED PHASE	LAPSES IN RED
HIGH / LOW VOLTAGE	RED CONSTANT

TEMPERATURE SENSOR

The PT10K NTC Temperature Sensor is resistant to temperature changes, the relationship with the curve is the higher the temperature, the lower the resistance and vice versa.



DIGITAL INPUT (REMOTE ON/OFF, OPERATION MODE: COOLING, HEATING)

Electrical component that can interrupt the electrical circuit, interrupting the current or diverting it from one conductor to another.

VANE FLOW SENSOR

The flow switch comprises a unique paddle system, the design of which is a paddle located at the flow end that is pivoted in the center and a magnet at the opposite end.

Above this magnet is a reed switch contact, isolated outside the flow chamber. A second magnet creates the force necessary to reset the vane back to the zero flow position.

THERMAL DISPERSION SENSOR

It is a thermal flow switch that indicates whether the flow rate is above or below the user-selected flow rate, and has NO and NC NPN outputs.

It uses a pulsed thermal dispersion measurement technique to measure the flow rate, whereby the probe is heated above the process temperature and then cooled to the process temperature.

HIGH / LOW PRESSURE CONTROL

ACB / LCB is a small disc type pressure control for use in refrigeration and air conditioning systems. As standard, it is equipped with a contact system with manual or automatic reset. The control is robust and reliable in the operation of different unit types.

Thanks to its small size, light weight and high degree of protection it can be placed directly in the refrigeration system where pressure regulation is required.

The control is available with different settings and pressure connections to meet customer needs.

All these features reduce installation costs and save space.

INPUTS AND OUTPUTS

The configuration of the inputs and outputs depends on the initial configuration of the system.
The tables in this section show the inputs and outputs assigned to each type of configuration as well as the port used for the “Mother” unit (whose capacity is regulated by a drive or an unloader) and the “Child” units.

Key: CO is for Cooling only and HP is for Heat Pump.

Table 5. pCO Analog Inputs (Mother Unit)

PORT	CO AIR	HP AIR	CO WATER	HP WATER	TYPE
U1	INJECTION	INJECTION	-	-	NTC
U2	RETURN	RETURN	-	-	NTC
U3	FREEZING	FREEZING	-	-	NTC
U4	MAIN RETURN	MAIN RETURN	-	-	NTC
U5	MAIN INJECTION	MAIN INJECTION	-	-	NTC
U6	TEM. COND	TEM. COND	-	-	NTC
U7	-	-	-	-	NTC

All analog inputs of this system consist of temperature measurements made by NTC sensors.

Table 6. Analog Digital Inputs of the pCO (Mother Unit)

PORT	CO AIR	HP AIR	CO WATER	HP WATER	TYPE
U9	-	SELECTOR	-	-	NTC
ID1	HIGH PRESSURE	HIGH PRES-SURE	-	-	NTC
ID2	LOW PRESSURE	LOW PRESSURE	-	-	NTC
ID3	REMOTE START	REMOTE START	-	-	NTC
ID4	MOTOR SAVER	MOTOR SAVER	-	-	NTC

Table 7. pCO Digital Outputs (Mother Unit)

PORT	CO AIR	HP AIR	CO WATER	HP WATER	TYPE
NO1	COMP. STAGE 1/ VENT.	COMP. STAGE 1/ VENT.	-	-	NTC
NO6	PUMP	PUMP	-	-	NTC
NO7	SECOND STAGE	SECOND STAGE	-	-	NTC
NO8	-	REVERSIBLE VALVE	-	-	NTC

Table 8. Analog Outputs of the pCO (Mother Unit)

PORT	CO AIR	HP AIR	CO WATER	HP WATER	TYPE
Y1	INVERTER/SSR	INVERTER/SSR	-	-	0-10 V

Table 9. Analog inputs of the pCOe (Expansion Module Son)

PORT	CO AIR	HP AIR	CO WATER	HP WATER	TYPE
B1	INJECTION	INJECTION	-	-	NTC
B2	RETURN	RETURN	-	-	NTC
B3	FREEZING	FREEZING	-	-	NTC
B4	CONDENSER	CONDENSER	-	-	NTC

Table 10. pCOe Digital Inputs (Expansion Module Son)

PORT	CO AIR	HP AIR	CO WATER	HP WATER	TYPE
DI1	HIGH PRESSURE	HIGH PRESSURE	-	-	NTC
DI2	LOW PRESSURE	LOW PRESSURE	-	-	NTC
DI3	EVAPORATION FLOW	EVAPORA-TION FLOW	-	-	NTC
DI4	*MOTOR SAVER	*MOTOR SAVER	-	-	NTC

Note: Digital motor protector inputs on “Sons” units are optional and their consideration depends on the initial configuration of the system, on the other hand motor protection input on “Mother” units is indispensable.

Table 11. Table of Digital Outputs of the pCO (Mother Unit)

PORT	CO AIR	HP AIR	CO WATER	HP WATER	TYPE
NO1	COMP.1 STAGE/FAN	COMP.1 STA-GE/FAN	-	-	NTC
NO2	**PUMP	**PUMP	-	-	NTC
NO3	SECOND STAGE	SECOND STAGE	-	-	NTC
NO4		REVERSIBLE VALVE	-	-	NTC

Note: The digital output pump in “Child” units depends on the initial system configuration. It is not possible to use it if the system is configured with only one “Mother” pump (pCO unit).

START-UP

24 V

- Place the Control switch in the ON position to activate the 24 VAC control.
- After the control is turned on, it will take 2 minutes for the unit to come Online.

Compressor

- Place the switch in the ON position (Fig.2), this allows the compressor to turn on and off according to the status.

Note: Once the pump is turned on, it will take a few seconds until a uniform flow of water is detected, at the end of this delay, the flow switch will be monitored. If the switch is on it commands the pump to turn off (5 attempts within 10 seconds). If a uniform water flow is detected the unit will begin operation.

- Under normal conditions, the equipment will turn on and off the unit’s cooling circuit, according to its needs. When alarms are present in the system, they will always be indicated on the user interface.
- The digital control will start compressor operation according to the logic set in the control.

On/Off (Reset)

The operating sequence starts with a check of all pre-programmed safety check points, if the necessary conditions are met, the unit is ready to start operation.

To start operation of the unit, turn the switch to the ON position.

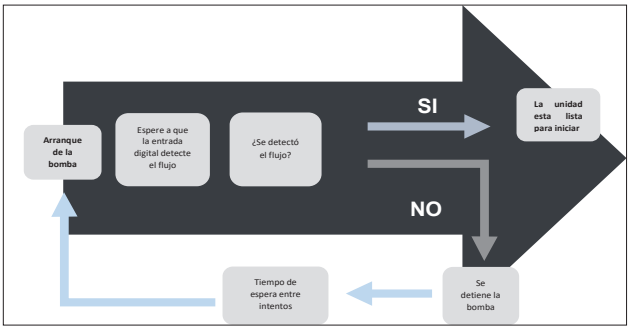
After a few seconds the computer will send power to the water pump. If the computer detects water flow it will command the start of the unit's internal control sequence.

COMMISSIONING OF THE CONTROL LOGIC PUMP

When the unit is turned on, if all safety measures are correct (vacuum pressure, discharge, phase monitor), the pumps of all enabled units will start.

Fig. 4 shows the pump start flow diagram.

Figure 4. Flowchart of pump start-up control (applies to any unit)



Note: If the number of pump start attempts is exceeded, the general flow alarm will be activated, this will stop all operations on that unit until the alarm is reset.

START-UP - PUMP (OPTIONAL)

The pumps in the units are always working independently of the thermal demand, the flow detection is also constantly monitored.

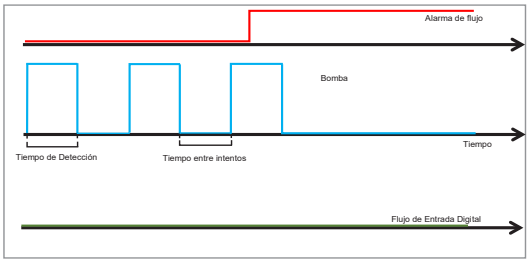
If after a pause in the flow detection a change in the status of the digital outputs is detected, the on-demand start is activated in the unit in question. Fig. 5 shows an example of this case.

Figure 5. Example of the pump start-up cycle, where the flow was detected on the second attempt.

Flow alarm

If the flow detection fails after the period allotted for digital input detection, it is necessary to turn off the pump and restart it to make an attempt after the waiting time between lapses has elapsed. If after a certain number of attempts the flow is still not detected, the "no constant flow" alarm will be activated and the unit in question will be suspended, as illustrated in Fig. 6.

Figure 6. Example of pump start-up cycle where the flow has not been detected, after 3 attempts the flow alarm has been activated.



Note: If the system has a vane flow or thermal dispersion sensor, the digital input for this value is a virtual input, with a value of "1" or "OK" if the water flow is acceptable.

REGULATION

Temperature control can be implemented in different ways, always taking into account the system configuration. If there are "Child" units, the temperature can be set in "Tandem" mode (all units are coordinated by the "Mother" unit, which calculates the total demand) or each unit can work in "Independent" mode, where each unit calculates the local demand from its respective temperature injection sensor (in case the main injection sensor fails).

In "Tandem" mode, the temperature control is the reading received from the main head sensor. With this reading the total demand is calculated. Fig.7 shows an example of the calculated demand when the control is set to "Proportional".

If the units are in "Independent" mode, each unit calculates its local demand based on its temperature injection sensor. The local demand for the "Mother" unit is generated by the same PID control equations, while the demand for the "Child" units is a constant reset cycle, as shown in Fig. 15.

The choice between cooling and heating (when the system was configured with a heat pump), can be set by the digital input "Selector" or can be made by the user. All units in a "Tandem" mode will always work under the same mode.

Figure 7. Example of the proportional control cycle, for cases of total demand or demand for the "Mother" unit.

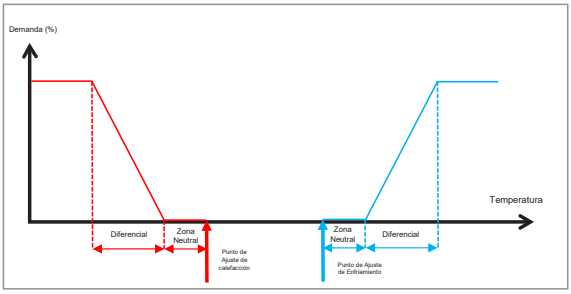


Figure 8. Example of proportional control cycle for local demand on each "Son" unit

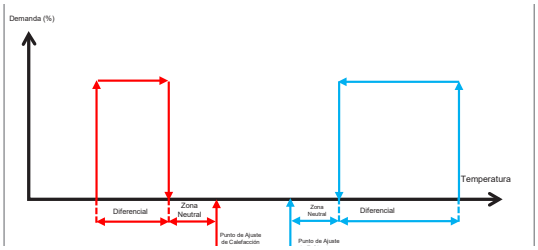
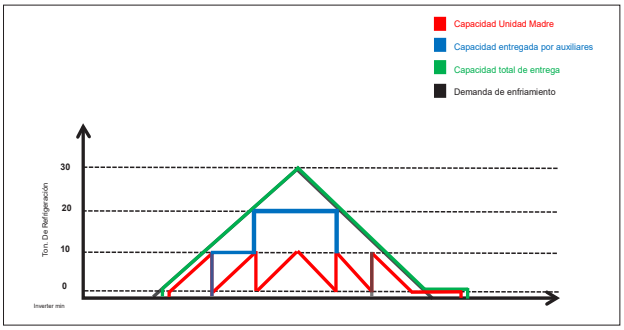


Figure 9. Example of proportional control cycle for local demand in each "Son" unit



FAN CONTROL

For air-cooled units, the start-up routine of the condensing unit is carried out in two parts: the start-up of the fan and a waiting time after the compressor starts. When the unit is requested to stop the unit proceeds in the same manner, the compressor stops and a scheduled time later the fan stops.

The procedures for starting and stopping the condensing unit of an air-cooled machine are shown in Fig. 10.

Figure 10.Procedure for starting and stopping the condensing unit of an air-cooled machine.

UNIT ROTATION

When the system is operating in "Tandem" mode, the total demand is calculated as mentioned in the previous section, depending on how many units are operating, the system will request the activation or suspension of the same in order to meet the demand.

In any configuration, the "Mother" compressor (whose capacity is controlled by a drive or a flow valve) is the first to start and the last to stop. An example of global demand management by starting and stopping units is shown in Fig. 16.

When demand requests the start or stop of units, and the system is working in "Tandem" mode, it can rotate the units in order to ensure equal wear between all units.

The types of rotation that can be performed are:

- FIFO: The first unit to be turned on will be the first to be shut down/suspended.
- LIFO: The first unit to start will be the last to shut down/suspend.
- Cumulative Operating Time: The unit with the lowest cumulative working time is always started first, and the first unit to shut down/suspend will be the one with the highest cumulative time.
- Customized: You assign startup and shutdown/suspend priorities for each unit.

Note: Regardless of the type of unit rotation set, the drive with variable frequency drive or unloader will be the first to start and the last to shut down/suspend.

Note: If a unit is active and working and stops for some situation (such as an alarm), it will be replaced by the next available unit according to the rotation algorithm.

THAWING PROCESS

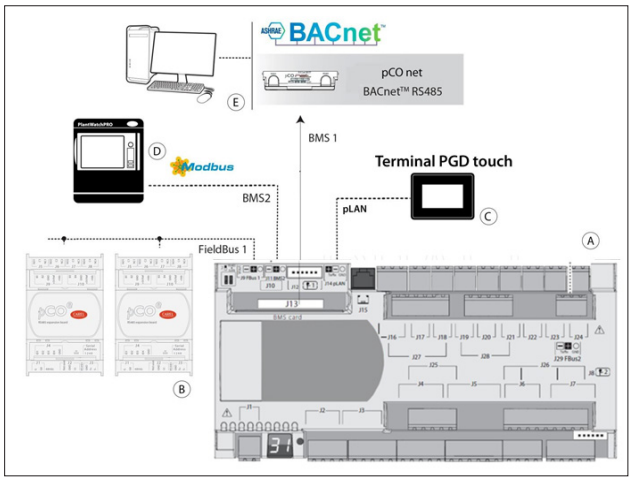
Only air-cooled machines operating as a heat pump can program a defrost process in the condensing unit. This ice condensation occurs from time to time and can be eliminated in 2 ways: Reversing the operation mode (heating/cooling) or stopping the compressor WITHOUT stopping the fan.

This defrost is performed simultaneously on all units that are enabled in the system. It is possible to configure the frequency, working mode, its duration and dripping time. This process can be disabled by the user.

COMMUNICATION PROTOCOL

The pCO has 4 independent communication ports configured as follows:

- **pLAN: Communicates with the pGD touch terminal using the Modbus RTU protocol "Son".**
- **Fieldbus 1: Communicates with the Expansion Modules (located in the "Child" units) using the Modbus "Mother" protocol.**
- **BMS1: Communicates with a supervisory system using the BACnet* protocol (License required).**
- **BMS2: Communicates with an external supervisory system such as PlanWatch Pro using the Modbus RTU "Child" protocol.**



Note: The BMS1 port requires a communication card (pCOnet to BACnet MS/TP or pCOweb for BACnet IP). The programming of the logic packet in the switching protocol is also required.

An FLG-Modbus can also be connected to connect a BACnet MS/TP.

ALARMS

The alarms that may occur, depending on the initial configuration are:

- **Sensor Failure Alarms: If a sensor is detected as disconnected or broken, the algorithm being used will be disabled. If it is the head injection sensor that was detected, the units will work in "Independent" mode automatically.**
- **Phase Fault Alarm: Activated by a digital input. Motor protection is a high priority alarm and stops all machine functions. It is reset manually.**
- **No Flow" Alarm: This alarm is a high priority alarm and stops all machine functions. It is manually reset.**
- **Freeze Alarm: If the sensor temperature is below the programmed threshold, this alarm will be activated. This condition stops all functions of the equipment in question. This alarm automatically resets once the temperature exceeds the reset value and will keep the unit in reset mode (No power for operation for the programmed time.**
- **Water Freeze Alarm: Same case as the freeze alarm, but in this alarm, the injection sensor reading is considered.**
- **High Pressure Alarm: It is triggered by a Digital input. This alarm is a high priority event and stops the compressor operation, however it does not disable the pump. It is a manual reset alarm. If it is an air-cooled unit, a command will be sent to start the condenser fan. To restart, keep the unit on high output, the compressor will not start until the programmed time has elapsed.**
- **Low Pressure Alarm: This is activated by a digital input. This alarm stops the compressor of the unit in question. It resets automatically, however it keeps the unit in a low performance mode.**
- **Disconnect Alarm: If the system contains any "Son" units and any of these units are disconnected, this alarm will be activated.**
- **High Condenser Temperature Alarm: This alarm is only available when the unit is air cooled. The alarm is activated when the condenser temperature reading exceeds the limit. No control action is taken.**
- **Condenser Flow Alarm: This alarm functions like the main Flow alarm; it is activated only when the cooling system is water cooled.**
- **Lack of Refrigerant Alarm: This alarm is activated when a start command is sent due to cooling demand, and the injection temperature sensor detects a change in temperature for a period of time. This alarm does not take Control actions and can be deactivated by the user.**

USER INTERFACE

Navigation Bar

The Navigation bar is found on every screen of the system. It appears and disappears automatically by pressing the tab at the bottom, as shown in Fig. 11.

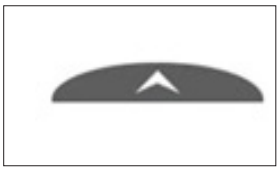


Figure 11. On-screen navigation bar

When the tab is pressed the navigation menu will be displayed, as in Fig. 12.

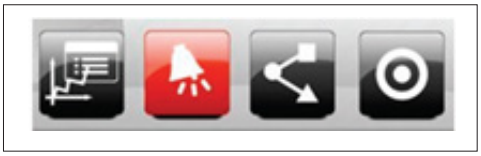
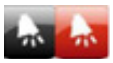


Figure 12. Example of navigation bar on the main screen

The navigation menu changes the access icons depending on the context where the user is in the system. Potential navigation buttons are shown below.

Alarms		Always Visible, sends user to Alarms page
Home		Sends the user to the Main Menu
Return to		Sends the user to the last accessed page
Main Menu		Sends the user to the Main Menu
Alarm log		Sends the user to the Alarm Log page
Inputs and Outputs		Sends user to the Inputs and Outputs screen
Charts		Sends the user to the Temperature Graphs screen
Configuration of graphs		Allows the user to configure the graph display
Summary		Sends the user to the Summary screen

MAIN SCREEN

The configured devices will display this screen by default as the main system screen with the following information:
Working System Mode icon, either “Tandem” or “Standalone” mode 2.

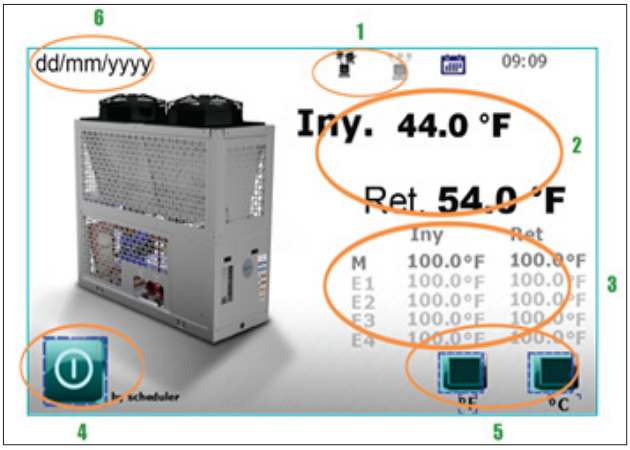
2. Main Unit Injection and Return Temperature, if the system is in “Tandem” mode or “Mother” Unit Injection and Return Temperature, if in “Standalone” mode.

3. Injection and Return Temperature of the individual units. This section only appears if at least one “Child” unit is disabled. In the case of machines in “Stand-alone” mode this section will not be displayed.

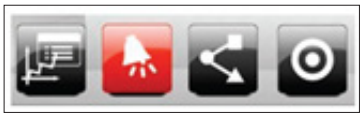
4. Control Status, can be Enabled, Disabled by a digital input or disabled by the terminal (pGDTouch).

5. Selection of Temperature Measurement Units (Fahrenheit or Celsius).

6. Date.



In the Navigation Menu of the initial screen, the displayed icons ordered from left to right direct to the following sections:



- Temperature Graphs
- Alarms
- System Review
- Navigation Menu

ALARMS PAGE

It is possible to access the Alarms section from anywhere in the system, the button is constantly present in the navigation bar. Depending on whether or not there are active Alarms, the button will be displayed in one of 2 ways:


SIN ALARMAS


HAY POR LO MENOS 1 ALARMA ACTIVA

Active alarms

By pressing the “No Alarms” button, the user will be presented with a screen like the one shown below:

By pressing the “Active Alarms” button, this screen will be displayed:

This screen will display all active alarms. Any alarm can be reset by pressing the “Reset” button.
It is worth mentioning that if the error has not been corrected, the alarm will be reactivated.

ALARM LOG

Within the Navigation bar of one of the 2 previous screens, the “Alarm Log” button will be displayed.

BY PRESSING THIS BUTTON, THE USER WILL BE TAKEN TO THE “ALARM LOG” SECTION.

In this screen you can see the Alarms that have been activated in a certain period. These records are stored in the internal memory of the terminal, so it does not matter if the Alarm conditionals are no longer found. They will be saved in the memory for later review.

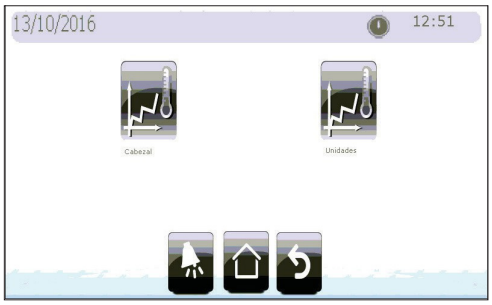
GRAPHICS

The pGD Touch terminal keeps in the internal memory the information of the temperature readings of the Injection and Return Sensor of the main unit, as well as the injection and return temperatures of all enabled units. By pressing the “Graphs” button on the home screen navigation bar, the user will be directed to the menu where he/she can select the type of graphs to display.

In the “Main unit” section (and only if the sensors are enabled in the main unit) the injection and return readings of the “Mother” unit will be displayed. In the “Units” section the injection and return sensor readings of all units will be displayed.
The properties of the graphs that can be edited are: Duration (Time Period) and maximum and minimum limits (Temperature Ranges).

These properties are edited in the on-screen navigation menu where the graphs are displayed by pressing the “Graph Settings” button.

The pGD Touch terminal stores a reading of each of the temperatures mentioned above (Injection and main return, and injection temperature of each enabled unit) every 180 seconds (3 minutes) and can store over 100,000 samples of data before starting to rewrite over the oldest data. With these parameters, the pGD Touch can store data for the previous 7 months (208 days).

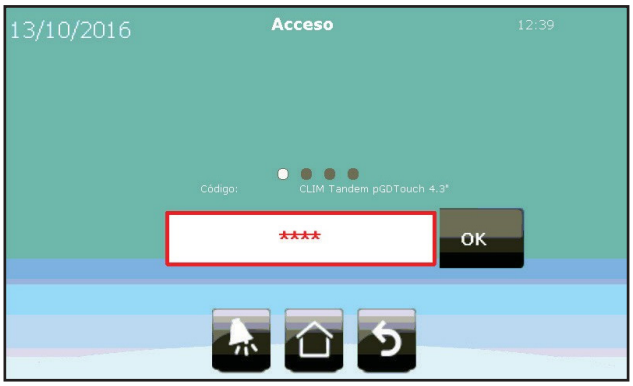


MENU

On the home screen there is a button to access the “Navigation Menu”. This menu contains the pages where all the system parameters are located. It is divided into 4 sections: Full Access, Level 1 Access Level 2 and Level 3.

To access the menu of the Level 1, 2 and 3 sections, the user must go to the “Access” section and enter the password for the corresponding level.

The Level 3 password allows access to all levels, Level 2 accesses Level 1 and 2, Level 1 only allows access to this level. Access to this menu is restricted once the screen enters idle mode (after 2 minutes of inactivity).



The following table shows the navigable menu options with the required access level.

(Open Access)	Date and time settings	
	Control parameters	
	General description of the system and equipment	
	Working Mode	
	Working hours counter	
	Access	
Level 1 (Password 1)	Reset of hours counter	
	Maintenance	
Level 2 (Password 2)	Settings	
	Calibration	
	Export Information	
	Delete Data	
	General Settings	

Level 3 (Password 3)	Device Configuration	
	Level 3	

SUMMARY

Here it is possible to view the status and operation of the entire system. The first screen shows all configured units, the status of the temperature control (Tandem or Independent), the operating mode (Cooling or Heating) and the status of the Compressors.

Independent), the mode of operation (Cooling or Heating) and the status of the Compressors.

If the control is in “Tandem” mode, it will also show the overall system demand as well as the next unit to start or shut down according to the rotation order and priority of the units.

The meanings of the compressor symbols are:

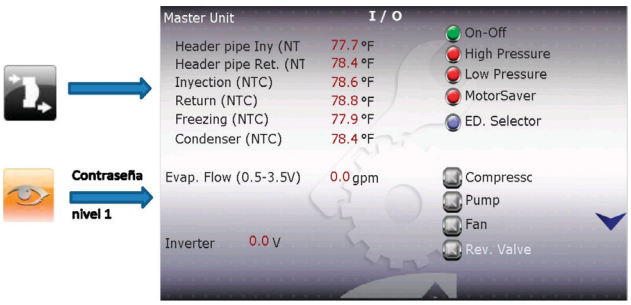
	The compressor is off but ready to start if required.
	The compressor has just been turned off and is protected by the minimum timeout. It cannot be turned on again until this time delay has elapsed.
	The compressor has been turned off due to an alarm condition (High or Low pressure) and will not turn on until this situation is resolved.
	The compressor has been forced to shut down due to an alarm condition (Freeze, Frozen Water, Motor Protector, etc.) and cannot be turned back on until the condition is resolved.
	Compressor is restarting after an alarm (freeze, frozen water or low pressure) has been reset.
	This symbol indicates that the fan has just started (if air-water) and is waiting for the compressor.
	The compressor has just started and cannot be stopped by control request, only an alarm condition can stop the compressor during the start-up period.
	The compressor is on and available to be stopped if demand requires it.

If the unit icon is clicked, the user will be sent to the “Summary” page, where more detailed information about the unit can be found.

In this section you can see the inputs of the system (temperature sensors, digital inputs of suction and discharge pressure of the motor protection) as well as the outputs of the unit (compressor, pump and fan).

In this case we can find 2 types of screens, one with flow sensor samples and another with ultrasonic water flow sensor; everything will depend on the type of unit you have.

On the navigation bar of these pages is the “Input / Output” icon. This button will display a screen with explicit information on all the inputs and outputs of the devices configured during the initial setup. This screen can be accessed within the “Maintenance” button in the Level 1 menu.



For a Heat Pump Water Chiller Unit the condenser and flux condenser temperature outputs will be shown.

REGULATION

In the “Regulation” section, the user can modify the set point for Cooling and Heating (For units configured as Heat Pump) as well as select the operating mode of the units.

- **Central Control (Tandem):** Means that the Temperature Control sensor is the Injection Sensor in the main unit. This reading will be displayed on the initial screen and the global demand calculation will decide the operation of all units. The rotation logic of the units is also enabled.
- **Independent Control:** Ignores the injection and return sensors on the main unit. The injection and return temperature readings of the “Mother” unit will be displayed on the screen. Each unit will generate its own demand load based on the injection temperature. Unit rotation logic is disabled

Note: If the system is configured as Central Control, but the sensors in the Central unit are disconnected or broken, the system will automatically switch to “Standalone” mode.

MODE SELECTION

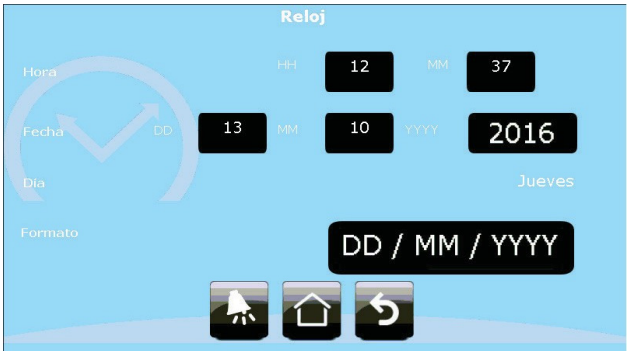
The selection mode screen is divided into 2 sections:

- The mode of the terminal's work selection or Digital Input.
- Current Work Mode Indicator

The operating mode selection can be configured in 2 ways: By digital input or by selecting it on the terminal ("Configuration" section). If the working mode has already been selected by digital input any further selection on the terminal will be ignored. If the working mode has been selected by the user on the terminal, it can only be edited or changed on this screen, ignoring the status of the digital input.

Setting the Clock

On the clock setting page, the user can set and change the date, time and the way the date will be displayed: there are 2 options, regular format (Day-Month-Year) or US format (Month-Day-Year).



Note: This section is only available for systems configured as "Heat Pump".

WORK HOUR COUNTER

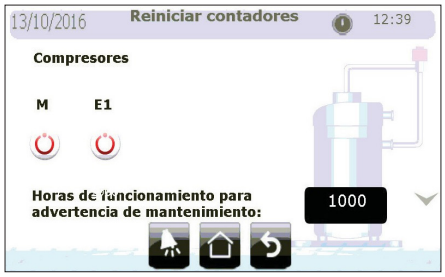
The "Hours Worked Counter" page will show the number of hours worked, number of starts of compressors and pumps of the units configured in the system.

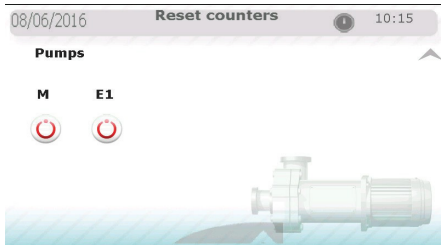
Additionally, the number of times that alarms have been activated on each specific unit will be displayed.

RESETTING THE WORK HOUR COUNTER WORK

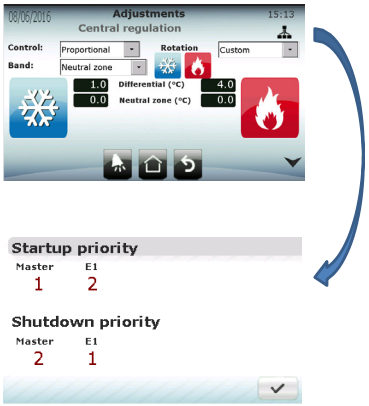
In this section, accessible with level 1 password, the user is given the option to reset the counters via buttons for each section. The counter reset button resets the count of the number of times the compressor was started, the number of hours worked and the number of times the pressure suction and discharge digital inputs were activated.

The pump reset button resets the number of times the pump has been started and the number of hours worked by the pump.





SETTINGS



In the settings section, protected by level 2 password, the parameters for the control and management of the cooling demand (and heating for systems configured as heat pump) are displayed.

The parameters for Central Control ("Tandem" mode) are completely independent of the type of regulation in "Stand-alone" mode, with the exception of the cooling and heating set points, as well as the option to clear the accumulated integral errors when the set point is reached.

Note: Even if a custom rotation mode was selected, the drive with the frequency converter or unloader ("Mother" drive) will always be the first to be switched on and the last to be switched off, regardless of the assigned priority.

CENTRAL OR TANDEM CONTROL

The control parameters in the central regulation mode or "Tandem" using the control temperature as the main unit temperature are:

- **PCentral Control or Tandem mode parameters:**
- **Control type (P, PI or PID).**
- **Remove integral control when set point is reached to avoid fluctuations inherent to integral control.**
- **Rotation Type**
- **Differential (Water Chiller Unit and Heat Pump)**
- **Neutral Zones (Water Chiller Unit and heat pump)**
- **Integral Time**

Note: To configure PD control, select PID and set the integral time to 0.

INDEPENDENT CONTROL

The "Independent Control" calculates all the parameters that regulate the demand control in each unit independently using the injection temperature as the main parameter.

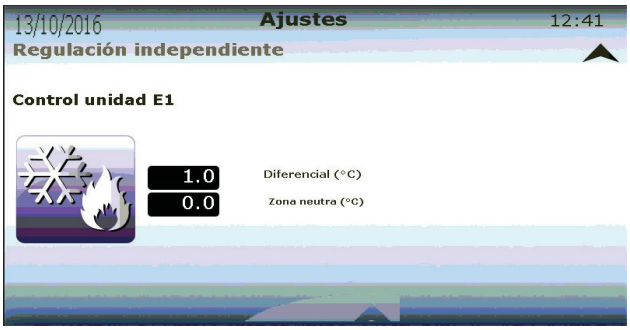
As the "Mother" unit can regulate its capacity, it has a unique proportional control algorithm, P+I or PID with parameters independent of the central control. If PD control is desired, the user must select PID and set the integral time to 0 sec.

Parameter mode o Independent central control for the "Mother" unit

- Control type (P, PI or PID)
- Remove integral error when set point is reached to avoid fluctuations inherent in integral control.
- Differential (Water Chiller Unit and Heat Pump)
- Neutral Zone (Water Chiller Unit and Heat Pump)
- Integral Time
- Derivative Time

Individual control in "Son" units only requires the following parameters:

- Differential (Same process for cooling and heating)
- Neutral Zone (Same process for cooling and heating)



HYSTERESIS CONTROL

The unit has the option to configure the respective ON and OFF from the set point, both for cooling and heating mode, in "General" the ON differential will have the value of ON and the OFF differential the value of OFF, always with respect to the set point of the unit.

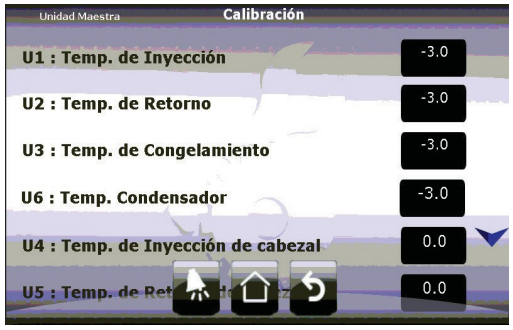
Example
ON differential = 5
Differential OFF = 0
Set point = 50
The unit will turn on at set point +5 (55) and turn off at set point -0 (55).

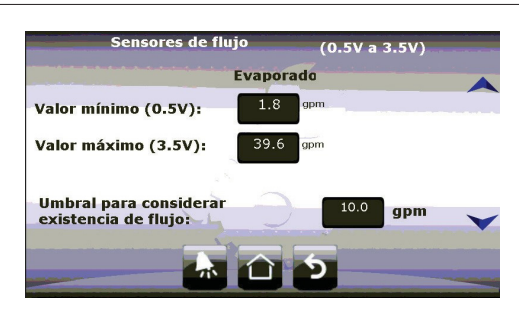
Also in the “Son” section it is possible to configure the switching on and off of the same, this configuration is a prevention to avoid the freezing or cold water alarm in the “Tandem” mode, this function is the same as in “General” and respective to the set point.

Note: The ON differential in both “General” and “Child” units must always be >0, otherwise the unit will never be activated.

CALIBRATION

In the “Calibration” section, which is password protected to Level 2, the user can adjust the readings of the sensors connected to the units to match the readings on a measurement standard. Additionally, it is possible to set the logical operation of the digital inputs; these can be “Regularly Open” (NO) or “Regularly Closed” (NC).





It is also possible to calibrate the minimum flow rate allowed to start the system, the Water Chiller Unit system needs 2.4 gallons/min per Ton.

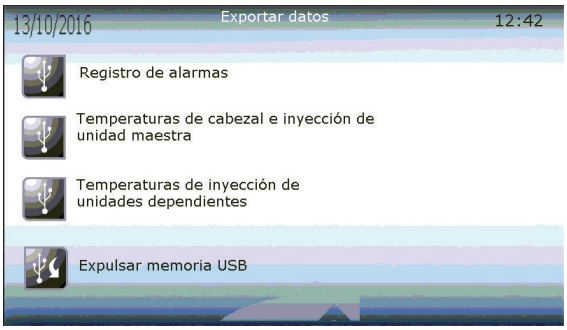
If you have a 10 Ton Water Chiller Unit you will need 24 gallons/min. If the hydraulic installation cannot provide this flow, it is possible to operate the equipment at 80% of the required flow to avoid flow alarms, be cautious if you decrease to less than 80% as this can cause serious problems in your system such as inefficiency and lack of rated capacity.

For water heat pumps you will see the condenser sensor, do not change the maximum and minimum values, these must be configured in the installation.

This type of sensor cannot measure more than 39.6 gal/min, in case you get a value higher than this, the display will show 295.6 approx. Check your hydraulic system to regulate the flow.

The value considered acceptable will be the same for the evaporator sensor.

EXPORT OF RECORDS



The user can export to a USB Flash Drive all the information stored in the unit by means of a comma separated file (CSV). The user can export 3 different files with different information:

- The Alarm Log
- The injection temperature of the “Mother” unit and if available, the temperatures of the Mother unit.
- The injection temperature of the “Child” units (if any are present in the system).

DELETION OF RECORDS

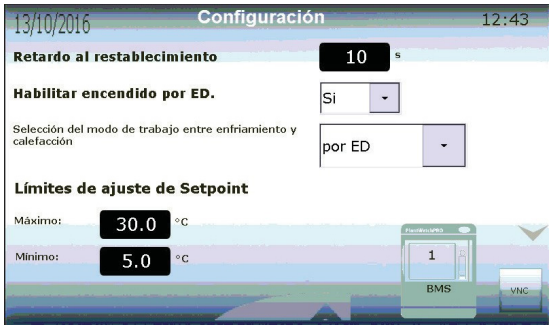
In the last part of Level 2 of the Navigation Menu, the user can delete the historical graphs and alarm records from the internal memory of the pGD Touch terminal.

NOTE: If records are deleted, it is NOT possible to recover them later.

SETTINGS

The Global system configuration is protected with the Level 3 password.
In the “Configuration” section you will find the global parameters of the system. These are separated into 3 categories.

- Restart Delay: If the control is Off, when it is restarted the controller will wait this time before starting the regulation process.
- Enable unit power on via Digital input
- Select operation mode
- Set point safety limits



NETWORK COMMUNICATION

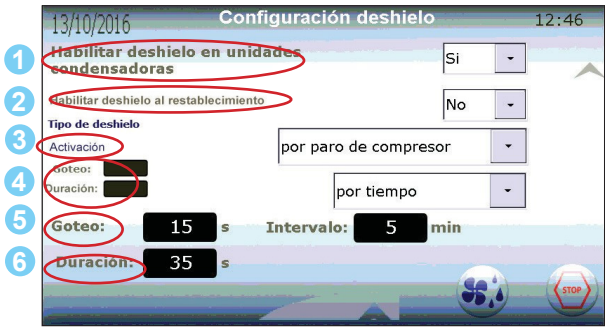
The BMS2 control port can be used to monitor the entire system remotely with an external supervisor via Modbus RTU protocol.

- In this screen the user sets the parameters of the communication protocol to be connected to an external device. These parameters are:
- Address
- Speed (Baud per second)
- Stop bits
- Parity

DEFROST CONFIGURATION

Only for Air-Water systems with Heat Pump function.

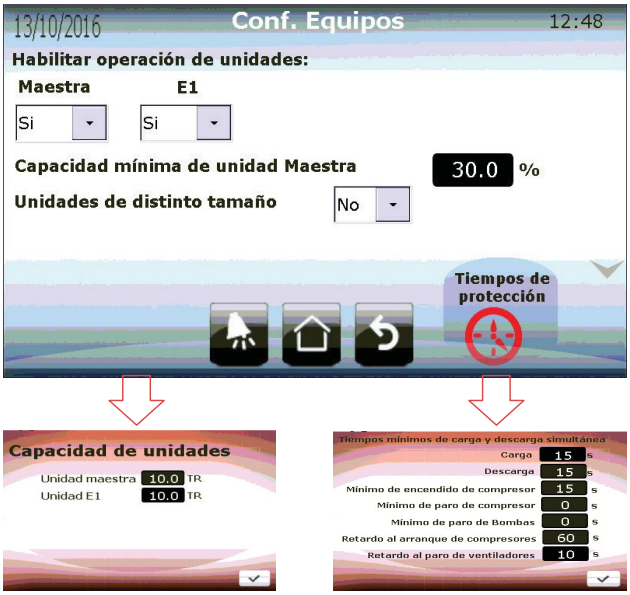
1. Enable Defrost Sequence
2. Enable defrost at controller startup
3. Defrost Interval (How often defrost is initiated)
4. Defrost activation
   (By temperature / by defrost)
   • By temperature (Start temperature)
   • By time (Elapsed time)
5. Drip Duration (Stop condensing unit to allow drainage)
6. Defrost Duration
7. Activate fan during drip
8. Defrost stop



This section contains the parameters for device configuration for each unit.
On the first page of the section, the user can enable or disable units to prevent them from operating (e.g. during maintenance). Disabled units are ignored during the rotation algorithm and may not turn on during demand.
The minimum demand to start the “Mother” unit is also set here. If the unit is modulated by an unloader the period is also set here.
It can also be determined if the units are of different capacities (only if there is at least one “Child” unit).

On the second page of the “Devices” section the user will set the parameters for the alarm sequences. The display consists of 4 groups (5 if the units are air-water); the alarm sequences are as follows:

- Water Flow Alarm
- Cold Water / Freezing Alarm
- Low Vacuum Pressure and High Discharge Alarm
- Refrigerant Alarm
- High Temperature Alarm on Condensing units (Air-to-Water units only)



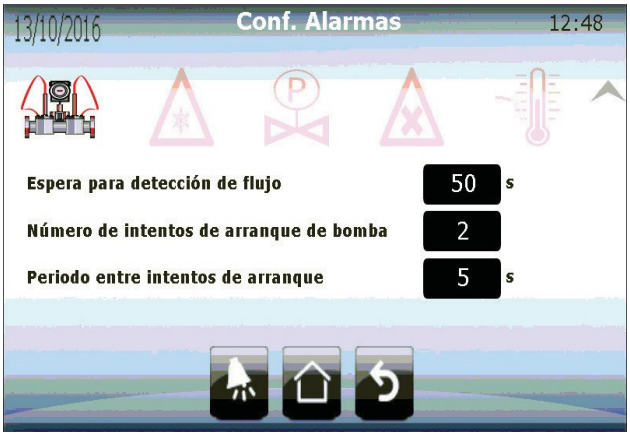
Unit Capacity:
If the system has been configured with units of different capacities, a button will be enabled on this screen, here the user can enable the capacity of each unit individually.

Unit protection timeout

- Load time (start-up time between multiple units)
- Unload time (off time between multiple units)
- Minimum compressor cycle time
- Minimum pump stop time
- Fan start and stop delay (For air-to-water units only)

FLOW ALARM

- The detection processes for water flow are explained in the "Pump Startup" section. The parameters to be assigned by the user are:
- Timeout for digital input detection once the pump has been turned on.
- Number of attempts to start the pump in case of digital input flow detection failure.
- Waiting time between attempts to start the pump.

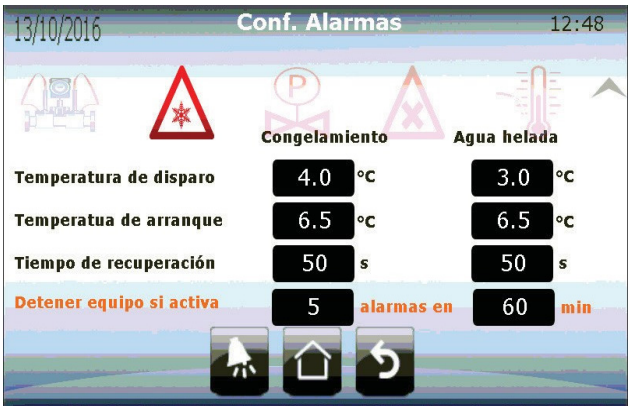


FREEZING AND COLD WATER ALARM

The freezing and cold water logic is the same, except that one considers the freezing sensor and the other the injection sensor as the main source of information.

For each of the alarms, an activation value, a reset and recovery time (where the unit with an active alarm will not be reset) must be set.

Each unit has an internal counter that keeps track of how many times a freeze or cold water alarm has been activated. If the unit exceeds a certain number of alarms in a certain amount of time, the continuous freeze alarm will be activated, which will disable the unit until the user resets it.



HIGH AND LOW PRESSURE ALARM

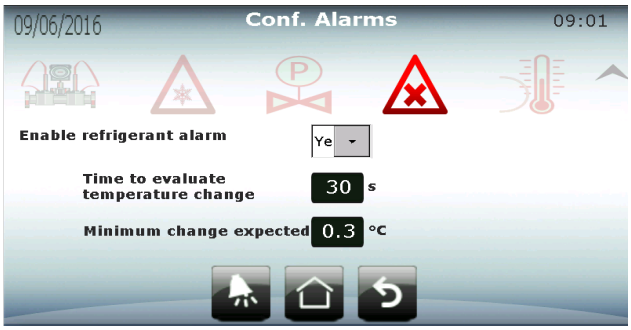
The high and low pressure alarms are activated immediately after a change in the digital input is detected. Both alarms stop compressor operation immediately.

The high pressure alarm is not automatically reset, the user must perform this operation manually. The low pressure alarm is automatically reset once a change in the corresponding digital input is detected. When the alarm is reset, the compressor will be disabled for the recovery time set by the user in this section.

REFRIGERANT ALARM

The refrigerant alarm is a user-enabled warning that evaluates the change in the injection temperature sensor when the compressor starts running. If it detects any change in the set time, the alarm is activated.

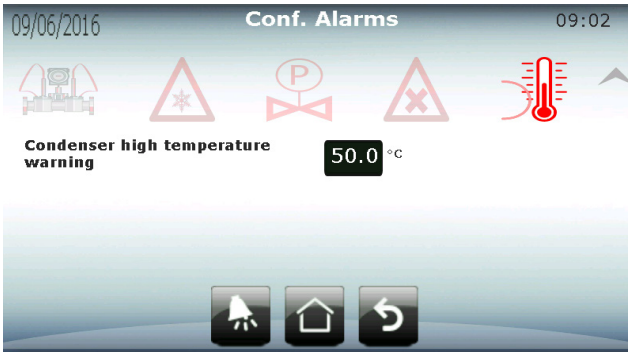
This alarm will not stop any control process. In this section the user can enable and disable the alarm, and if applicable, set the minimum detection range and the maximum time in which this change must occur to not activate the alarm.



CONDENSING UNIT HIGH TEMPERATURE ALARM

This process will only be enabled if the system is air-cooled.

This alarm is triggered when the condenser temperature sensor exceeds the value set in this section. This alarm is a warning, so it does not affect any control process or stop the compressor.

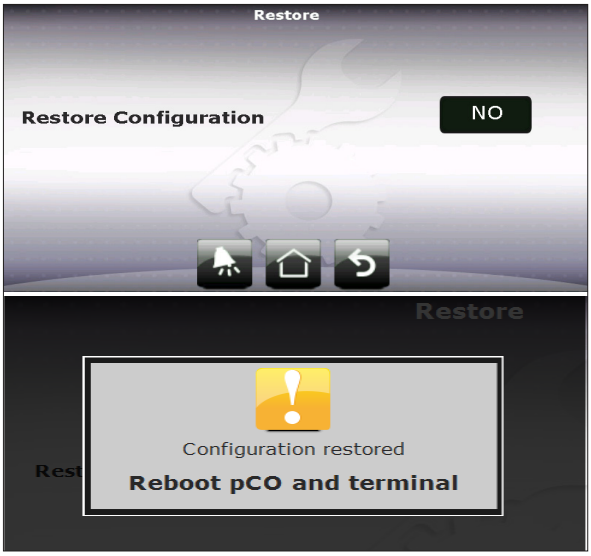


RESTAURATION

In the last section that can be accessed with the Level 3 password, there is the option to reset the unit to factory settings.

Restore System allows the user to reconfigure the system as a completely new installation and reset the initial settings. Resetting resets the initial system configuration parameters, but does not change any of the other values stored in the controller's memory (set points, differential, alarms, etc.).

It is the user's responsibility to properly configure the system with the new settings for proper operation of the units.



Note: When the system is reset, the user must restart both the controller (pCO) and the terminal (pGD Touch).

ADDENDUM

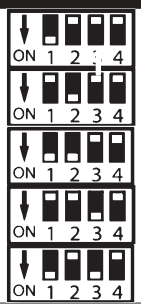
SERIAL ADDRESS OF EXPANSION MODULES

Each "Child" unit uses an expansion module that communicates via Modbus with the parent (pCO) controller through the Fieldbus1 port of the controller. Consequently, the units need to be configured with the correct serial address. To avoid errors, the address is set and fixed when the controller is programmed and cannot be changed. The only task to be performed by the user is to set the physical address of the expansion modules by combining 4 "switches" on each expansion module.

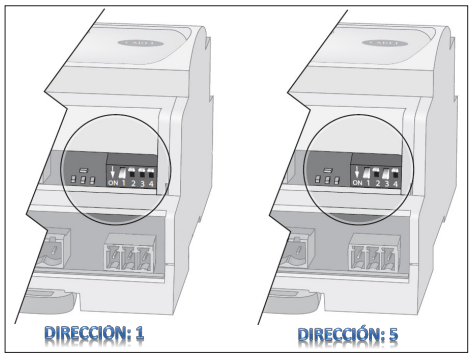
The address on the "switches" is set by the 4-bit binary number they represent. The lower position of the "switches" has a value of "1" and the opposite is "0".

The addresses to assign are:

PCOE EXPANSION MODULE	SERIAL ADDRESS	SWITCHES IN PCOE
CHILD UNIT 1	1	
CHILD UNIT 2	2	
CHILD UNIT 3	3	
CHILD UNIT 4	4	
		

PCOE EXPANSION MODULE	SERIAL ADDRESS	SWITCHES IN PCOE
CHILD UNIT 1	9	
CHILD UNIT 2	10	
CHILD UNIT 3	11	
CHILD UNIT 4	12	

No other serial address will be recognized, the “expansion module disconnected” alarm will be triggered if a wrong address is used.
EXAMPLE :



Note: It is important that the addresses are not repeated, or the entire instrument network on that port may collapse.

PREVIOUS REQUIREMENTS

Before proceeding, it is very important that the following prerequisites are in place:

INSTALLATION

The equipment to be controlled must be correctly installed according to its user’s manual. The equipment must be operating normally and must not be in alarm condition..

CONNECTIVITY

The equipment to be controlled must be connected to your local Internet infrastructure.
The equipment connects to a port on your local router just like any other device and/or computer on your local area network (LAN). Clima-Flex® logic controllers have two ports for LAN connection (RJ45) and either port will work properly.

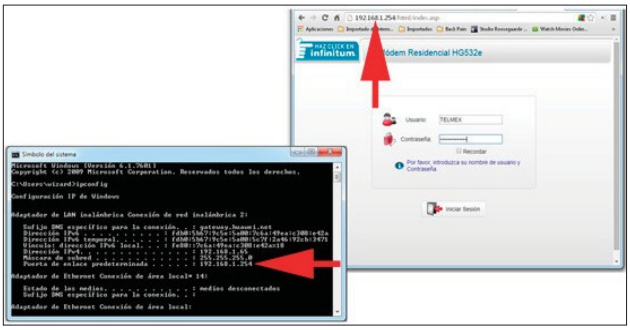
SETTINGS

The devices use NOIP Dynamic Domain Name Server (DDNS) technology to be accessible from outside the local area network (LAN).
You need to configure the DDNS service and other settings on your LAN router.

ROUTER ACCESS

Login from a web browser (Chrome, Safari, IE, etc) to the control panel of your router, for this purpose simply enter the IP address of the router in your browser. You can find out the IP address of your router by typing IPCONFIG from a Windows Command Prompt window, the result it gives you under “Default Gateway” is the IP address of your router.

You will need to have the username and password, Telmex Prodigy routers always use the TELMEX username and the password is the WPA key you use to connect to the network. If you do not know your username or password, please contact your Internet Service Provider.



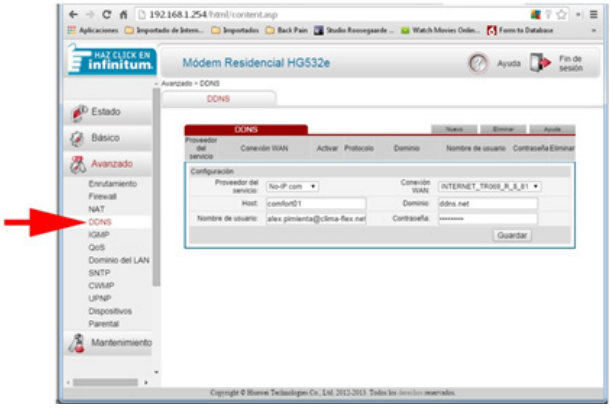
ENABLE DDNS

Once inside your router configure the DDNS (Dynamic Domain Name Server) service, usually this setting is found in the ADVANCED section but you may have to look for this option in the other menus of your router. You can use this data to configure your equipment and save the configuration.

- Service Provider: No-Ip.Com
- WAN Connection: Your local connection to the Internet.
- Host: example01
- Domain: MyDomain.com
- Username: ejemplo@midominio.com
- Password: 123abc321

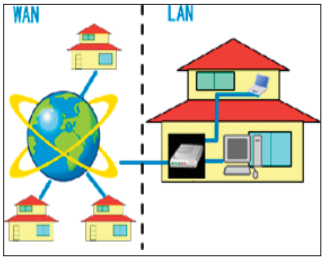
The combination of your Host and your Domain results in the “Domain Name” of your computer, this Domain Name is UNIQUE for each computer and is the internet address by which you will be able to access your computer from outside (WAN) of your local area network (LAN).

Along with the “Domain Name” your equipment has an IP address assigned to it to be controlled and manipulated from inside (LAN) of your local area network.



Domain Name: UnidadDeAC.MiDominio.com

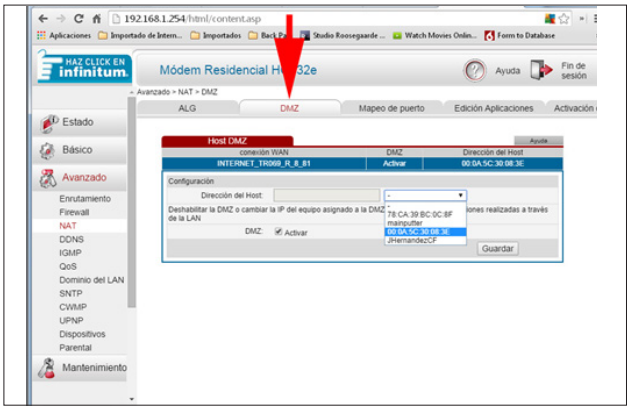
Internal IP Address: 192.168.1.61



GRANT PERMISSIONS

It is necessary to allow outside access to your equipment through your local area network (LAN). The easiest way is to place your equipment in the Demilitarized Zone (DMZ) of your router. The DMZ (Demilitarized Zone) allows full equipment interaction with outside signals and commands, thus avoiding having to edit or change your local security schemes.

Find the DMZ section in your router, correctly select the connected equipment you want to place in the DMZ and save your settings.



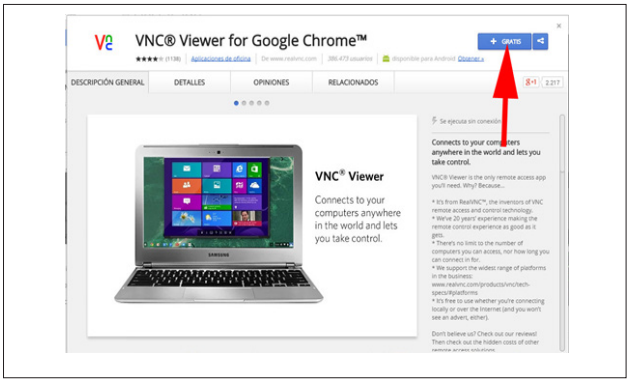
EXTENSION

You need to have the Google Chrome browser installed on the device that will control the computer and download and install the VNC Viewer extension for Google Chrome. If you do not have Google Chrome installed yet, you can download and install it for free at www.google.com.

VNC is a technology that allows you to access and manipulate remote computers from other devices. Installing VNC for Google Chrome is fast, easy and free.

Please follow the steps below to install the VNC Viewer extension for Google Chrome, these instructions work for Windows, iOS and Android:

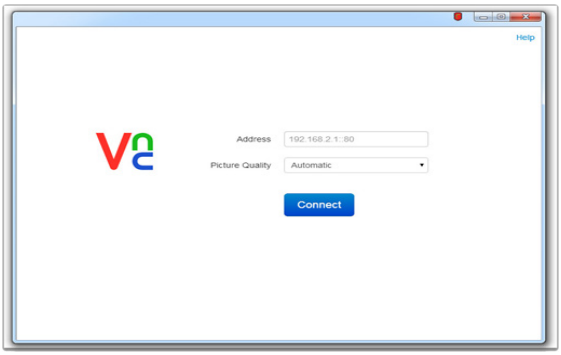
1. Log in to the Google Web Store and search for “VNC Viewer for Chrome.”
2. Once on the VN Viewer for Google Chrome screen click on FREE, this will initiate the download and installation of the extension.



3. Once VNC Viewer for Chrome is installed and you are ready to continue running the extension, you will be presented with the following screen with two parameters.

Address: This can be the IP address or Domain Name of your computer, remember that if you are INSIDE your local area network (LAN) you must use the IP address, and if you are OUTSIDE your local area network (LAN) you must use the Domain Name of your computer.

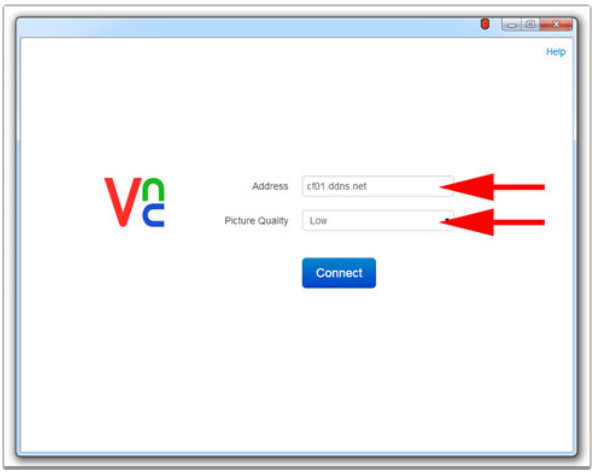
Image Quality: Image quality affects the speed and performance of your remote connection to your computer, we recommend using the LOW option to get the best control experience. You can change this option each time you connect to your computer.



REMOTE CONNECTION TO EQUIPMENT

When you are ready to connect to your computer simply enter the IP address or Domain Name of your computer, select LOW in the Image Quality option and click CONNECT.

VNC Viewer will attempt to connect to your computer and you will see the process progress on the screen, once the connection is made you will probably receive a warning that the connection is not “Encrypted”, please disregard this warning as it is not required or necessary to encrypt control sessions with your computer.



REMOTE OPERATION OF EQUIPMENT

⚠ WARNING ⚠

Please observe and take care of all the actions you perform remotely in the same way as if you were performing them physically on the computer.

The remote operation of your computer is very simple and is mostly performed by means of your local mouse and keyboard, all actions you perform with the mouse and keyboard on the VNC Viewer screen will be transmitted as is.

⚠ WARING ⚠

The connection via VNC to your computer is identical to if you were manipulating the computer physically and in fact you will see that the physical screen of the computer replicates all remote actions you perform.

Please keep in mind that depending on the speed and state of your internet connection you may have a delay of up to several seconds between the actions you perform remotely and these actions being reflected. Please be patient.

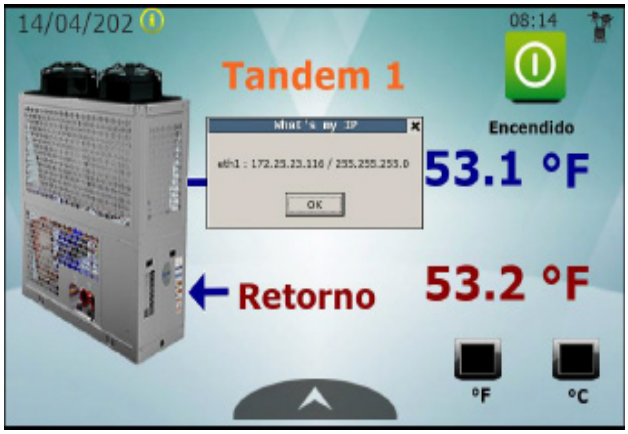
Note: if you want more information about the operation of the vnc Viewer you can access the help and manual screens by clicking on the ? icon in the lower control bar.

IP DISPLAY AND CONFIGURATION

To view the IP of the unit, click on the indicated point to open the menu.

Click “About, What´s my IP.

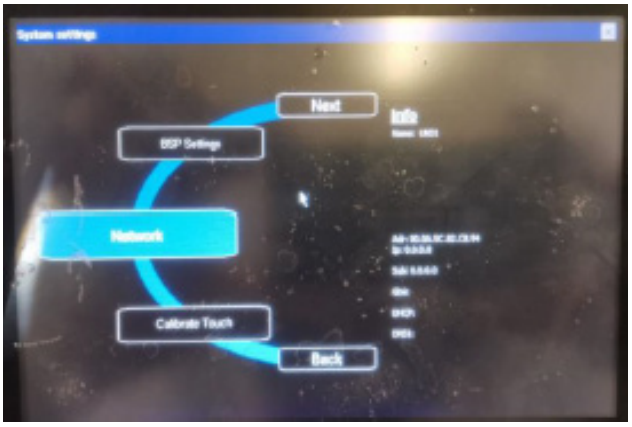
The configured IP will then be displayed.



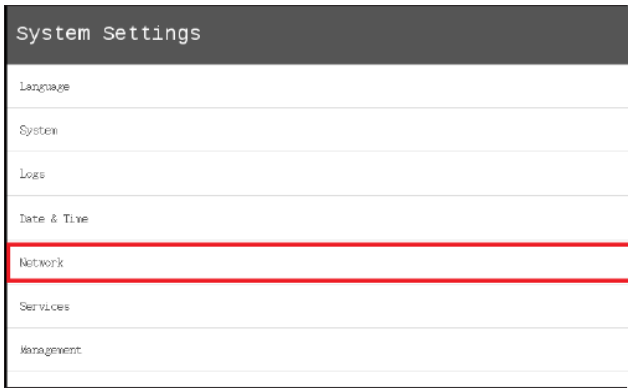
To configure IP, click on the indicated point to open the menu.

Presionar Show system settings, el menú puede variar en su interfaz.

Option 1:

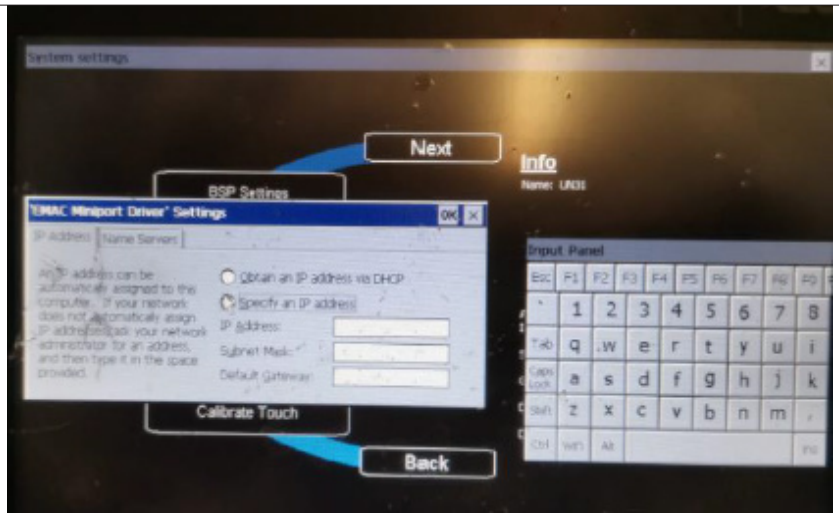


Option 2:



For IP configuration press edit to assign the desired IP.

Option 1:

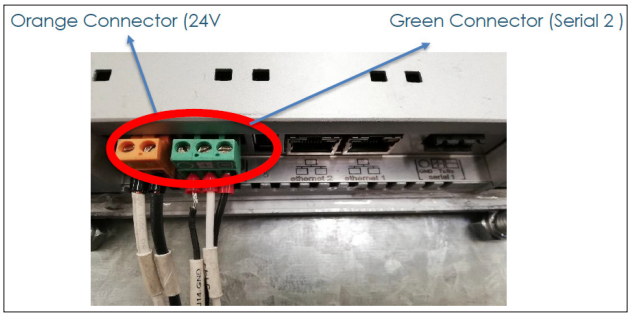


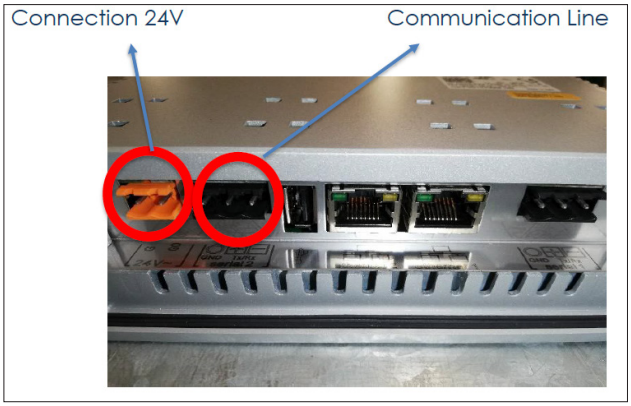
Option 2:

PGD TOUCH 72 CAREL CONNECTION

For the correct operation of the PGD TOUCH it is necessary to consider the following way of connection, since the incorrect arrangement of the communication lines may result in an incorrect operation at the moment of switching on the equipment.

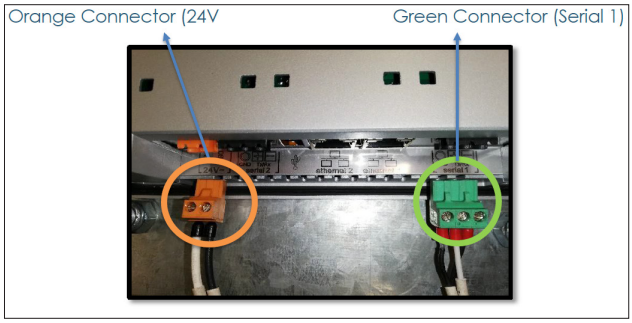
Incorrect Form

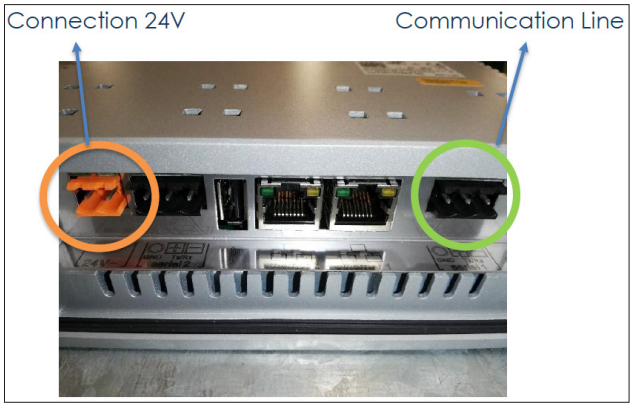




- When connected in this way, the equipment cannot be manipulated and the display will show EQUIPMENT NOT CONFIGURED.
- To reset it is necessary to make the correct connection, turn off and turn on the 24v supply again.
- Once this is done the equipment will turn on normally.

Correct Form

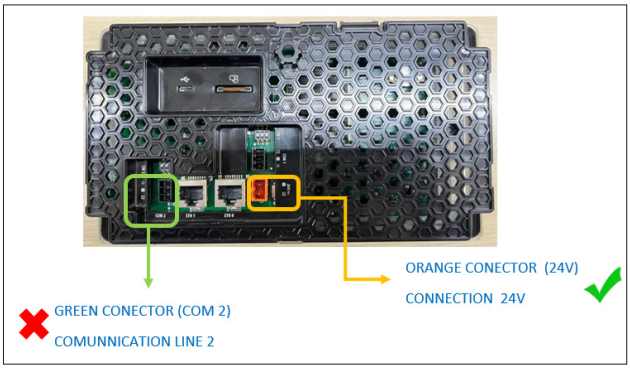




When this connection is made correctly, when the equipment is turned on, the temperature and equipment legends will be displayed on the PGD TOUCH.

PGDX TOUCH 7” CAREL CONNECTION

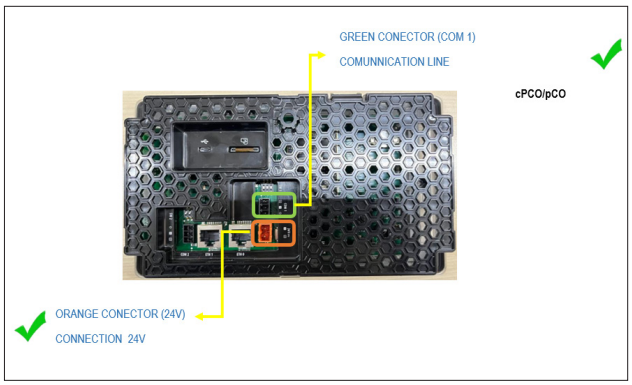
Incorrect Form



- When connected in this way, the equipment cannot be manipulated and the display will show EQUIPMENT NOT CONFIGURED.
- To reset it is necessary to make the correct connection, turn the 24V power supply off and on again.
- Once this is done the equipment will switch on normally.

Correct Form

For the correct operation of the PGDX TOUCH it is necessary to take into account the following way of connection, since the incorrect arrangement of the communication lines can result in an incorrect operation at the moment of switching on the equipment.



Once the connection has been made correctly, the temperatures and other data of the equipment will appear on the screen as shown in the following image.

CLIC MAPPING TABLE

CODE	MODBUS ADDRESS	MODBUS FUNCTION TYPE READ
AI_Agua_Helada_E1	238	DigitalInput
AI_Agua_Helada_E10	586	DigitalInput
AI_Agua_Helada_E2	239	DigitalInput
AI_Agua_Helada_E3	240	DigitalInput
AI_Agua_Helada_E4	241	DigitalInput
AI_Agua_Helada_E5	396	DigitalInput
AI_Agua_Helada_E6	405	DigitalInput
AI_Agua_Helada_E7	420	DigitalInput
AI_Agua_Helada_E8	553	DigitalInput
AI_Agua_Helada_E9	569	DigitalInput
AI_Agua_Helada_M	237	DigitalInput
AI_Alta_pres_CM	4	DigitalInput
AI_Alta_pres_E1	27	DigitalInput
AI_Alta_pres_E10	578	DigitalInput
AI_Alta_pres_E2	42	DigitalInput
AI_Alta_pres_E3	57	DigitalInput
AI_Alta_pres_E4	72	DigitalInput
AI_Alta_pres_E5	374	DigitalInput
AI_Alta_pres_E6	380	DigitalInput
AI_Alta_pres_E7	386	DigitalInput
AI_Alta_pres_E8	545	DigitalInput
AI_Alta_pres_E9	561	DigitalInput
AI_Baja_pres_CM	3	DigitalInput
AI_Baja_pres_E1	26	DigitalInput
AI_Baja_pres_E10	577	DigitalInput
AI_Baja_pres_E2	41	DigitalInput
AI_Baja_pres_E3	56	DigitalInput
AI_Baja_pres_E4	71	DigitalInput
AI_Baja_pres_E5	377	DigitalInput
AI_Baja_pres_E6	383	DigitalInput
AI_Baja_pres_E7	389	DigitalInput
AI_Baja_pres_E8	544	DigitalInput
AI_Baja_pres_E9	560	DigitalInput
AI_congelamiento_E1	28	DigitalInput
AI_congelamiento_E10	579	DigitalInput
AI_congelamiento_E2	43	DigitalInput
AI_congelamiento_E3	58	DigitalInput
AI_congelamiento_E4	73	DigitalInput
AI_congelamiento_E5	394	DigitalInput
AI_congelamiento_E6	403	DigitalInput
AI_congelamiento_E7	418	DigitalInput
AI_congelamiento_E8	547	DigitalInput
AI_congelamiento_E9	562	DigitalInput
AI_congelamiento_M	5	DigitalInput
AI_E1_Offline	79	DigitalInput
AI_E10_Offline	585	DigitalInput
AI_E2_Offline	80	DigitalInput
AI_E3_Offline	81	DigitalInput
AI_E4_Offline	82	DigitalInput
AI_E5_Offline	341	DigitalInput
AI_E6_Offline	353	DigitalInput
AI_E7_Offline	415	DigitalInput
AI_E8_Offline	552	DigitalInput
AI_E9_Offline	568	DigitalInput
AI_Fases_E1	25	DigitalInput
AI_Fases_E10	576	DigitalInput
AI_Fases_E2	40	DigitalInput
AI_Fases_E3	55	DigitalInput
AI_Fases_E4	70	DigitalInput
AI_Fases_E5	393	DigitalInput
AI_Fases_E6	401	DigitalInput
AI_Fases_E7	416	DigitalInput
AI_Fases_E8	543	DigitalInput
AI_Fases_E9	559	DigitalInput
AI_Fases_M	2	DigitalInput
AI_flujoE1	31	DigitalInput
AI_flujoE10	582	DigitalInput
AI_flujoE2	46	DigitalInput
AI_flujoE3	61	DigitalInput
AI_flujoE4	76	DigitalInput
AI_flujoE5	430	DigitalInput
AI_flujoE6	407	DigitalInput

APPENDICES

AI_flujoE7	424	DigitalInput
AI_flujoE8	549	DigitalInput
AI_flujoE9	566	DigitalInput
AI_flujoM	8	DigitalInput
CE1	5049	AnalogInput
CE10	5376	Holding
CE2	5050	AnalogInput
CE3	5051	AnalogInput
CE4	5052	AnalogInput
CE5	5257	Holding
CE6	5258	Holding
CE7	5259	Holding
CE8	5374	Holding
CE9	5375	Holding
CM	5048	AnalogInput
Comp_E1	215	DigitalInput
Comp_E10	535	DigitalInput
Comp_E2	219	DigitalInput
Comp_E3	222	DigitalInput
Comp_E4	225	DigitalInput
Comp_E5	336	DigitalInput
Comp_E6	337	DigitalInput
Comp_E7	338	DigitalInput
Comp_E8	533	DigitalInput
Comp_E9	534	DigitalInput
CompMaes	211	DigitalInput
Device_Next_Off	5047	AnalogInput
Device_Next_On	5046	AnalogInput
ED_sensor_flujo_E1	194	DigitalInput
ED_sensor_flujo_E10	651	DigitalInput
ED_sensor_flujo_E2	199	DigitalInput
ED_sensor_flujo_E3	204	DigitalInput
ED_sensor_flujo_E4	209	DigitalInput
ED_sensor_flujo_E5	347	DigitalInput
ED_sensor_flujo_E6	354	DigitalInput
ED_sensor_flujo_E7	370	DigitalInput
ED_sensor_flujo_E8	609	DigitalInput
ED_sensor_flujo_E9	630	DigitalInput
ED_sensor_flujo_M	163	DigitalInput
H_AP_CompE1	5072	AnalogInput
H_AP_CompE10	5424	AnalogInput
H_AP_CompE2	5084	AnalogInput
H_AP_CompE3	5096	AnalogInput
H_AP_CompE4	5108	AnalogInput
H_AP_CompE5	5310	AnalogInput
H_AP_CompE6	5271	AnalogInput
H_AP_CompE7	5288	AnalogInput
H_AP_CompE8	5388	AnalogInput
H_AP_CompE9	5407	AnalogInput
H_AP_CompM	5060	AnalogInput
H_BP_CompE1	5074	AnalogInput
H_BP_CompE10	5426	AnalogInput
H_BP_CompE2	5086	AnalogInput
H_BP_CompE3	5098	AnalogInput
H_BP_CompE4	5110	AnalogInput
H_BP_CompE5	5313	AnalogInput
H_BP_CompE6	5272	AnalogInput
H_BP_CompE7	5286	AnalogInput
H_BP_CompE8	5390	AnalogInput
H_BP_CompE9	5409	AnalogInput
H_BP_CompM	5062	AnalogInput
H_Horas_CompE1	5068	AnalogInput
H_Horas_CompE10	5428	AnalogInput
H_Horas_CompE2	5080	AnalogInput
H_Horas_CompE3	5092	AnalogInput
H_Horas_CompE4	5104	AnalogInput
H_Horas_CompE5	5260	AnalogInput
H_Horas_CompE6	5266	AnalogInput
H_Horas_CompE7	5278	AnalogInput
H_Horas_CompE8	5386	AnalogInput
H_Horas_CompE9	5405	AnalogInput
H_Horas_CompM	5056	AnalogInput
Indicador_M	5043	AnalogInput
L_AP_CompE1	5073	AnalogInput

L_AP_CompE10	5425	AnalogInput
L_AP_CompE2	5085	AnalogInput
L_AP_CompE3	5097	AnalogInput
L_AP_CompE4	5109	AnalogInput
L_AP_CompE5	5311	AnalogInput
L_AP_CompE6	5270	AnalogInput
L_AP_CompE7	5289	AnalogInput
L_AP_CompE8	5389	AnalogInput
L_AP_CompE9	5408	AnalogInput
L_AP_CompM	5061	AnalogInput
L_BP_CompE1	5075	AnalogInput
L_BP_CompE10	5427	AnalogInput
L_BP_CompE2	5087	AnalogInput
L_BP_CompE3	5099	AnalogInput
L_BP_CompE4	5111	AnalogInput
L_BP_CompE5	5312	AnalogInput
L_BP_CompE6	5273	AnalogInput
L_BP_CompE7	5287	AnalogInput
L_BP_CompE8	5391	AnalogInput
L_BP_CompE9	5410	AnalogInput
L_BP_CompM	5063	AnalogInput
L_Horas_CompE1	5069	AnalogInput
L_Horas_CompE10	5429	AnalogInput
L_Horas_CompE2	5081	AnalogInput
L_Horas_CompE3	5093	AnalogInput
L_Horas_CompE4	5105	AnalogInput
L_Horas_CompE5	5261	AnalogInput
L_Horas_CompE6	5267	AnalogInput
L_Horas_CompE7	5279	AnalogInput
L_Horas_CompE8	5387	AnalogInput
L_Horas_CompE9	5406	AnalogInput
L_Horas_CompM	5057	AnalogInput
LoadDown_Countdown	5045	AnalogInput
Modo_B_C	235	Coil
Modulate_Power_Req	88	AnalogInput
ON_OFF	142	DigitalInput
on_off2	84	Coil

Reset_Als	111	Coil
Setpoint_cal	91	Holding
Setpoint_enf	9	Holding
Temp_Cabezal_in	54	AnalogInput
Temp_Cabezal_out	55	AnalogInput
Temp_Conden_E1	67	AnalogInput
Temp_Conden_E10	251	AnalogInput
Temp_Conden_E2	72	AnalogInput
Temp_Conden_E3	77	AnalogInput
Temp_Conden_E4	82	AnalogInput
Temp_Conden_E5	42	AnalogInput
Temp_Conden_E6	191	AnalogInput
Temp_Conden_E7	196	AnalogInput
Temp_Conden_E8	237	AnalogInput
Temp_Conden_E9	244	AnalogInput
Temp_Conden_M	56	AnalogInput
Temp_cong_E1	66	AnalogInput
Temp_cong_E10	250	AnalogInput
Temp_cong_E2	71	AnalogInput
Temp_cong_E3	76	AnalogInput
Temp_cong_E4	81	AnalogInput
Temp_cong_E5	41	AnalogInput
Temp_cong_E6	190	AnalogInput
Temp_cong_E7	195	AnalogInput
Temp_cong_E8	236	AnalogInput
Temp_cong_E9	243	AnalogInput
Temp_cong_Maestro	53	AnalogInput
Temp_iny_E1	64	AnalogInput
Temp_iny_E10	248	AnalogInput
Temp_iny_E2	69	AnalogInput
Temp_iny_E3	74	AnalogInput
Temp_iny_E4	79	AnalogInput
Temp_iny_E5	39	AnalogInput
Temp_iny_E6	188	AnalogInput
Temp_iny_E7	193	AnalogInput
Temp_iny_E8	234	AnalogInput
Temp_iny_E9	241	AnalogInput

Temp_iny_Maestro	51	AnalogInput
Temp_ret_E1	65	AnalogInput
Temp_ret_E10	249	AnalogInput
Temp_ret_E2	70	AnalogInput
Temp_ret_E3	75	AnalogInput
Temp_ret_E4	80	AnalogInput
Temp_ret_E5	40	AnalogInput
Temp_ret_E6	189	AnalogInput
Temp_ret_E7	194	AnalogInput
Temp_ret_E8	235	AnalogInput
Temp_ret_E9	242	AnalogInput
Temp_ret_Maestro	52	AnalogInput
Ventilador_E1	217	DigitalInput
Ventilador_E10	647	DigitalInput
Ventilador_E2	221	DigitalInput
Ventilador_E3	224	DigitalInput
Ventilador_E4	227	DigitalInput
Ventilador_E5	340	DigitalInput
Ventilador_E6	351	DigitalInput
Ventilador_E7	364	DigitalInput
Ventilador_E8	605	DigitalInput
Ventilador_E9	626	DigitalInput
Ventilador_M	214	DigitalInput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