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Users' manual

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1. Introduction

These directions for use are designed to inform its users how to use a Homarium® properly.

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2. A Homarium® and its characteristics

A Homarium® is developed, created and identified by N.V. Homarium to keep crustaceans alive in saline water and trout and eel in fresh water.

N.V. Homarium® declines any responsibility when the homarium has been used for other purposes than provided for in this description.
Every user is also obliged to make inquiries about the local rules of bringing together different types of fish in the same water and if necessary to comply with them.

N.V. Homarium® declines any responsibility concerning local regulations if they differ from Belgian legislation and have not been confirmed in writing to the end user.

3. Handling the Homarium®

A Homarium® consists of two parts: a tank containing the water and a sub-unit containing technical components. These two parts are detachable but indentations in the tank prevent any axis shifting of the two parts subject to normal operations as described in the directions of use.

3.1 How to lift the homarium properly

A Homarium® should always be lifted using the bottom edge of the sub-unit so that tank and sub-unit are lifted in one movement .

If by lifting the homarium an axis shift (between tank and sub-unit) should occur, fit them again with the greatest caution. The sub-unit is a perfect fit with the indentations in the tank.

3.2 How to move a Homarium properly

Every Homarium® model is mobile by means of four castors and Homarium strongly advises against moving the homarium filled with water to prevent dashing and overflowing .
When moving the homarium, as manufacturers we also strongly advise pulling at the inner side of the walls. A homarium always needs to be pushed away : pulling at the walls causes extra pressure on the glued corners and frequent pulling may create cracks and even leaks in the worst case.

3.3 Transporting

A Homarium® must always be transported vertically. The surrounding packaging (double wrapping, board, etc.) must be fitted round the Homarium® to avoid any scratching to the walls or the cladding. Bear in mind the points discussed in section 3.1 of this guide when loading and unloading.

4. Location

4.1 Ideal standing-place

The ideal standing-place for a homarium® is a cool, well-ventilated area.
Do not place the homarium next to a source of heat and never place a homarium® in full sunlight. Sunlight leads to algal bloom causing the water surface to show a greenish shine or even a green colour. Always take care that the grills in the cladding are open because they are vital to ensure most favourable effect of the cooling system.

4.2 Stability

Always ensure that the Homarium® is positioned on a stable, flat and level underground. The wheels must always be in contact with the ground.

5. How to fill the homarium

Regardless the type of sea-water that enters the tank, the following general rules are vital:

When filling always ensure that you allow for a margin and take care that the homarium isn't brimful to prevent the water from spilling over when the shellfish is placed in the tank.

If you lift the cover of the pump unit, you will see a green tube running vertically downwards. This tube contains the utility wires for the pump and the cooling. Always ensure that no water can enter this tube to prevent the water from running on to the cooling and the sub-unit.
After filling the homarium the base plate usually needs to be pressed down for a few days to remove all the air from the filters.

5.1 Filling with fresh water

If you fill the Homarium® with fresh water, use "soft" water at about 20°C and fill up leaving a wide margin (see above). The water quality always needs to be controlled after refilling the homarium (see point 6.2).

5.2 Filling with fresh water and artificially created sea salt

If you practise Homarium® with saline (sea) water and there is none available, you can create saline water by mixing fresh water with artificial sea salt.

Fill the Homarium® with fresh water (as per 5.1).
To achieve optimum results we recommend using fully desalinated or hard water prepared by reverse osmosis. Using hard water can cause some disturbance due to the developing of carbons caused by saturation in the same way as it occurs in a natural environment.
Test the water quality (see point 6.2).

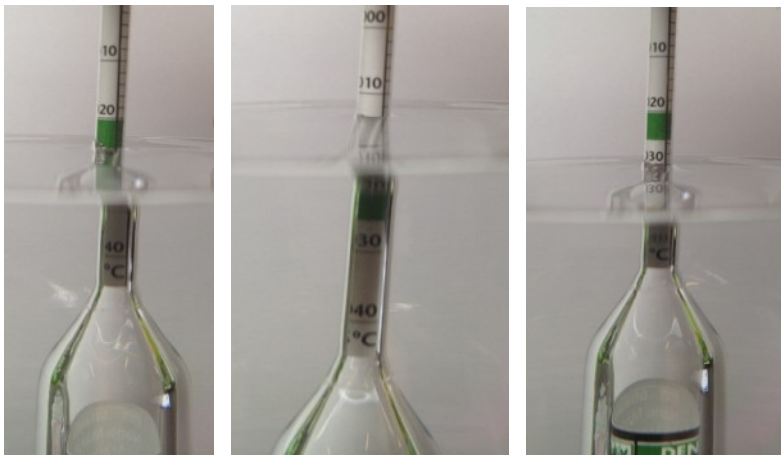
Specially prepared sea-salt is available from N.V. Homarium® or your local dealer. You need 4 kilos of salt per 120 litres (for a density of 1.025 at 20°C).
Stir the water vigorously until the densimeter shows the required density (see point 6.2). After mixing up the water for 6 to 8 hours, it is entirely usable for all kinds of sea-shell.

5.3 Filling with filtered sea water

If you practise the Homarium® with saline (sea) water you can add purified sea-water. Do check the water quality when you purchase water (see point 6.2).

6. Testing water quality

6.1 Density



Ideal Not enough To much

A densimeter – measuring salt density - is supplied with the Homarium®. A green mark is visible on the densimeter. The ideal density of the water is 1.025. This is the lower edge of the green mark.

If the water density is too high (too much salt),the green zone and a white zone under the green mark appears above the water surface : add fresh water to diminish the density .

If the density is too low (too little salt) the green zone will be under water. Add a quantity of artificially created sea salt into the tank and stir thoroughly for a while to dissolve the salt.

If necessary, repeat the above steps and/or combine until the required density has been achieved.

6.2 Testing the nitrates in the water

Why testing percentage of nitrates ?
Too many nitrates in the water are utmost harmful. They are created by organic substances like excrements, urine, food and plant residues. When organic substances degrade insufficiently, the water can become toxic.
Periodical testing avoids that risk.

7. Starting the Homarium®

Once the Homarium® has been filled and the water quality tested, you can switch the machine on.

7.1 Connecting to the power supply

Insert the plug in an earthed socket. This must be connected to 220V-50Hz.

In order to start the Homarium®, turn the start button to the “I” position. The green light on the start-stop switch will clear up and –when fitted- also the electronic thermostat .
To stop the Homarium®, set the start button to “0". The green light in the starting button will then go out.

7.2 Starting the pump

If you discover that the pump doesn’t pump any water when you start the Homarium®, grey tube B (see Figure 1) at the exit of the pump will have to be removed as the counter pressure from the water and the air behind the pump is too great.

When the pump is well started, water will come out of the exit. Insert the tube back into the exit and the water will spray into the tank. An oxygen tap is situated at the top of tube “a”. Control the amount of injected oxygen with this tap. An ideal mix is a constant not unduly strong flow of air into the water. If too much oxygen is injected, foam will be produced. Ensure that tube “A” is positioned with its inclined edge towards the exit of tube “B” for a smooth flow of oxygen.

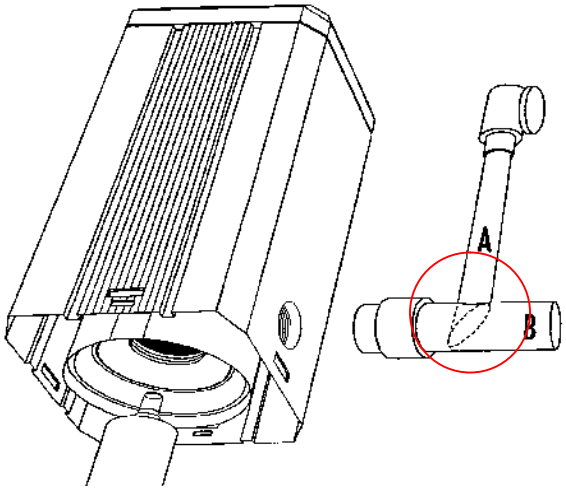


Figure 1

7.3 Setting the temperature

Your Homarium® has already been tested at the plant before delivery. The temperature is normally set at 8°C. If, however, you wish to change it, proceed as follows:

7.3.1 Analogous thermometer and thermostat

If your Homarium® has not been equipped with a digital thermostat, you will have a thermometer with a suction cup which must be kept under the water level. The temperature of the water can be read on the scale.

The analogous thermometer is contained in the technical section at the bottom of the tank (only for authorised technicians accessible).This is a grey block with a revolving scale on top of it. Proceed as follows to change the temperature:

Turn the screwdriver until the required temperature appears in the middle of the indentation.
At this moment the thermostat fixes the cooling at the temperature you have set. As the water mass is not directly on temperature, you will only be able to read the change in temperature
on the thermometer in the tank after a while.

If you do not see any change, replace the thermostat. It is not possible to repair it.

7.3.2 Digital thermometer and thermostat

If your Homarium® was supplied with a digital thermometer and thermostat, you will not have an analogous thermometer.
The digital thermostat indicates the temperature.

Digital controller with cooling or heating action
XR10CX

CONTENTS

1. GENERAL WARNING

1.1 PLEASE READ BEFORE USING THIS MANUAL

- This manual is part of the product and should be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different from those described hereunder. It cannot be used as a safety device.
- Check the application limits before proceeding.

1.2 ⚠ SAFETY PRECAUTIONS

- Check the supply voltage is correct before connecting the instrument.
- Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation
- Warning: disconnect all electrical connections before any kind of maintenance.
- Fit the probe where it is not accessible by the End User. The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor or to "Dixell S.p.A." (see address) with a detailed description of the fault.
- Consider the maximum current which can be applied to each relay (see Technical Data).
- Ensure that the wires for probes, loads and the power supply are separated and far enough from each other, without crossing or intertwining.
- In case of applications in industrial environments, the use of mains filters (our mod. FT1) in parallel with inductive loads could be useful.

2. GENERAL DESCRIPTION

Model **XR10C**, format 32 x 74 mm format is a single stage temperature controller suitable for applications in the field of refrigeration or heating. It provides a relay output to drive the compressor. It is also provided with 2 NTC or PTC probe inputs, the first one for temperature control, the second one, optional, to connect to the HOT KEY terminals to signal the condenser temperature alarm or to display a temperature. The digital input can operate as third temperature probe.
The HOT KEY output allows to connect the unit, by means of the external module XJ485-CX, to a network line **ModBUS-RTU** compatible such as the **dixell** monitoring units of X-WEB family. It allows to program the controller by means the HOT KEY programming keyboard.
The instrument is fully configurable through special parameters that can be easily programmed through the keyboard.

3. CONTROLLING LOADS

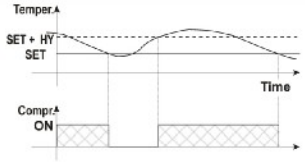
3.1 THE REGULATION OUTPUT

The regulation is performed according to the temperature measured by the probe.
The instruments are provided with the **CH** programmable parameter which enables the user to set the regulation both for heating or cooling applications:

- CH = CL: cooling applications
- CH = Ht: heating applications

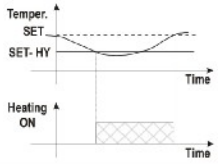
3.2 CH = CL: COOLING APPLICATIONS.

The Hy value is automatically set above the Set Point. If the temperature increases and reaches set point plus differential the compressor is started and then turned off when the temperature reaches the set point value again.



3.3 CH = HT: HEATING APPLICATION.

The Hy value is automatically set under the Set Point. If the temperature decreases and reaches set point minus differential the regulation output is activated and then turned off when the temperature reaches the set point value again.



4. FRONT PANEL COMMANDS

SET: To display target set point; in programming mode it selects a parameter or confirm an operation.

(DEF) Not enabled

(UP): To see the max. stored temperature; in programming mode it browses the parameter codes or increases the displayed value.

(DOWN) To see the min stored temperature; in programming mode it browses the parameter codes or decreases the displayed value.

To switch the instrument off, if onF = oFF.

Not enabled

KEY COMBINATIONS:

+ To lock & unlock the keyboard.

SET + To enter in programming mode.

SET + To return to the room temperature display.

4.1 USE OF LEDS

Each LED function is described in the following table.

LED	MODE	FUNCTION
❄	ON	Compressor enabled
❄	Flashing	Anti-short cycle delay enabled
(!)	ON	An alarm is occurring
☼	ON	Energy saving enabled
°C/°F	ON	Measurement unit
°C/°F	Flashing	Programming phase

5. MAX & MIN TEMPERATURE MEMORIZATION

5.1 HOW TO SEE THE MIN TEMPERATURE

1. Press and release the ▼ key.
2. The "Lo" message will be displayed followed by the minimum temperature recorded.
3. By pressing the ▼ key again or by waiting 5s the normal display will be restored.

5.2 HOW TO SEE THE MAX TEMPERATURE

1. Press and release the ▲ key.
2. The "Hi" message will be displayed followed by the maximum temperature recorded.
3. By pressing the ▲ key again or by waiting 5s the normal display will be restored.

5.3 HOW TO RESET THE MAX AND MIN TEMPERATURE RECORDED

1. Hold press the SET key for more than 3s, while the max. or min temperature is displayed. (rSt message will be displayed)
2. To confirm the operation the "rSt" message starts blinking and the normal temperature will be displayed.

6. MAIN FUNCTIONS

6.1 HOW TO SEE THE SETPOINT

1. Push and immediately release the **SET** key: the display will show the Set point value;
2. Push and immediately release the **SET** key or wait for 5 seconds to display the probe value again.

6.2 HOW TO CHANGE THE SETPOINT

1. Push the **SET** key for more than 2 seconds to change the Set point value;
2. The value of the set point will be displayed and the "**°C" or "°F"** LED starts blinking;
3. To change the Set value push the ▲ or ▼ arrows within 10s.
4. To memorise the new set point value push the **SET** key again or wait 10s.

6.3 HOW TO CHANGE A PARAMETER VALUE

To change the parameter's value operate as follows:

1. Enter the Programming mode by pressing the **Set** + ▼ keys for 3s (the **"°C" or "°F"** LED starts blinking).
2. Select the required parameter. Press the "**SET**" key to display its value
3. Use "**UP**" or "**DOWN**" to change its value.
4. Press "**SET**" to store the new value and move to the following parameter.

To exit: Press **SET + UP** or wait 15s without pressing a key.
NOTE: the set value is stored even when the procedure is exited by waiting the time-out to expire.

6.4 THE HIDDEN MENU

The hidden menu Includes all the parameters of the instrument.

6.4.1 HOW TO ENTER THE HIDDEN MENU

1. Enter the Programming mode by pressing the **Set** + ▼ keys for 3s (the **"°C" or "°F"** LED starts blinking).
2. Released the keys, then push again the Set+ ▼ keys for more than 7s. The Pr2 label will be displayed immediately followed from the HY parameter.
   NOW YOU ARE IN THE HIDDEN MENU.
3. Select the required parameter.
4. Press the "**SET**" key to display its value
5. Use ▲ or ▼ to change its value.
6. Press "**SET**" to store the new value and move to the following parameter.

To exit: Press **SET +** ▲ or wait 15s without pressing a key.
NOTE1: if none parameter is present in Pr1, after 3s the "noP" message is displayed. Keep the keys pushed till the Pr2 message is displayed.
NOTE2: the set value is stored even when the procedure is exited by waiting the time-out to expire.

6.4.2 HOW TO MOVE A PARAMETER FROM THE HIDDEN MENU TO THE FIRST LEVEL AND VICEVERSA.

Each parameter present in the HIDDEN MENU can be removed or put into "THE FIRST LEVEL" (user level) by pressing "**SET +** ▼".
In HIDDEN MENU when a parameter is present in First Level the decimal point is on.

6.5 HOW TO LOCK THE KEYBOARD

1. Keep pressed for more than 3 s the **UP + DOWN** keys.
2. The "POF" message will be displayed and the keyboard will be locked. At this point it will be possible only to see the set point or the MAX o Min temperature stored
3. If a key is pressed more than 3s the "POF" message will be displayed.

6.6 TO UNLOCK THE KEYBOARD

Keep pressed together for more than 3s the ▲ and ▼ keys, till the **"Pon"** message will be displayed.

6.7 THE ON/OFF FUNCTION

With "**onF = oFF**", pushing the **ON/OFF** key, the instrument is switched off. The **"OFF"** message is displayed. In this configuration, the regulation is disabled.
To switch the instrument on, push again the ON/OFF key.

WARNING: Loads connected to the normally closed contacts of the relays are always supplied and under voltage, even if the instrument is in stand by mode.

7. PARAMETERS

REGULATION

Hy Differential: (0.1 ÷ 25.5°C / 1÷255 °F) Intervention differential for set point. Compressor Cut IN is Set Point + differential (Hy). Compressor Cut OUT is when the temperature reaches the set point.
LS Minimum set point: (-50°C÷SET/-58°F÷SET): Sets the minimum value for the set point.
US Maximum set point: (SET÷110°C/ SET÷230°F). Set the maximum value for set point.
Ot Thermostat probe calibration: (-12.0÷12.0°C; -120÷120°F) allows to adjust possible offset of the thermostat probe.
P3P Third probe presence (P3): n= not present;, the terminal operates as digital input.; **y=** present;, the terminal operates as third probe.
O3 Third probe calibration (P3): (-12.0÷12.0°C; -120÷120°F). allows to adjust possible offset of the third probe.
P4P Fourth probe presence: (n = Not present; y = present).
o4 Fourth probe calibration: (-12.0÷12.0°C) allows to adjust possible offset of the fourth probe.
OdS Outputs activation delay at start up: (0÷255min) This function is enabled at the initial start up of the instrument and inhibits any output activation for the period of time set in the parameter.
AC Anti-short cycle delay: (0÷50 min) minimum interval between the compressor stop and the following restart.
COn Compressor ON time with faulty probe: (0÷255 min) time during which the compressor is active in case of faulty thermostat probe. With COn=0 compressor is always OFF.
COF Compressor OFF time with faulty probe: (0÷255 min) time during which the compressor is OFF in case of faulty thermostat probe. With COF=0 compressor is always active.
CH Type of action: CL = cooling; Ht = heating.

DISPLAY

CF Temperature measurement unit: °C=Celsius; **°F**=Fahrenheit. WARNING: When the measurement unit is changed the SET point and the values of the parameters Hy, LS, US, Ot, ALU and ALL have to be checked and modified if necessary).
rES Resolution (for °C): (in = 1°C; dE = 0.1 °C) allows decimal point display.
dLy Display delay: (0 ÷20.0m; risul. 10s) when the temperature increases, the display is updated of 1 °C/1°F after this time.

ALARMS

ALC Temperature alarms configuration: (Ab; rE)
Ab= absolute temperature: alarm temperature is given by the ALL or ALU values. rE = temperature alarms are referred to the set point. Temperature alarm is enabled when the temperature exceeds the "**SET+**ALU" or "SET-ALL" values.
ALU MAXIMUM temperature alarm: (SET÷110°C; SET÷230°F) when this temperature is reached the alarm is enabled, after the "ALd" delay time.
ALL Minimum temperature alarm: (-50.0 ÷ SET°C; -58÷230°F when this temperature is reached the alarm is enabled, after the "ALd" delay time.
AFH Differential for temperature alarm recovery: (0,1÷25,5°C; 1÷45°F) Intervention differential for recovery of temperature alarm.
ALd Temperature alarm delay: (0÷255 min) time interval between the detection of an alarm condition and alarm signalling.
dAO Exclusion of temperature alarm at startup: (from 0.0 min to 23.5h) time interval between the detection of the temperature alarm condition after instrument power on and alarm signalling.

CONDENSER TEMPERATURE ALARM (detected by the fourth probe)

AP2 Probe selection for temperature alarm of condenser: nP = no probe; **P1** =thermostat probe; **P2** = evaporator probe; **P3** =configurable probe; **P4** = Probe on Hot Key plug.
AL2 Low temperature alarm of condenser: (-55÷150°C) when this temperature is reached the LA2 alarm is signalled, possibly after the Ad2 delay.
Au2 High temperature alarm of condenser: (-55÷150°C) when this temperature is reached the HA2 alarm is signalled, possibly after the Ad2 delay.
AH2 Differential for temperature condenser alarm recovery: (0.1÷25,5°C; 1÷45°F)
Ad2 Condenser temperature alarm delay: (0÷255 min) time interval between the detection of the condenser alarm condition and alarm signalling.
dA2 Condenser temperature alarm exclusion at start up: (from 0.0 min to 23.5h, res. 10min)
bLL Compressor off with low temperature alarm of condenser: n = no: compressor keeps on working; **Y = yes,** compressor is switched off till the alarm is present, in any case regulation restarts after AC time at minimum.
AC2 Compressor off with high temperature alarm of condenser: n = no: compressor keeps on working; **Y = yes,** compressor is switched off till the alarm is present, in any case regulation restarts after AC time at minimum.

DIGITAL INPUT

i1P Digital input polarity: oP: the digital input is activated by opening the contact; **CL:** the digital input is activated by closing the contact.
i1F Digital input configuration: EAL = external alarm: "EA" message is displayed; **bAL** = serious alarm "CA" message is displayed. **PAL** = pressure switch alarm, "CA" message is displayed; **dor** = door switch function; **dEF** = not enabled; **AUS** = not enabled; **Htr** = kind of action inversion (cooling – heating); **FAn = do not set it; ES** = Energy saving.
did: (0÷255 min) **with i1F= EAL or i1F = bAL digital input alarm delay:** delay between the detection of the external alarm condition and its signalling.
with i1F= dor: door open signalling delay
with i1F = PAL: time for pressure switch function: time interval to calculate the number of the pressure switch activation.
nPS Pressure switch number: (0 ÷15) Number of activation of the pressure switch, during the "did" interval, before signalling the alarm event (I2F= PAL).
If the nPS activation in the did time is reached, switch off and on the instrument to restart normal regulation.
odc Compressor status when open door: no; Fan = normal; **CPr; F_C** = Compressor OFF.
rrd Outputs restart after doA alarm: no = outputs not affected by the doA alarm; **yES** = outputs restart with the doA alarm;
HES Temperature increase during the Energy Saving cycle : (-30,0°C÷30,0°C/-22÷86°F) it sets the increasing value of the set point during the Energy Saving cycle.

OTHER

Adr Serial address (1÷244): identifies the instrument address when connected to a ModBUS compatible monitoring system.
PbC Type of probe: it allows to set the kind of probe used by the instrument: **PbC** = PBC probe, **ntc** = NTC probe.
onF on/off key enabling: nu = disabled; **oFF** = enabled; **ES = not set it**.
dP1 Thermostat probe display
dP3 Third probe display- *optional*.
dP4 Fourth probe display.

rSE Real set point: (readable only), it shows the set point used during the energy saving cycle or during the continuous cycle.
rEL Software release for internal use.
Ptb Parameter table code: readable only.

8. DIGITAL INPUT (ENABLED WITH P3P = N)

The free voltage digital input is programmable in different configurations by the "**i1F**" parameter.

8.1 DOOR SWITCH INPUT (i1F = dor)

It signals the door status and the corresponding relay output status through the "**odc**" parameter: **no, Fan** = normal (any change); **CPr, F_C** = Compressor OFF.
Since the door is opened, after the delay time set through parameter "**did**", the door alarm is enabled, the display shows the message "**dA**" and **the regulation restarts is rtr = yES.** The alarm stops as soon as the external digital input is disabled again. With the door open, the high and low temperature alarms are disabled.

8.2 GENERIC ALARM (i1F = EAL)

As soon as the digital input is activated the unit will wait for "**did**" time delay before signalling the "**EAL**" alarm message. The outputs status don't change. The alarm stops just after the digital input is de-activated.

8.3 SERIOUS ALARM MODE (i1F = bAL)

When the digital input is activated, the unit will wait for "**did**" delay before signalling the "**CA**" alarm message. The relay outputs are switched OFF. The alarm will stop as soon as the digital input is de-activated.

8.4 PRESSURE SWITCH (i1F = PAL)

If during the interval time set by "**did**" parameter, the pressure switch has reached the number of activation of the "**nPS**" parameter, the "**CA**" pressure alarm message will be displayed. The compressor and the regulation are stopped. When the digital input is ON the compressor is always OFF.
If the nPS activation in the did time is reached, switch off and on the instrument to restart normal regulation.

8.5 INVERSION OF THE KIND OF ACTION: HEATING-COOLING (i1F = Htr)

This function allows to invert the regulation of the controller: from cooling to heating and viceverse.

8.6 ENERGY SAVING (i1F = ES)

The Energy Saving function allows to change the set point value as the result of the SET+ HES (parameter) sum. This function is enabled until the digital input is activated.

8.7 DIGITAL INPUTS POLARITY

The digital input polarity depends on the "**i1P**" parameter.
i1P=CL: the input is activated by closing the contact.
i1P=OP: the input is activated by opening the contact

9. TTL SERIAL LINE – FOR MONITORING SYSTEMS

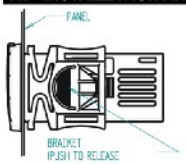
The TTL serial line, available through the HOT KEY connector, allows by means of the external TTL/RS485 converter, **XJ485-CX**, to connect the instrument to a monitoring system **ModBUS-RTU** compatible such as the X-WEB500/3000/300.

10. X-REP OUTPUT – OPTIONAL

As optional, an X-REP can be connected to the instrument, trough the HOY KEY connector. The X-REP output **EXCLUDES** the serial connection.

To connect the X-REP to the instrument the following connectors must be used CAB-51F(1m), CAB-52F(2m), CAB-55F(5m),

11. INSTALLATION AND MOUNTING



Instrument **XR10CX** shall be mounted on vertical panel, in a 29x71 mm hole, and fixed using the special bracket supplied. The temperature range allowed for correct operation is 0÷60 °C. Avoid places subject to strong vibrations, corrosive gases, excessive dirt or humidity. The same recommendations apply to probes. Let air circulate by the cooling holes.

12. ELECTRICAL CONNECTIONS

The instrument is provided with screw terminal block to connect cables with a cross section up to 2,5 mm². Before connecting cables make sure the power supply complies with the instrument's requirements. Separate the probe cables from the power supply cables, from the outputs and the power connections. Do not exceed the maximum current allowed on each relay, in case of heavier loads use a suitable external relay.

12.1 PROBE CONNECTION

The probes shall be mounted with the bulb upwards to prevent damages due to casual liquid infiltration. It is recommended to place the thermostat probe away from air streams to correctly measure the average room temperature. Place the defrost termination probe among the evaporator fins in the coldest place, where most ice is formed, far from heaters or from the warmest place during defrost, to prevent premature defrost termination.

13. HOW TO USE THE HOT KEY

13.1 HOW TO PROGRAM A HOT KEY FROM THE INSTRUMENT (UPLOAD)

1. Program one controller with the front keypad.
2. When the controller is ON, insert the "**Hot key**" and push ▲ key; the "**uPL**" message appears followed a by flashing "**End**"
3. Push "**SET**" key and the **End** will stop flashing.
4. Turn OFF the instrument remove the "**Hot Key**", then turn it ON again.

NOTE: the "**Err**" message is displayed for failed programming. In this case push again ▲ key if you want to restart the upload again or remove the "**Hot key**" to abort the operation.

13.2 HOW TO PROGRAM AN INSTRUMENT USING A HOT KEY (DOWNLOAD)

1. Turn OFF the instrument.
2. Insert a **programmed "Hot Key" into the 5 PIN receptacle** and then turn the Controller ON.
3. Automatically the parameter list of the "**Hot Key**" is downloaded into the Controller memory, the "**doL**" message is blinking followed a by flashing "**End**".
4. After 10 seconds the instrument will restart working with the new parameters.
5. Remove the "**Hot Key**"..

NOTE the message "**Err**" is displayed for failed programming. In this case turn the unit off and then on if you want to restart the download again or remove the "**Hot key**" to abort the operation.

14. ALARM SIGNALS

Message	Cause	Outputs
"P1"	Room probe failure	Compressor output acc. to par. "Con" and "CCF"
"P3"	Third probe failure	Outputs unchanged
"P4"	Fourth probe failure	Outputs unchanged
"HA"	Maximum temperature alarm	Outputs unchanged.
"LA"	Minimum temperature alarm	Outputs unchanged.
"HA2"	Condenser high temperature	It depends on the "Ac2" parameter
"LA2"	Condenser low temperature	It depends on the "bLL" parameter
"dA"	Door open	Compressor according to rrd
"EA"	External alarm	Output unchanged.
"CA"	Serious external alarm (i1F=bAL)	All outputs OFF.
"CA"	Pressure switch alarm (i1F=PAL)	All outputs OFF

14.1 ALARM RECOVERY

Probe alarms "**P1**", "**P3**" and "**P4**" start some seconds after the fault in the related probe; they automatically stop some seconds after the probe restarts normal operation. Check connections before replacing the probe.
Temperature alarms "**HA**", "**LA**" "**HA2**" and "**LA2**" automatically stop as soon as the temperature returns to normal values.
Alarms "**EA**" and "**CA**" (with i1F=bAL) recover as soon as the digital input is disabled.
Alarm "**CA**" (with i1F=PAL) recovers only by **switching off and on** the instrument.

14.2 OTHER MESSAGES

Pon	Keyboard unlocked.
PoF	Keyboard locked
noP	**In programming mode**: none parameter is present in Pr1 **On the display** or in dP2, dP3, dP4: the selected probe is nor enabled
noA	**None alarm is recorded.**

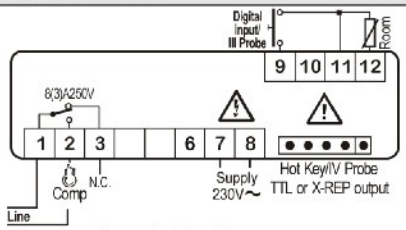
15. TECHNICAL DATA

Housing: self extinguishing ABS.
Case: XR10CX frontal 32x74 mm; depth 60mm;
Mounting: XR10CX panel mounting in a 71x29mm panel cut-out
Protection: IP20; **Frontal protection: XR10CX** IP65
Connections: Screw terminal block ≤ 2,5 mm² wiring.
Power supply: according to the model: 12Vac/dc, ±10%; 24Vac/dc, ±10%; 230Vac ±10%, 50/60Hz, 110Vac ±10%, 50/60Hz
Power absorption: 3VA max
Display: 3 digits, red LED, 14,2 mm high; **Inputs**: Up to 3 NTC or PTC probes.
Digital input: free voltage contact
Relay outputs: compressor SPST 8(3) A, 250Vac; or 20(8)A 250Vac
Data storing: on the non-volatile memory (EEPROM).
Kind of action: 1B; **Pollution grade:** 2;**Software class:** A.;
Rated impulsive voltage: 2500V; **Overvoltage Category:** II
Operating temperature: 0÷60 °C;**Storage temperature:** -30÷65 °C.
Relative humidity: 20÷85% (no condensing)
Measuring and regulation range: NTC probe: -40÷110°C (-40÷230°F);
PTC probe: -50÷150°C (-58÷302°F)
Resolution: 0,1 °C or 1°C or 1 °F (selectable); **Accuracy (ambient temp. 25°C)**: ±1 °C ±1 digit

16. CONNECTIONS

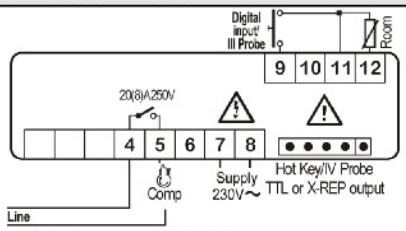
The X-REP output excludes the TTL output.. It's present in the following codes: XR10CX- xx**2**xx, XR10CX –xx**3**xx;

16.1 XR10CX – 8A COMPRESSOR



12Vac/dc supply: connect to the terminals 7 and 8.
24Vac/dc supply: connect to the terminals 7 and 8.
120Vac supply: connect to the terminals 7 and 8.

16.2 XR10CX – 20A COMPRESSOR



12Vac/dc supply: connect to the terminals 7 and 8.
24Vac/dc supply: connect to the terminals 7 and 8.
120Vac supply: connect to the terminals 7 and 8.

17. DEFAULT SETTING VALUES

Label	Name	Range	°C/°F	
Set	Set point	LS÷US	5.0	---
Hy	Differential	0.1÷25.5°C/ 1÷ 255°F	2.0	Pr1
LS	Minimum set point	-50°C÷SET/-58°F÷SET	-50.0	Pr2
US	Maximum set point	SET÷110°C/ SET ÷ 230°F	110	Pr2
Ot	Thermostat probe calibration	-12÷12°C /-120÷120°F	0.0	Pr1
P3P	Third probe presence	n=not present; Y=pres.	n	Pr2
O3	Third probe calibration	-12÷12°C /-120÷120°F	0	Pr2
P4P	Fourth probe presence	n=not present; Y=pres.	n	Pr2
O4	Fourth probe calibration	-12÷12°C /-120÷120°F	0	Pr2
OdS	Outputs delay at start up	0÷255 min	0	Pr2
AC	Anti-short cycle delay	0 ÷ 50 min	1	Pr1
COn	Compressor ON time with faulty probe	0 ÷ 255 min	15	Pr2
COF	Compressor OFF time with faulty probe	0 ÷ 255 min	30	Pr2
CH	Kind of action	CL=cooling; Ht= heating	cL	Pr1
CF	Temperature measurement unit	°C ÷ °F	°C	Pr2
rES	Resolution	in=integer; dE= dec.point	dE	Pr1
dLy	Display temperature delay	0 ÷ 20.0 min (10 sec.)	0	Pr2
ALc	Temperat. alarms configuration	rE= related to set; Ab = absolute	Ab	Pr2
ALU	MAXIMUM temperature alarm	Set÷110.0°C; Set÷230°F	110	Pr1
ALL	Minimum temperature alarm	-50.0°C÷Set/ -58°F÷Set	-50.0	Pr1
AFH	Differential for temperat. alarm recovery	(0,1°C÷25,5°C) (1°F÷45°F)	1	Pr2
ALd	Temperature alarm delay	0 ÷ 255 min	15	Pr2
dAo	Delay of temperature alarm at start up	0 ÷ 23h e 50'	1.0	Pr2
AP2	Probe for temperat. alarm of condenser	nP; P1; P2; P3; P4	P4	Pr2
AL2	Condenser for low temperat. alarm	(-55 ÷ 150°C) (-67÷ 302°F)	-40	Pr2
AU2	Condenser for high temperat. alarm	(-55 ÷ 150°C) (-67÷ 302°F)	110	Pr2
AH2	Differ. for condenser temp. alar. recovery	[0,1°C ÷ 25,5°C] [1°F ÷ 45°F]	5	Pr2
Ad2	Condenser temperature alarm delay	0 ÷ 254 (min.) , 255=nU	15	Pr2
dA2	Delay of cond. temper. alarm at start up	0.0 ÷ 23h 50'	1.0	Pr2
bLL	Compr. off for condenser low temperature alarm	n(0) - Y(1)	n	Pr2
AC2	Compr. off for condenser high temperature alarm	n(0) - Y(1)	n	Pr2
i1P	Digital input polarity	oP=opening;CL=closing	cL	Pr1
i1F	Digital input configuration	EAL, bAL, PAL, dor, dEF, Htr, AUS	EAL	Pr1
did	Digital input alarm delay	0÷255min	5	Pr1
nPS	Number of activation of pressure switch	0 ÷15	15	Pr2
odc	Compress status when open door	no; Fan; CPr; F C	no	Pr2
rrd	Regulation restart with door open alarm	n – Y	y	Pr2
HES	Differential for Energy Saving	(-30°C÷30°C) (-54°F÷54°F)	0	Pr2
Adr	Serial address	0÷247	1	Pr2
PbC	Kind of probe	Ptc; ntc	ntc	Pr1
onF	on/off key enabling	nu, oFF; ES	nu	Pr2
dP1	Room probe display	–	--	Pr1
dP3	Third probe display	–	--	Pr1
dP4	Fourth probe display	–	--	Pr2
rSE	Real set point value	actual set	--	Pr2
rEL	Software release	–	--	Pr2
Ptb	Map code	–	--	Pr2

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8. Building up the biology

Before you start with new filters and fresh water, you have to build up the biology in the water. This is of the highest importance ! If you don't respect this rule, your shellfish might die easily as the biological environment is incompatible.

Gradually increase the number of shellfish in the water. Start with two or three the first day and after a few days add the double. Continue gradually .It takes a three weeks to reach the maximum capacity.
Remember : more haste less speed !

9. Maintenance

9.1 Daily maintenance

It is advisable to clean the brim daily (just above the water surface) to remove the salt deposit on the walls to keep the transparency optimal.
Household paper is the best to do this.
Never use abrasive materials or detergents.

9.2 Monthly maintenance

Vacuum the radiator above the cooling unit monthly to keep it free from dust and to maintain the efficiency of the cooling unit optimal.
The rear wall of the Homarium should be removed to get access to the radiator.

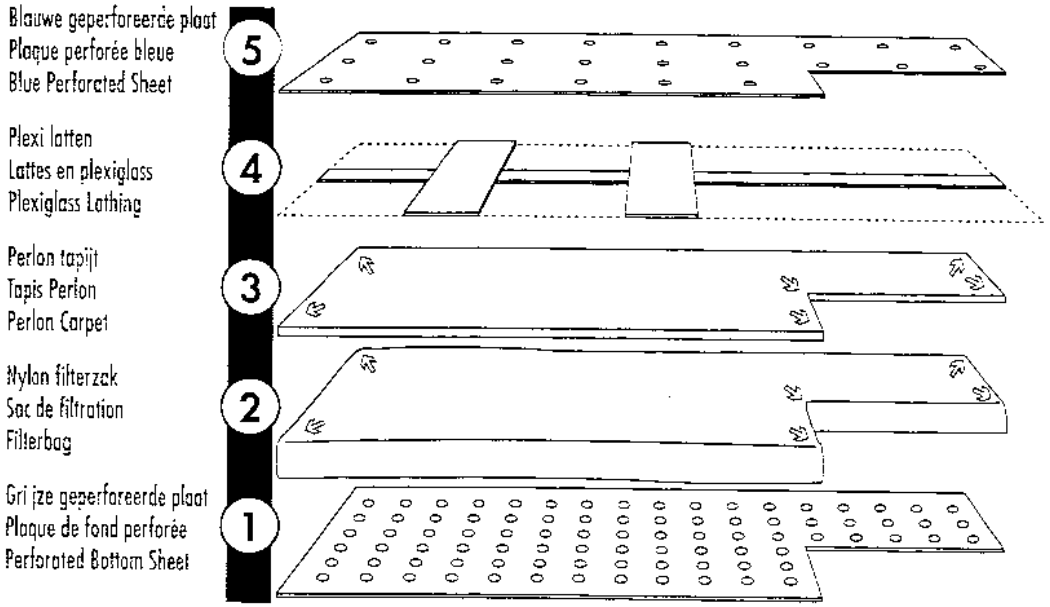
9.3 Replacing the filters

If the water is no longer clear and the contamination increases, the filters are at the end of their lives and have to be replaced : have your supplier do it or order the materials from your supplier and do it yourself.

If you replace the filter yourself, proceed as follows

- Switch the Homarium® off using start-stop button
- Remove all the shellfish from the Homarium®
- Remove the water. It is best if you insert a siphon in the pumping housing. That means you can remove the water that is in the filter as well. Open the pumping housing by removing the cover and or the rock cover.
- Remove the bottom plate (white, blue, rock wall imitation)
- Remove the clamping plates
- Remove the perlon mat and throw it away

- Ø Remove the bags with active carbon (throw away)
- Ø Remove the grey perforated plates
- Ø If you want to clean the Homarium® thoroughly, do so now. Never use hot water or detergents for cleaning because both can affect the glue seals and cause cracks in the acrylic wall and even lead to leaks.
- Ø Rinse well and ensure no rinsing water is left behind.
- Ø Replace the grey perforated sheets
- Ø Position the new bags of active carbon. Take care that all corners are properly filled and pressed into position. If not, filtering will not work properly because water always takes the easiest route.
- Ø Position the perlon mat
- Ø Replace the clamping plates
- Ø Replace the base sheet or rock wall
- Ø Fill the tank with water and re-start (see point 7)



Layers in the filter

10. Guarantees

There is a one-year guarantee on the technical units (pump, cooling unit and thermostat).
The guarantee is revoked if there is any operation on the device or materials by a third party who is not part of N.V. Homarium®.

Maintenance work and biology problems are never included in the guarantee.