

CO CHILLER ORGANIZER



OPERATOR'S MANUAL



 **Dometic**

 **Ondaria**
MARINE AIR-CONDITIONING

Preface

The *Chiller Organizer* is an electronic device, with the function to control the operation of a water chiller and heat pump unit with one or two hermetic refrigeration compressors.

The system has been designed and produced to comply with the following rules:

- Disturbance immunity IEC801-2,level 4
- CE mark
- "Low tension" directive

The instrument is essentially composed by two boards: CPU plus Power Board and Display Board

The two boards are connected by a 2-wire system. A slave display panel for remote installation is foreseen as an option.

This manual has been developed to provide useful information,necessary to insure a proper operation of the controller. Misunderstanding of procedures may result in unsatisfactory performance and/or failure of the Organizer.

PLEASE READ THIS MANUAL COMPLETELY BEFORE PROCEEDING.

Condaria 87 s.r.l. reserves the right to make any change and improvement on this product without prior notice.



Functions

- Thermoregulation of the system, 2 set point with hysteresis
- Generation of starting delay of compressor(s)
- Cooling/Heating mode change-over
- Management of alarms with relevant timing and metering
- Hour meter for each compressor
- Management of the salt water pump
- Management of the treated water circulation pump
- Management of controls, either from the primary display panel or from the slave remote panel
- System temperature measurement by means of NTC sensor
- Management of anti-freeze by NTC sensor
- Management of high condenser temperature by NTC sensor
- Visualization of data in °C or °F.

Control Panel 1 Compressor

- Button **C** allows reading the hours of operation of the system
- Button **MODE** allows changing-over from Cool Mode to Heat Mode.
- Button **ON/OFF** allows switching the system ON or OFF
- Led **COOL** is lit (green) when in Cooling Mode
- Led **HEAT** is lit (green) when in Heating Mode
- Led **SWP** visualizes the state of the salt water pump; it is lit (green) when the pump is running
- Led **CP** visualizes the state of the treated water circulation pump; it is lit (green) when the pump is running
- Led **C** is full lit (green) when the compressor is running; it is blinking when the compressor is stand-by or timed.
- Led **AL** (red) visualizes an alarm mode of the system.

Control Panel 2 Compressors

- Button **C1** switches on or off compressor 1 and allows reading its hours of operation
- Button **C2** switches on or off compressor 2 and allows reading its hours of operation
- Button **MODE** allows changing-over from Cool Mode to Heat Mode
- Button **ON/OFF** allows switching the system ON or OFF
- Led **COOL** is lit (green) when in Cooling Mode
- Led **HEAT** is lit (green) when in Heating Mode
- Led **SWP** visualizes the state of the salt water pump; it is lit (green) when the pump is running
- Led **CP** visualizes the state of the treated water circulation pump; it is lit (green) when the pump is running
- Led **C1** is full lit (green) when compressor 1 is running; it is blinking when the compressor is stand-by or timed; it is off when compressor 1 is not active.
- Led **C2** is full lit (green) when compressor 2 is running; it is blinking when the compressor is stand-by or timed; it is off when compressor 2 is not active.
- Leds **AL1** and **AL2** visualize an alarm mode of the system (red).

Factory Setting

When the Organizer is used for the first time, it will respond according to its programmed settings:

Cooling set point	10°C	50°F
Heating set point	43°C	109°F
Antifreeze set point	-7°C	19°F
High condenser temp set point	65°C	149°F

On a two-compressor unit, the way of operation will be as described below :

COOLING MODE:

- at 12°C or 53°F compressor 2 will go OUT
- at 10°C or 50°F compressor 1 and salt water pump will go OUT
- at 12°C or 53°F compressor 1 and salt water pump will go IN
- at 13°C or 55°F compressor 2 will go IN

HEATING MODE:

- at 41°C or 106°F compressor 2 will go OUT
- at 43°C or 109°F compressor 1 and salt water pump will go OUT
- at 40°C or 104°F compressor 1 and salt water pump will go IN
- at 38°C or 100°F compressor 2 will go IN

The instruments will be active after depressing the **ON/OFF** button.

The display and the leds will light.

In case power is lost for any reason, the instrument will memorize its present status. When power is restored, the Organizer will operate again as last programmed.

Programming

It is STRONGLY recommended to avoid tampering the factory setting.

Only if really necessary, and following the instructions of Condaria and Service Centers representatives, the programmed set point could be modified, by following the underlisted procedure:

- Switch the panel to OFF (program mode can ONLY be entered from the OFF mode)
- Press and hold the **MODE** button for some seconds
- The cooling set point will be displayed.
- Change the set point, if necessary, by pressing button **C1**. (C)
- Change the active mode to Heat by pressing button **MODE**, the relevant set point will be displayed.
- Change the set point, if necessary, by pressing button **C1**. (C)
- Press again the **MODE** button
- The antifreeze set point will be displayed (cool and heat leds will be lit)
- Change the set point, if really necessary, by pressing button **C1** (C)
- Press again the **MODE** button
- The condenser high temp set point will be displayed (cool and heat leds will be off).
- Change set point, if really necessary, by pressing button **C1** (C)
- Switch the panel to OFF

Any programming changes while in program mode will be memorized as default setting when the controller is returned to the ON mode.

In order to display the working hours of compressors, follow underlisted procedure :

- Switch the panel to OFF
- Press button **C1** and hold for some seconds
- The working hours of compressor 1 will be shown
- Press button **C2** and hold for some seconds
- The working hours of compressor 2 will be shown
- Exit the hour meter mode with **POWER** button.

In case of single compressor unit, the hour meter function is activated by button **C**.

Settaggio Mini Interruttori

Four mini dip switches are contained into the CPU main board; setting of these switches should NOT be tampered with by the user, unless if really necessary and following the instruction of Condaria and Service Centers representatives.

MIN DIP 1 ON	The display is showing degrees °F
MIN DIP 1 OFF	The display is showing degrees °C

NOTE : MINI DIP 1 is the only switch that the user can utilize freely. According to user's choice, the set parameter will also be converted in °F or °C.

MIN DIP 2 ON	The configuration of the unit is set for 2 compressors
MIN DIP 2 OFF	The configuration of the unit is set for single compressor

NOTE : Setting of MINI DIP 2 should only be reserved to the factory or to Service Centers.

MIN DIP 3	Its use is exclusively reserved to the factory or to Service Centers. It is only used during the test of the system at the factory, then is set to OFF and must not be tampered with
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MIN DIP 4	Not active (Spare). Position ON or OFF has no effect.
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Alarm Description

An important and sole feature of the Chiller Organizer is the possibility to visualize on the control panel the reason why an alarm signal has occurred. Visual messages are split in two types:

- A) Signalling by leds **AL1** and **AL2** (or AL)
- B) Alphanumeric signalling on the three digit green display

LED ALARMS :

Led AL1 lit (red)	Indicates an alarm mode for high or low pressure of the circuit of compressor 1
Led AL2 lit (red)	Indicates an alarm mode for high or low pressure of the circuit of compressor 2

The alarm is immediately signalled by the switching on of the relevant led, and disappears when the normal working conditions are brought back.

After the third consecutive alarm, the operation of the compressor of the relevant circuit is locked (the led is continuously lit). To reset the alarm, correct the problem and switch the Chiller Organizer off and on again.

ALPHANUMERIC ALARMS :

CLP	Indicates an alarm mode coming from the anti-freeze sensor
CHP	Indicates an alarm mode coming from the high condenser temperature sensor
FLS	Indicate an alarm mode coming from the flow switch
PE 1	Indicates that the temperature sensor is not connected or short – circuited
PE 2	Indicates that the anti-freeze and high condenser temperature sensor is not connected or short-circuited

IMPORTANT NOTICE:

The signalling of any alarm implies a working failure or anomaly of the system.

Before restarting the system, it is therefore necessary to DETECT and CORRECT THE REASON OF UNCORRECT OPERATION.

Faults – Causes – Remedies

FAULT	PROBABLE CAUSE	REMEDY
AL1 LOW OR HIGH PRESSURE ALARM COMPRESSOR 1	* Freon leak compressor 1	* Find leak, repair, vacuum the system and refill
	* Poor treated water circulation	* Check for air in the circuit * Check clogging
	* Air in refrigerant circuit	* Vacuum compressor and make refrigerant charge
	* Refrigerant overcharge	* Remove excess refrigerant
	* Insufficient or no condenser water flow; clogged condenser or sea water strainer, or non operative sea water pump	* Adjust water regulating valve to condenser; clean condenser or strainer, check electrical connection on the sea water pump
AL2 LOW OR HIGH PRESSURE ALARM COMPRESSOR 2	* Freon leak compressor 2	* Find leak, repair, vacuum the system and refill
	* Poor treated water circulation	* Check for air in the circuit * Check clogging
	* Air in refrigerant circuit	* Vacuum compressor and make refrigerant charge
	* Refrigerant overcharge	* Remove excess refrigerant
	* Insufficient or no condenser water flow; clogged condenser or sea water strainer, or non operative sea water pump	* Adjust water regulating valve to condenser; clean condenser or strainer, check electrical connection on the sea water pump
CLP ANTIFREEZE ALARM	* Poor sea water circulation on heating mode	* Check for air in the circuit * Check clogging * Check electrical connection on the treated water pump * Check sea water filter * Temperature sea water less than 10°C
CHP ANTIFREEZE ALARM	* Poor sea water circulation on cooling mode	* Check for air in the circuit * Check clogging * Check electrical connection on the treated water pump * Check sea water filter * Temperature sea water more than 40°C
FLS FLOW SWITCH ALARM	* Poor treated water circulation	* Check for air in the circuit * Check clogging * Check electrical connection on the treated water pump * Check the flow switch
PE1 PROBE 1 ALARM	* Faulty sensor	* Change probe
PE2 PROBE 1 ALARM	* Faulty sensor	* Change probe