VENTURA
COMBI

Maintenance
And Use Manual
1. INTRODUCTION

PRESENTATION
Dear Client,
Oscartek is pleased to number you among its customers and relies the bought machine will match your expectation. In order to get the best performances of the machine, we recommend you to follow all suggestions and instructions, which are included in this manual.

1.2. HOW TO USE THE MACHINE

- PERMITTED USES
  This refrigerated display cabinet has been manufactured for beverage products presentation and sell.
- NOT PERMITTED USES
  It is absolutely forbidden the use of the refrigerated display cabinet for pharmaceutical products.

1.3. RESPECTED NORMS

The refrigerated display cabinet has been manufactured in respect of the safety issues relevant to the following norm:

- Directive N° 2006/95/CE  : Low tension
- Directive N° 97/23/EC (P.E.D.)  : European Pressure Equipment
- Norm CEI 17-13/1 (EN 80494/1)  : Realization of Electric Installations
- Norm CEI EN 60335-1 (CEI 51-150)  : Safety of household and similar electrical appliances
- Norm CEI EN 60335-2-24 (CEI 61-56)  : Special norms for refrigerators, freezers and ice machines
- UL74
- NSF 7

1.4. RESPONSIBILITY

Oscartek declines any responsibility relevant to damages on persons, animals and/or products in case of:

- No respect of in force norms
- Installation, which is not conform to the instructions manual
- No observance of all maintenance operations, which are suggested in this manual
- No previously agreed change operations with the manufacturer
- No proper use of the refrigerated display cabinet, for which the machine has been produced.

1.5. WARNING

Anytime Oscartek reserves the right to up-date the content of this manual and/or to modify the product in order to improve its quality and performance, without any previous notice and/or communication.

2. DISPLAY CASE DATA PLATE

2.1. DATA PLATE CONTENT

<table>
<thead>
<tr>
<th>Model</th>
<th>Production Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Serial No.</th>
<th>2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>4 V</th>
<th>5 ph</th>
<th>6 Hz</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gas</th>
<th>9</th>
<th>Kg</th>
<th>Cl</th>
<th>11</th>
<th>17</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pmax</th>
<th>12</th>
<th>psig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pmin</td>
<td>13</td>
<td>psig</td>
</tr>
</tbody>
</table>

SAMPLE

1. Commercial name of the unit
2. Identification number
3. Production date
4. Voltage
5. Phases
6. Frequency
7. Compressor type
8. Number of compressor
9. Refrigerant type
10. Refrigerant weight
11. Climatic rate (Cl.3 = +25°C/60% U.R., Cl.4 = +30°C/55% U.R.)
12. Test pressure – system high pressure side
13. Test pressure – system low pressure side
14. Nominal power absorbed by heating elements (only if higher than 100 W)
15. Lighting nominal power
3. INSTALLATION

3.1. MACHINE HANDLING

- The wall showcase handling, from the truck to the final place, has to be made by any truck-lift, which is proper to its weight. The showcase shall be always balanced in order to ensure personnel integrity and machine functionality.
- The showcase can be shipped with or without wood packaging. In case, wood crate will be used, will have a pallet base for an easy fork-lift handling. The pallet, however, should be handle in the central position.
- During the shipment, it is necessary to avoid any crash or/and shake of the wall showcase in order to not damage its frame, especially its glasses.
- Do not drag the wall showcase on the floor and do not push it on the upper glasses.
- In case the wall showcase has front or side room-glasses avoids its shipment by air.

3.2. STOCK OF THE SHOWCASE

- Whenever the showcase has to be stoked, follow carefully what suggested before.
- Environmental temperature during the showcase stock can have following range -15°C and +55°C and humidity between 30% and 90%.
- The wall showcase has always to be protected by sunrays and rain.
- In case the wall showcase has to remain in stock quite long time before its use, keep it with its packaging in order to maintain its protection.

3.3. PACKAGING REMOVE

Before getting the wall showcase from the forwarding agent, check its conditions. In case it will be some damages, inform the driver and sign it on shipping documents. Eventual damages relevant to the shipment and/or to the wrong stock, have not to be ascribed to the manufacturer.

3.4. SHOWCASE POSITION

The refrigerated showcase needs particular environmental conditions in order to offer the right performance, so that the area where it will be used has to respect following indications

- Floor has to be levelled perfectly, on the contrary keep the wall showcase on the horizontal position in order to guarantee a perfect defrosting water drain and avoid boring compressor noises.
- The wall showcase has not to be under the sun-rays in order to have its better refrigeration performance, has to remain inside the local or to be sheltered by window curtain. If the described above is not observed, it can determine an increase of temperature of displayed product and an increasing power consume.
- The wall showcase has not to be under air currents due to open doors or windows, or under roof ventilators or under air condition outlets. In case will be not respected the above suggestions it can arise an increasing of temperature of the displayed product and/or an increasing ice phenomena on the evaporator and internal fans, which compromise the correct cold air circulation and product consistence.
- The wall showcase has not to be placed close any heat source as heaters, ovens, etc
- The wall showcase has to have a sufficient place in order to ensure a correct custom service, to make an easy maintenance operation, to guarantee the right air flow necessary to make cold the condenser. Besides the warm air which flows out has to to have any obstacle or to invest other equipments in order to not reduce the correct functions.

3.5. REMOTE CONDENSING UNIT PLACING

- The remote condensing unit has to be checked by specialised technicians and according to the required refrigerating power and their position respect the showcase.
- The condensing unit has to be placed following these points:
  - The condensing unit has to be located at least 250 mm from any eventual wall. (pic.5.5)
  - Air flow direction has to be from the eventual wall towards compressor.
  - The local, in case wall will be closed, has to be with enough air circulation.
  - By the condenser has to be guaranteed in any case as much as possible cold air.
  - In case will be necessary it has to be foreseen a forced air exchange by any fan according to the air flow of condenser.
  - The condensing units of display showcase have to be fixed properly.
  - The generated noise has not exceed the admitted noise levels relevant to the public places, especially in case of domestic buildings.
  - It is always necessary a sufficient place along the four sides of the wall showcase in order to make easy any type of check and maintenance operations.
  - When the condensing units are external will be necessary a frame holder that has to be fixed in a proper way and eventually added with amortising elements. Besides this frame has to be closed with no-water protection grid and sufficient opening holes for ventilation.
3.6 ELECTRICAL CONNECTION

- Before proceeding with electrical connection, be sure that the available electric power and tension are what is required on technical label of the wall showcase.
- The electric connection has to be made by qualified personnel and following manufacturer’s instructions.
- The wall showcase has already a general switch, however it is necessary an omni polar switch, with a minimum distance among the contacts of 3mm.
- It is obligatory that the wall showcase will be connected properly with an efficient ground socket.

WARNING! A wrong connection may occur always to persons, animals and things, where the manufacturer cannot be considered as responsible.

WARNING!
Although the wall showcase has main switch breaking both the phases. Before any maintenance operation disconnect the electrical supply of the wall showcase. (pic.3.6).

3.7. IDRAULIC CONNECTION - REMOTE CONDENSING UNIT

- In the case then wall showcases has a remote condensing unit, it is necessary make the connection of defrosting water outlet with the main water drain outlet.
<table>
<thead>
<tr>
<th>AGD</th>
<th>DIGITAL FLAVOURS DISPLAY FEEDER</th>
<th>RES28</th>
<th>FRONT GLASS LOWER FRAME HEATING ELEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEL</td>
<td>ELECTRONIC BALLAST</td>
<td>RES29</td>
<td>FRONT GLASSES COUPLING PROFILE HEATING ELEMENT</td>
</tr>
<tr>
<td>AP</td>
<td>SERVICE VALVE</td>
<td>RES30</td>
<td>DOORS FRAME MIDDLE POST HEATING ELEMENT</td>
</tr>
<tr>
<td>CA</td>
<td>SUPPLY AIR HEATING ELEMENT</td>
<td>RES31</td>
<td>GLASSES CAR COVER FRAME HEATING ELEMENT</td>
</tr>
<tr>
<td>CAR</td>
<td>AIR CONDENSER</td>
<td>RES32</td>
<td>HEATING DOORS HEATING ELEMENTS</td>
</tr>
<tr>
<td>CE</td>
<td>ELECTRONIC CONTROL</td>
<td>RES33</td>
<td>WATER HEATING ELEMENT</td>
</tr>
<tr>
<td>CN</td>
<td>MULTIPOLAR CONNECTOR</td>
<td>RES34</td>
<td>DOORS FRAME HEATING ELEMENT</td>
</tr>
<tr>
<td>CO</td>
<td>COMPRESSOR</td>
<td>RES35</td>
<td>COMPRESSOR CRANKCASE HEATING ELEMENT</td>
</tr>
<tr>
<td>D</td>
<td>DIOJ</td>
<td>RES36</td>
<td>FRONT GLASS FRAME HEATING ELEMENT</td>
</tr>
<tr>
<td>DEV</td>
<td>SHUNTI</td>
<td>RES37</td>
<td>CABINET FRAME HEATING ELEMENT</td>
</tr>
<tr>
<td>DR</td>
<td>REMOTE DISPLAY</td>
<td>RES38</td>
<td>HOT COMPARTMENT HEATING ELEMENT</td>
</tr>
<tr>
<td>EM</td>
<td>PHOTOCELL EMITTER</td>
<td>REV</td>
<td>CONDENSER FAN SPEED CONTROL</td>
</tr>
<tr>
<td>EV</td>
<td>EVAPORATOR</td>
<td>REVC</td>
<td>CONDENSER FAN RELAY</td>
</tr>
<tr>
<td>F</td>
<td>FUSE</td>
<td>RI</td>
<td>REFRIGERANT TAP</td>
</tr>
<tr>
<td>FD</td>
<td>FILTER DRIER</td>
<td>RIC</td>
<td>COMPRESSOR DELAYER</td>
</tr>
<tr>
<td>FLU</td>
<td>WATER FLOW SWITCH</td>
<td>RICV</td>
<td>PHOTOCELL RECEIVER</td>
</tr>
<tr>
<td>FR</td>
<td>COMPRESSOR THERMAL PROTECTION</td>
<td>RB</td>
<td>RESERVE, ANTI-FOG HEATING ELEMENT</td>
</tr>
<tr>
<td>HL</td>
<td>COMPRESSOR ALARM LIGHT</td>
<td>RL</td>
<td>LIQUID RECEIVER</td>
</tr>
<tr>
<td>I</td>
<td>GENERIC SWITCH</td>
<td>RLA</td>
<td>WATER LEVEL ELECTRONIC CONTROL</td>
</tr>
<tr>
<td>IEC</td>
<td>WATER EVAPORATION BIN SWITCH</td>
<td>RO</td>
<td>OIL HEATER ELEMENT</td>
</tr>
<tr>
<td>IGD</td>
<td>DIGITAL FLAVOURS DISPLAY</td>
<td>SAA</td>
<td>ABSENCE OF WATER LIGHT</td>
</tr>
<tr>
<td>II</td>
<td>LIGHTING SWITCH</td>
<td>SC</td>
<td>CONDENSER PROBE</td>
</tr>
<tr>
<td>IL</td>
<td>SIGHT GLASS</td>
<td>SD</td>
<td>TERMINAL BOX</td>
</tr>
<tr>
<td>IMC</td>
<td>WARM SHELF SWITCH</td>
<td>SDC</td>
<td>COMPRESSOR TERMINAL BOX</td>
</tr>
<tr>
<td>INV</td>
<td>INVERTER</td>
<td>SE</td>
<td>PROXIMITY SENSOR</td>
</tr>
<tr>
<td>IR</td>
<td>REFRIGERATION SWITCH</td>
<td>SEC</td>
<td>MAIN SWITCH</td>
</tr>
<tr>
<td>IRP</td>
<td>LIGHT REFRIGERATION SWITCH</td>
<td>SFV</td>
<td>TANK BOTTOM HEATING COIL</td>
</tr>
<tr>
<td>IV</td>
<td>INTERNAL FAN SWITCH</td>
<td>SGD</td>
<td>FLAVOURS DISPLAY DIGITAL SYSTEM</td>
</tr>
<tr>
<td>KM</td>
<td>CONTACTOR</td>
<td>SL</td>
<td>LIQUID SEPARATOR</td>
</tr>
<tr>
<td>LF</td>
<td>FRONT LIGHTING</td>
<td>SLa</td>
<td>WATER LEVELER PROBE</td>
</tr>
<tr>
<td>LI</td>
<td>INTERNAL UPPER LIGHTING</td>
<td>SPC</td>
<td>COMPRESSOR LIGHT</td>
</tr>
<tr>
<td>LIA</td>
<td>FRONT LIGHTING</td>
<td>SPMC</td>
<td>WARM SHELF LIGHT</td>
</tr>
<tr>
<td>LIG</td>
<td>FLAVOURS DISPLAY LIGHTING</td>
<td>SPR</td>
<td>ELECTRIC SUPPLY LIGHT</td>
</tr>
<tr>
<td>LIP</td>
<td>REAR LIGHTING</td>
<td>SPS</td>
<td>DEFOSTING LIGHT</td>
</tr>
<tr>
<td>MDIG</td>
<td>DIGITAL MODULE FOR FLAVOURS DISPLAY</td>
<td>SS</td>
<td>DEFOSTING PROBE</td>
</tr>
<tr>
<td>MM</td>
<td>SPINNING SPINDLES ELECTRIC MOTOR</td>
<td>ST</td>
<td>TEMPERATURE PROBE</td>
</tr>
<tr>
<td>MUC</td>
<td>CONDENSING UNIT ELECTRIC CONNECTIONS</td>
<td>STR</td>
<td>LIGHTING STARTER</td>
</tr>
<tr>
<td>PA</td>
<td>HIGH PRESSURE CONTROL</td>
<td>SU</td>
<td>HUMIDITY PROBE</td>
</tr>
<tr>
<td>PD</td>
<td>HIGH-LOW PRESSURE CONTROL</td>
<td>T</td>
<td>TEMPERATURE CONTROL</td>
</tr>
<tr>
<td>PO</td>
<td>WATER PUMP</td>
<td>TI</td>
<td>WINTER THERMOSTAT</td>
</tr>
<tr>
<td>QE</td>
<td>EXTERNAL ELECTRIC PANEL</td>
<td>TC</td>
<td>CAPILLARY TUBE</td>
</tr>
<tr>
<td>QF</td>
<td>MAGNETIC-HEATSWITCH</td>
<td>TE</td>
<td>TIMER</td>
</tr>
<tr>
<td>R</td>
<td>LIGHTING BALLAST</td>
<td>TER</td>
<td>THERMOMETER</td>
</tr>
<tr>
<td>RADD</td>
<td>RECTIFIER</td>
<td>TF</td>
<td>FUSIBLE PLUG</td>
</tr>
<tr>
<td>RE</td>
<td>GENERIC RELAY</td>
<td>TMC</td>
<td>WARM SHELF THERMOSTAT</td>
</tr>
<tr>
<td>REL</td>
<td>ELECTRONIC BALLAST</td>
<td>TNP</td>
<td>LIGHTING FIXTURES REFRIGERATOR THERMOSTAT</td>
</tr>
<tr>
<td>REP</td>
<td>ELECTRONIC CONTROL TEMPERATURE REPEATER</td>
<td>TRA</td>
<td>TRANSFORMER</td>
</tr>
<tr>
<td>RES1</td>
<td>COLD AIR DISCHARGE HEATING ELEMENT</td>
<td>TRC</td>
<td>ELECTRONIC CONTROL TRANSFORMER</td>
</tr>
<tr>
<td>RES2</td>
<td>FRONT PROFILE HEATING ELEMENT</td>
<td>TREV</td>
<td>WATER EVAPORATION HEATER ELEMENT THERMOSTAT</td>
</tr>
<tr>
<td>RES3</td>
<td>RIGHT/LEFT GLASS HEATING ELEMENT</td>
<td>TS</td>
<td>SECURITY THERMOSTAT</td>
</tr>
<tr>
<td>RES4</td>
<td>FRONT GLASS HEATING ELEMENT</td>
<td>TVC</td>
<td>CONDENSER FAN THERMOSTAT</td>
</tr>
<tr>
<td>RES5</td>
<td>DEFOSTING HEATING ELEMENT</td>
<td>V</td>
<td>COMPRESSOR FAN / GENERAL USE</td>
</tr>
<tr>
<td>RES6</td>
<td>WATER EVAPORATION HEATING ELEMENT</td>
<td>VCE</td>
<td>CONDENSER FAN</td>
</tr>
<tr>
<td>RES7</td>
<td>TOP LIGHTING FIXTURE HEATING ELEMENT</td>
<td>VEC</td>
<td>WATER EVAPORATION BIN</td>
</tr>
<tr>
<td>RES8</td>
<td>LATERAL GLASS SUPPORT HEATING ELEMENT</td>
<td>VES</td>
<td>EXPANSION VALVE</td>
</tr>
<tr>
<td>RES9</td>
<td>FRONT BAND HEATING ELEMENT</td>
<td>V1</td>
<td>INTERNAL FAN</td>
</tr>
<tr>
<td>RES10</td>
<td>COUPLING BAND HEATING ELEMENT</td>
<td>VPA</td>
<td>CONDENSING PRESSURE CONTROL WATER VALVE</td>
</tr>
<tr>
<td>RES11</td>
<td>SERVICE TOP HEATING ELEMENT</td>
<td>VR</td>
<td>CHECK VALVE</td>
</tr>
<tr>
<td>RES12</td>
<td>UPPER BAND/DOOR FRAME HEATING ELEMENT</td>
<td>VRA</td>
<td>SUCTION PRESSURE REGULATION VALVE</td>
</tr>
<tr>
<td>RES13</td>
<td>HOT DRY/BAIN MARIE DISPLAY HEATING ELEMENT</td>
<td>VRE</td>
<td>EVAPORATING PRESSURE REGULATION VALVE</td>
</tr>
<tr>
<td>RES14</td>
<td>ANTI-FOG SUCTION AIR BAND HEATING ELEMENT</td>
<td>VS</td>
<td>GENERAL USE SOLENOID VALVE</td>
</tr>
<tr>
<td>RES15</td>
<td>WARM SHELF HEATING ELEMENT</td>
<td>VSA</td>
<td>SOLENOID WATER VALVE</td>
</tr>
<tr>
<td>RES16</td>
<td>SIDE BANDS/FRONT GLASS HINGE HEATING ELEMENT</td>
<td>VSAB</td>
<td>BY-PASS SOLENOID WATER VALVE</td>
</tr>
<tr>
<td>RES17</td>
<td>DEHUMIDIFICATION HEATING ELEMENT</td>
<td>VSC</td>
<td>REVERSING CYCLE SOLLENOID VALVE</td>
</tr>
<tr>
<td>RES18</td>
<td>DEFOSTING WATER DRAIN HEATING ELEMENT</td>
<td>VSL</td>
<td>LIQUID SOLENOID VALVE</td>
</tr>
<tr>
<td>RES19</td>
<td>RING FRAME HEATING ELEMENT</td>
<td>VSS</td>
<td>DEFOSTING SOLENOID VALVE</td>
</tr>
<tr>
<td>RES20</td>
<td>SIDE BAND HEATING ELEMENT</td>
<td>VT</td>
<td>POWER REGULATOR</td>
</tr>
<tr>
<td>RES21</td>
<td>SUCTION AIR GLASS HEATING ELEMENT</td>
<td>VV</td>
<td>GLASS FAN</td>
</tr>
<tr>
<td>RES22</td>
<td>OUTLET AIR HEATING ELEMENT</td>
<td>XI</td>
<td>CABINET CONNECTIONS</td>
</tr>
<tr>
<td>RES23</td>
<td>REAR GLASS HEATING ELEMENT</td>
<td>X1</td>
<td>EXTERNAL ELECTRIC PANEL CONNECTIONS</td>
</tr>
<tr>
<td>RES24</td>
<td>INTERNAL GLASS HEATING ELEMENT</td>
<td>X3</td>
<td>CONDENSING UNIT CONNECTIONS</td>
</tr>
<tr>
<td>RES25</td>
<td>FRONT GLASS UPPER FRAME HEATING ELEMENT</td>
<td>X3</td>
<td>CONDENSING UNIT CONNECTIONS</td>
</tr>
<tr>
<td>RES26</td>
<td>FRONT GLASS LATERAL/LOWER FRAME HEATING ELEMENT</td>
<td>X3</td>
<td>CONDENSING UNIT CONNECTIONS</td>
</tr>
<tr>
<td>RES27</td>
<td>FRONT GLASS LATERAL FRAME HEATING ELEMENT</td>
<td>X3</td>
<td>CONDENSING UNIT CONNECTIONS</td>
</tr>
</tbody>
</table>
Digital controller for medium-low temperature refrigeration applications

XW60L

1. GENERAL WARNING

1.1 PLEASE READ BEFORE USING THIS MANUAL

- This manual is part of the product and should always be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different than those described herein. 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.
- If the probe where it is not accessible by the End User. The instrument must not be opened.
- In case of failure or fault operation send the instrument back to the distributor or to "Deival 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 interwinding.
- In case of applications in industrial environments, the use of mains filters (for mod. FT1) in parallel with inductive loads could be useful.

2. GENERAL DESCRIPTION

Model XW60L, format 28 x 165 mm, is a microprocessor-based controller, suitable for applications on medium or low temperature refrigeration units. It has 4 relay outputs to control compressors, fans, defrost, which can be either electrical or reverse cycle (hot gas and light) (configurable). It can be provided with a Real Time Clock which allows programming of up to 6 daily defrost cycles, divided into holidays and working days. A "Day and Night" function with two different set points is fitted for energy saving. It is also provided with up to four NC/TC or PTC probe inputs, the first one with temperature control, the second one, to be connected onto the evaporator, to control the defrost termination temperature and to manage the fan. One of the 2 digital inputs can operate as third temperature probe. The fourth probe is used to signal the condenser temperature alarm or to display a temperature.

The HOT KEY output allows to connect the unit, by means of the external module MX405-CX, to a network card ModBUS-RTU compatible such as the dXmCL monitoring units of X-WEB family. It allows to program the controller by means of 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 COMPRESSOR

The regulation is performed according to the temperature measured by the thermostat probe with a positive differential from 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.

In case of fault in the thermostat probe the start and stop of the compressor are timed through parameters "CD0" and "CD1".

3.2 DEFROST

Two defrost modes are available through the "TF" parameter: defrost through electrical heater ("EF" = "EL") and hot gas defrost ("EF" = "EH").

The defrost interval depends on the presence of the RTC (optional). If the RTC is present it is controlled by means of parameter "EDT".

- with EDT = 0 the defrost is made every "EF" time, standard way for controller without RTC.
- with EDT = "AC", the defrost is made in real time depending on the hours set in the parameters L16/L17 on weekdays and in S16/S17 in holidays.

Other parameters are used to control defrost cycles: its maximum length ("M8") and two defrost modes: timed or controlled by the evaporator's probe ("P23").

At the end of the defrost timing the defrost is stopped, its length is set in the Edt parameter. With Fdt >0 the defrost is not activated.

3.3 CONTROL OF EVAPORATOR FANS

The fan control mode is selected by means of the "Fct" parameter:

- Fct = 0: fans will run continuously.
- Fct = 1: fans will stop and start when the sensor reading is higher or lower than the set point.
- Fct = 2: fans will stop and start when the sensor reading is lower than the set point.
- Fct = 3: fans will stop and start when the sensor reading is higher or lower than the set point.

3.4 Forced activation of fans

This function managed by the Fct parameter is designed to avoid short cycles of fans, that could happen when the controller is switched on or after a defrost, when the room air warms the evaporator. Functioning: if the difference of temperature between the evaporator and the room probes is more than the value of the Fd parameter, the fans are switched on. With Fdt=0 the function is disabled.

3.3.2 Cyclical activation of the fans with compressor off.

When Fd > 0 or c > Y (fans in parallel to the compressor), by means of the Fc and Fd parameters the fans can be run on and off cycles even if the compressor is switched off. When the compressor is stopped the fans go on working for the Fc time. With Fd=0 the fans remain always on, when the compressor is off.

3.4 LIGHT RELAY CONFIGURATION

The function of the auxiliary relay (terminals 1-3) can be set by the "a3c" parameter, according to the kind of application. In the following paragraphs the possible setting:

3.4.1 Auxiliary thermostat (L.E. anti condensing heater) with the possibility of switching it on and off also by keyboard

Parameters involved:
- ACH: Kind of regulation for the auxiliary relay: Hot: heating; Cl: cooling.
- S: Set point for auxiliary relay
- S: Digital differential for auxiliary relay
- A/P: Probe for auxiliary relay
- S: Auxiliary output off during defrost

By means of these 5 parameters the functioning of the auxiliary relay can be set. The differential is given by the S parameter.

The auxiliary relay can be switched on also by the AUX button. In this case it remains on till it's manually switched off.

NOTE: Set a3 = AUS and A/P = RP (no probe for auxiliary output).

In case the relay 1-3 can be activated only by digital input with HF or I2F = AUS.

3.4.2 On/off relay — a3 = onF

In this case the relay is activated when the controller is turned on and deactivated when the controller is turned off.

3.4.3 Neutral zone regulation

With a3 = EF the relay 1-3 can control a heater element to perform a neutral zone action.

3.4.4 Second compressor

With a3 = CP2, the relay 1-3 operates as second compressor: it is activated in parallel with the relay of the first compressor, with a possible delay set in the AC1 parameter. Both the compressors are switched off at the same time.

3.4.5 Alarm relay

With a3 = AL the relay 1-3 operates as alarm relay. It is activated every time an alarm happens. Its status depends on the S parameter. If "S = A", the relay is silenced by pressing any key. If "S = N", the alarm relay remains on until the alarm condition recovers.

3.4.6 Night blind management during energy saving cycles

With a3 = HS, the relay 1-3 operates to manage the night blind: the relay is energised when the energy saving cycle is activated, by digital input, front button or RTC (optional).

4. FRONT PANEL COMMANDS

4.1 STANDARD FRONT PANEL

4.2 STEEL FINISHING

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

(DEF): To start a manual defrost.

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

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

To switch the instrument off, if onF = off.

To switch the light, if a3 = Li.

KEY COMBINATIONS:

To lock & unlock the keyboard.
4.3 USE OF LEDS

Each LED function is described in the following table.

<table>
<thead>
<tr>
<th>LED MODE</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Compressor enabled</td>
</tr>
<tr>
<td>Flashing</td>
<td>Anti-short cycle delay enabled</td>
</tr>
<tr>
<td>Flashing</td>
<td>Clip time in progress</td>
</tr>
<tr>
<td>Flashing</td>
<td>Sensing delay after defrost in progress</td>
</tr>
<tr>
<td>ON</td>
<td>An alarm is occurring</td>
</tr>
<tr>
<td>ON</td>
<td>Continuous cycle is running</td>
</tr>
<tr>
<td>ON</td>
<td>Energy saving enabled</td>
</tr>
<tr>
<td>ON</td>
<td>Light on</td>
</tr>
<tr>
<td>ON</td>
<td>Auxiliary relay on</td>
</tr>
<tr>
<td>OFF</td>
<td>Measurement unit</td>
</tr>
<tr>
<td>OFF</td>
<td>Flashing Programming phase</td>
</tr>
</tbody>
</table>

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 6s 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 6s the normal display will be restored.

5.3 HOW TO RESET THE MAX AND MIN TEMPERATURE Recorder
1. Hold press the SET key for more than 3s, while the max. or min temperature is displayed "Hi" message will be displayed.
2. To confirm the operation the "Hi" message starts blinking and the normal temperature will be displayed.

6. MAIN FUNCTIONS

6.1 TO SET THE CURRENT TIME AND DAY (ONLY FOR INSTRUMENTS WITH RTC)

When the instrument is switched on, it is necessary to program the date and time.
1. Enter the P1 programming menu, then press the SET + keys for 3s.
2. The time parameter is displayed. Then set the time using the + or - keys.
3. The hour parameter is displayed.
4. Then set the minutes using the + or - keys.
5. Then set the seconds using the + or - keys.
6. Press the SET key to confirm and exit.

6.2 HOW TO SEE THE SET POINT
1. Press and immediately release the SET key; the display will show the current set point.
2. Press and immediately release the SET key or wait for 5 seconds to display the probe value again.

6.3 HOW TO CHANGE THE SET POINT
1. Press 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 - arrow within 10s.
4. To memorize the new set value press the SET key again or wait 10s.

6.4 HOW TO START A MANUAL DEFROST

Push the DEF key for more than 2 seconds and a manual defrost will start.

6.5 HOW TO CHANGE A PARAMETER VALUE

To change the parameter 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.
5. To exit; Press SET + or wait 10s without pressing a key.

6.6 THE HIDDEN MENU

The hidden menu includes all the parameters of the instrument.

6.6.1 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. Release the keys, then press again the SET + keys for more than 7s. The Pr2 label will be displayed immediately followed by the HY parameter.

6.6.2 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 "FIRST LEVEL" (user level) by pressing "SET +" in HIDDEN MENU when a parameter is present in First Level the decimal point is on.

6.7 HOW TO LOCK THE KEYBOARD
1. Keep pressed for more than 3s the UP & DOWN keys.
2. The "POW" 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 & Min temperature stored.
3. If a key is pressed more than 3s the "POW" message will be displayed.

6.8 TO UNLOCK THE KEYBOARD

Keep pressed together for more than 3s the + and - keys, till the "Pem" message will be displayed.

6.9 THE ON/OFF FUNCTION

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

WARNING: Do not change the normally closed contacts of the relays which are always supplied and under voltage, even if the instrument is in a stand-by mode.

7. PARAMETERS

rc: Real time clock menu (only for controller with RTC): to set the time and date and defrost start time.

REGULATION

Hy: Differential: (0 ≤ 25°C/1 ≤ 25°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/-58°F) Sets the minimum value for the set point.
US: Maximum set point: (110°C/230°F) Sets the maximum value for set point.
Ot: Thermostat probe calibration: (-120 to 120°C, -240 to 240°F) Allows to adjust possible offset of the thermostatic probe.

PP2: Evaporator probe presence: n: not present; the defrost stops by time; y: present; the defrost stops by temperature.
OE: Evaporator probe calibration: (-120 to 120°C, -240 to 240°F) Allows to adjust possible offset of the evaporator probe.
PP3: Third probe calibration (P3): n: not present; the terminals 13-14 operate as digital input; y: present; the terminals 13-14 operate as third probe.
O3: Third probe calibration (O3): (-120 to 120°C, -240 to 240°F) Allows to adjust possible offset of the third probe.
P4: Fourth probe presence: n: not present; y: present.
P4: Fourth probe calibration: (-120 to 120°C, -240 to 240°F) Allows to adjust possible offset of the fourth probe.
O4: Fourth probe calibration: (-120 to 120°C, -240 to 240°F) Allows to adjust possible offset of the fourth probe.

AC: Anti-short cycle delay: (0-60 min) Minimum interval between the compressor stop and the following restart.
AC: 1st compressor delay at start up (0-255s) Used only if OAS = C2P Time interval between the switching on of the first compressor and the second one.

Percentage of the second and first probe for regulation (0 to 100; 100 = P1 % P2): it allows to set the regulation according to the percentage of the first and second probe, as for the following formula (m51=125°F/C2P = 125°F).

CC: Compressor ON time during continuous cycle: (0.0 to 24.0h, res: 10min) Allows to set the length of the continuous cycle time with the compressor stays off without interruption for the OAS time. It can be used, for instance, when the room is filled with new products.

CCS: Set point for continuous cycle: (-50°C/150°F) It sets the set point used during the continuous cycle.

Continuous compressor ON time with faulty probe: (0-255s) time during which the compressor is active in case of faulty thermostatic probe. With CCS=0 compressor is always OFF.

Continuous compressor OFF time with faulty probe: (0-255s) time during which the compressor is OFF in case of faulty thermostatic probe. With CCS=0 compressor is always active.

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, Alu and All have to be checked and modified if necessary.
Res: Resolution (for °C) (n = 1°C; e = 0.1°C) allows decimal point display.
Installing and Operating Instructions

CONDENSER TEMPERATURE ALARM

AP2 Probe selection for temperature alarm of condenser; n = no probe; P1 = thermostat probe; P2 = evaporator probe; P3 = configurable probe; P4 = Probe on Hot Key plug.

AL2 Low temperature alarm of condenser: (-55 to -50°C) when the temperature is reached the LA2 alarm is signaled, possibly after the AA2 delay.

An High temperature alarm of condenser: (35 to 50°C) when this temperature is reached the H2 alarm is signaled, after the A2 delay.

AA2 Differential for temperature condenser alarm recovery: 0.1 to 25°C; 1 to 45°F

AD2 Condenser temperature alarm delay: (0 to 255) minutes time interval between the detection of the condenser alarm condition and alarm signaling.

A11 Condenser temperature alarm exclusion at start up: (from 0.0 min to 23.5, rev. hours)

B1 Selected at 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 return re-generator AC load.

B2 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 re-generator AC load at minimum.

AUXILIARY RELAY

ib Alarm relay silencing with (Oa3 = ALa): n = silencing disabled; alarm relay stays on till alarm condition lasts; y = silencing enabled; alarm relay is switched off by pressing a key during an alarm.

ia3 Fourth relay configuration (1-3): dE2, dF: do not select if; ALa, Allg, Lig, l: Aux; relay; a2 off: always on with instrument on; db: neutral zone; cp2: second compressor; dE2: do not select if; Hes, night blind

An Alarm relay polarity: y = it will alarm relay open or closed when an alarm happens. C: terminals 1,3 closed during an alarm; d: terminals 1,3 open during an alarm.

DIGITAL INPUTS

1P Digital input polarity (15-14): dF: the digital input is activated by opening the contact; aL: the digital input is activated by closing the contact.

1F Digital input configuration (15-14): EL: external alarm; "EA" message is displayed: bA: serious alarm "CA" message is displayed; PA: pressure switch alarm, "CA" message is displayed; dO: door switch function; dE2: activation of a defrost cycle; AUS: not enabled; Ht: door of action in internal cooling; F: Fan not set; ES: Energy saving. Hfd: Holiday disable (ready only with RT); oF: to switch the controller off.

2d (0-255) min with ID2 = EAL or ID2 = BALL digital input alarm delay (13-14): delay between the detection of the external alarm condition and its signalling.

2F = dF: open signalling delay with ID2 = P: time for pressure switch function: time interval to calculate the number of the pressure switch activation.

P2 2nd digital input polarity (13-12): dF: the digital input is activated by opening the contact; aL: the digital input is activated by closing the contact.

2F 2nd digital input configuration (15-14): EL: external alarm; "EA" message is displayed; bA: serious alarm "CA" message is displayed; PA: pressure switch alarm; "CA" message is displayed; dO: door switch function; dE2: activation of a defrost cycle; AUS: not enabled; Ht: door of action in internal cooling; F: Fan not set; ES: Energy saving. Hfd: Holiday disable (ready only with RT); oF: to switch the controller off.

2d (0-255) min with ID2 = EAL or ID2 = BALL 2nd digital input alarm delay (13-12): delay between the detection of the external alarm condition and its signalling.

2F = dF: open signalling delay with ID2 = P: time for pressure switch function: time interval to calculate the number of the pressure switch activation.

nPS Pressure switch number: (0 -15) Number of rotation of the pressure switch, during the "did" internal, before signaling the alarm event (2F = P)

If the nPS activation in the did time is reached, switch off and on the instrument to reset the internal rotation.

ocC Compressor and fan status when open: no = normal; Fan = Fan OFF; CPr = Compressor OFF; F = C = Compressor and fan OFF.

rd Outputs restart for door alarm: dirs = outputs not affected by the door alarm; yEs = outputs restart with the door alarm.

HEs Temperature increase during the Energy Saving cycle:

hrc Current hour (0 - 23 h)

Min Current minute (0 - 59 min)

dAy Current day (Sun = 1)

Hd1 First weekly holiday (Sun - n) Set the first day of the week which follows the holidays times.

Hd2 Second weekly holiday (Sun + n) Set the second day of the week which follows the holidays times.

nB H1/H2 can be set also as "nu" value (Not Used).

SET TO ENERGY SAVING TIMES (ONLY FOR MODELS WITH RT)

IE Energy saving cycle start during workdays: (0 - 23h 50min.) During the Energy Saving cycle the set point is increased by the value in HES so that the operation set point is set at 12°C during workdays.

dE Energy saving cycle length during workdays: (0 - 24h 00min.) Sets the duration of the HES Energy saving cycle on workdays.

jE Energy saving cycle start on holidays: (0 - 23h 50min.)

dE Energy saving cycle length on holidays: (0 - 24h 00min.)

SET TO DEFROST TIMES (ONLY FOR MODELS WITH RT)

ld1-Ld6 Workday defrost start (0 - 23h 50min.) These parameters set the beginning of the 6 programmable defrost cycles during workdays. Ex: When lD2 = 12.4 the second defrost start at 12.04 during workdays.

sd1-Sd6 Holiday defrost start (0 - 23h 50min.) These parameters set the beginning of the 6 programmable defrost cycles on holidays. Ex: When sD2 = 3.4 the second defrost start at 3.04 during holidays.

N.B. To disable a defrost cycle set it to "nr"(not used). Ex. If lD2= sD2; the sixth defrost cycle is disabled.

Ad Serial address (1-244): Identifies the instrument address when connected to a ModBUS compatible monitoring system.
8. DIGITAL INPUTS

The first digital input 1-14 is enabled with P3P n.
With P3P n and if I = 02F, the second digital input is disabled.
The free voltage digital inputs are programmable by the "1F" and "2F" parameters.

8.1 GENERIC ALARM (1IF or 2IF = EAL)

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

8.2 SERIOUS ALARM MODE (1IF or 2IF = DAL)

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

8.3 PRESSURE SWITCH (1IF or 2IF = PAL)

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

8.4 DOOR SWITCH INPUT (1IF or 2IF = dor)

It signals the door status and the corresponding relay output status through the 'edc' parameter: no = normal (any change); Fan = Fan OFF, CoP = Compressor OFF, P. C = Compressor and fan OFF.

8.5 START DEFOST (1IF or 2IF = dEF)

It starts a defrost if there are the right conditions. After the defrost is finished, the normal regulation will restart only if the digital input is disabled otherwise the instrument will wait until the "M" safety time is expired.

8.6 SWITCH THE AUXILIARY RELAY (1IF or 2IF = AUS)

With the digital input switches the status of the auxiliary relay.

8.7 INVERSION OF THE KIND OF ACTION: HEATING-COOLING (1IF or 2IF = D.)

This function allows to invert the regulation of the compressor from heating to cooling and viceversa.

8.8 ENERGY SAVING (1IF = E5)

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.

8.9 HOLIDAY DEFROST (1IF or 2IF = HDF) –ONLY FOR MODELS WITH RTC

This function enables the holiday defrost setting.

8.10 ON OFF FUNCTION (1IF or 2IF = onF)

To switch the controller on and off.

8.11 DIGITAL INPUTS POLARITY

The digital input polarity depends on the "1IP" and "2IP" parameters.
1IP or 2IP = "0": the input is activated by closing the circuit.
1IP or 2IP = "P": the input is activated by opening the contact.

9. TTL SERIAL LINE – FOR MONITORING SYSTEMS

The TTL serial line, available through the DHT KEY connector, allows by means of the external TTL/LRS-485 converter, X485-CA, to connect the instrument to a monitoring system ModBUS-RTU compatible such as the X6W60L 3004030.

10. X-REP OUTPUT – OPTIONAL

As optional, an X-REP can be connected to the instrument, through the dedicated connector.

To connect the X-REP to the instrument the following connectors must be used:
CAB/REP1 (1m), CAB/REP2 (2m), CAB/REP6 (5m).

11. INSTALLATION AND MOUNTING

The controller XW60L shall be mounted on vertical panel, in a 150x31 mm hole, and fixed using two screws of 3 x 2 mm. To obtain an IRIS protection grade use the front panel rubber gasket (mod. RG-L). The temperature range allowed for correct operation is 0 - 60 °C. Avoid placing subject to strong vibrations, corrosive gases, excessive dirt or humidity. The same recommendations apply to probes. Let the air circuits by the cooling holes.

12. ELECTRICAL CONNECTIONS

The instruments are provided with screw terminal block to connect cables with a cross-section up to 2.5 mm² for the digital and analogue inputs. Relays and power supply have a Faston connection (6.3mm). Heat-resistant cables have to be used. 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 heavy loads use a suitable external relay.

12.1 PROBE CONNECTION

The probes shall be mounted with the bulb uppermost to prevent damages due to casual liquid infiltration. It is recommended to place the thermostable 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 A key; the "upL" message appears followed 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 the "A" key or if you want to restart the upload again 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 by flashing "End".
4. After 10 seconds the instrument will restart working with the new parameters.
5. Remove the "Hot Key".

NOTE: the messages "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

<table>
<thead>
<tr>
<th>Message</th>
<th>Cause</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1H</td>
<td>Room probe failure</td>
<td>Compressor output unchanged, Crypto (1F)</td>
</tr>
<tr>
<td>2F</td>
<td>Compressor failure</td>
<td>Defrost and is timed</td>
</tr>
<tr>
<td>3F</td>
<td>Third probe failure</td>
<td>Outputs unchanged</td>
</tr>
<tr>
<td>4F</td>
<td>Fourth probe failure</td>
<td>Outputs unchanged</td>
</tr>
<tr>
<td>5H</td>
<td>Maximum temperature alarm</td>
<td>Outputs unchanged</td>
</tr>
<tr>
<td>6H</td>
<td>Condenser high temperature</td>
<td>It depends on the &quot;AC&quot; parameter</td>
</tr>
</tbody>
</table>
### 14.1 SILENCING BUZZER / ALARM RELAY OUTPUT

If lda = "y", the buzzer and the relay are silenced by pressing any key.
If lda = "n", only the buzzer is silenced while the alarm relay is on until the alarm condition resolves.

### 14.2 ALARM RECOVERY

Probe alarms P1, P2, P3, and P4 start some seconds after the fault in the relay probe; they automatically stop some seconds after the probe resets normally. Check connections before replacing the probe.

Temperature alarms "HA", "LA", "HA2" and "LA2" automatically stop as soon as the temperature returns to normal values.

Alarm "LSA" and "LC" (with IF=NL) recover as soon as the digital input is disabled. Alarm "CAF" (with IF=AL) recovers only by switching off and on the instrument.

### 14.3 OTHER MESSAGES

**Pon**
Keyboard unlocked

**PsF**
Keyboard locked

**noP**
In programming mode, none parameter is present in P1.
On the display or in P1, P2, P3, P4: the selected probe is not enabled.

### 15. TECHNICAL DATA

- **Housing:** self-extinguishing ABS
- **Case:** facia 36x185 mm, depth 360 mm
- **Mounting:** panel mounting in a 100x50 mm panel cut-out with two screws. Or 3 mm screws.
- **Distance between the holes:** 156 mm
- **Protection:** IP20, Frontal protection: IP65 with frontal gasket module LGL (optional)
- **Connections:** Screw terminal block: 2.5 mm² heat-resistant and 6 mm² Faston
- **Power supply:** 220Vac or 110Vac to 24Vac ±10%
- **Power absorption:** 5VA max.
- **Display:** 3 digits, red LED, 14.2 mm high.
- **Display:** 3 digits, red LED, 14.2 mm high, inputs: Up to 4 NTC or PT100 probes.
- **Digital inputs:** 2 digital input
- **Relay outputs:** Total current on loads MAX 20A
  - compressor: relay SPS 8 8 a14 a, 250Vac
  - light: relay SPS 8 8 a14 a, 250Vac
  - fans: relay SPS 8 8 a14 a, 250Vac
  - defrost: relay SPS 8 8 a14 a, 250Vac
- **Other outputs:** buzzer (optional)
- **Serial output:** TTL standard: Communication protocol: Modbus - RTU
- **Data storage:** on the non-volatile memory (EEPROM)
- **Internal clock back-up:** 24 hours (only for model with RTC)
- **Kind of action:** 18 Pollution等级: 1, 2
- **Rated impulse voltage:** 250Vac. Over voltage Category: II
- **Operating temperature:** 0 to 60°C, Storage temperature: -30 to 85°C
- **Relative humidity:** 10 to 85% (no condensing)
- **Measuring and regulation range:** NTC probe: -40 to 150°C (0 to 220°F)
- **PTC probe: -50 to 150°C (50 to 302°F)

Resolution: 0.1°C or 1°F (selectable). Accuracy: ambient temp. 25°C ±0.5°C ±1 digit

### 16. CONNECTIONS

![Connections Diagram](image)

Supply: 120Vac or 24Vac: connect to terminals 11-12.
The K-REP output is optional.
The light relay can be also 15A relay according to the model

### 17. DEFAULT SETTING VALUES

<table>
<thead>
<tr>
<th>Label</th>
<th>Name</th>
<th>Range</th>
<th>°C/F</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>r1c</td>
<td>No real time clock menu</td>
<td>LS-US</td>
<td>0-50</td>
<td>Pr1</td>
</tr>
<tr>
<td>Hy</td>
<td>Differential for Energy Saving</td>
<td>0.1-25.0°C/1.0-255°F</td>
<td>20</td>
<td>P1r</td>
</tr>
<tr>
<td>LS</td>
<td>Minimum set point</td>
<td>-50°C/SET:58°F/SET</td>
<td>-50.0</td>
<td>P2r</td>
</tr>
<tr>
<td>US</td>
<td>Maximum set point</td>
<td>110°C/SET:220°F/SET</td>
<td>110</td>
<td>P2r</td>
</tr>
<tr>
<td>D1</td>
<td>Thermostat probe calibration</td>
<td>-12-12°C/120-120°F</td>
<td>0.0</td>
<td>P1r</td>
</tr>
<tr>
<td>P9</td>
<td>evaporator probe presence</td>
<td>n/n present</td>
<td>Y/nY/nP</td>
<td>Y</td>
</tr>
<tr>
<td>O5</td>
<td>evaporator probe calibration</td>
<td>-12-12°C/120-120°F</td>
<td>0.0</td>
<td>P1r</td>
</tr>
<tr>
<td>P9</td>
<td>PFP third probe calibration</td>
<td>n/n present</td>
<td>n/Pn</td>
<td>P1r</td>
</tr>
<tr>
<td>P5</td>
<td>PFP fourth probe presence</td>
<td>n/n present</td>
<td>Y/Pn</td>
<td>P1r</td>
</tr>
<tr>
<td>P3</td>
<td>Fourth probe calibration</td>
<td>-12-12°C/120-120°F</td>
<td>0.0</td>
<td>P1r</td>
</tr>
<tr>
<td>O4</td>
<td>O4 probe calibration</td>
<td>-12-12°C/120-120°F</td>
<td>0.0</td>
<td>P1r</td>
</tr>
<tr>
<td>O5</td>
<td>O5 probe calibration</td>
<td>-12-12°C/120-120°F</td>
<td>0.0</td>
<td>P1r</td>
</tr>
<tr>
<td>O5</td>
<td>O5 probe calibration</td>
<td>0-255 min</td>
<td>0</td>
<td>P1r</td>
</tr>
<tr>
<td>N1</td>
<td>Regulation restart with door open alarm</td>
<td>n = Y</td>
<td>P2r</td>
<td></td>
</tr>
<tr>
<td>N15</td>
<td>Differential for Energy Saving</td>
<td>-30°C/30°C (54°F/54°F)</td>
<td>0</td>
<td>P2r</td>
</tr>
<tr>
<td>N16</td>
<td>Current hour</td>
<td>0-23</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>N17</td>
<td>Current minute</td>
<td>0-59</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>D61</td>
<td>the 3rd probe</td>
<td>Sun = SAT</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>H91</td>
<td>First weekly holiday</td>
<td>Sun = SAT</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>H92</td>
<td>Second weekly holiday</td>
<td>Sun = SAT</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>I6L</td>
<td>Energy Saving cycle start during working days</td>
<td>0-24h 0min</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>I6L</td>
<td>Energy Saving cycle length on holidays</td>
<td>0-24h 0min</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>I6L</td>
<td>Energy Saving cycle start on holidays</td>
<td>0-24h 0min</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>I6L</td>
<td>Energy Saving cycle length on holidays</td>
<td>0-24h 0min</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Label</td>
<td>Name</td>
<td>Range</td>
<td>°C/°F</td>
<td>Level</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------</td>
<td>----------------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Ld1**</td>
<td>1st workdays defrost start</td>
<td>0 = 23h 50 min. - nu</td>
<td>6.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Ld2**</td>
<td>2nd workdays defrost start</td>
<td>0 = 23h 50 min. - nu</td>
<td>13.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Ld3**</td>
<td>3rd workdays defrost start</td>
<td>0 = 23h 50 min. - nu</td>
<td>21.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Ld4**</td>
<td>4th workdays defrost start</td>
<td>0 = 23h 50 min. - nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Ld5**</td>
<td>5th workdays defrost start</td>
<td>0 = 23h 50 min. - nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Ld6**</td>
<td>6th workdays defrost start</td>
<td>0 = 23h 50 min. - nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Sd1**</td>
<td>1st holiday defrost start</td>
<td>0 = 23h 50 min. - nu</td>
<td>6.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Sd2**</td>
<td>2nd holiday defrost start</td>
<td>0 = 23h 50 min. - nu</td>
<td>13.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Sd3**</td>
<td>3rd holiday defrost start</td>
<td>0 = 23h 50 min. - nu</td>
<td>21.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Sd4**</td>
<td>4th holiday defrost start</td>
<td>0 = 23h 50 min. - nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Sd5**</td>
<td>5th holiday defrost start</td>
<td>0 = 23h 50 min. - nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Sd6**</td>
<td>6th holiday defrost start</td>
<td>0 = 23h 50 min. - nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Adr</td>
<td>Serial address</td>
<td>1-247</td>
<td>1</td>
<td>Fr2</td>
</tr>
<tr>
<td>PhC</td>
<td>Kind of probe</td>
<td>Phc, etc</td>
<td>n/e</td>
<td>Fr2</td>
</tr>
<tr>
<td>cmF</td>
<td>Hold key enabling</td>
<td>nu, oFF, ES</td>
<td>oFF</td>
<td>Fr2</td>
</tr>
<tr>
<td>dp1</td>
<td>Room probe display</td>
<td>--</td>
<td>--</td>
<td>Fr2</td>
</tr>
<tr>
<td>dp2</td>
<td>Evaporator probe display</td>
<td>--</td>
<td>--</td>
<td>Fr2</td>
</tr>
<tr>
<td>dp3</td>
<td>Third probe display</td>
<td>--</td>
<td>--</td>
<td>Fr2</td>
</tr>
<tr>
<td>dp4</td>
<td>Fourth probe display</td>
<td>--</td>
<td>--</td>
<td>Fr2</td>
</tr>
<tr>
<td>r3E</td>
<td>Real set</td>
<td>actual set</td>
<td>--</td>
<td>Fr2</td>
</tr>
<tr>
<td>r8EL</td>
<td>Software release</td>
<td>--</td>
<td>1.8</td>
<td>Fr2</td>
</tr>
<tr>
<td>Pbh</td>
<td>Map code</td>
<td>--</td>
<td>--</td>
<td>Fr2</td>
</tr>
</tbody>
</table>

* Only for model with real time clock

2 Only for XW60L with X-REP output

Dixell S.p.A. Z.I. Via dell’Industria, 27
35010 Padua (Bl) ITALY
Tel. +39 - 04937 - 98 33 - fax +39 - 04937 - 98 63 13
E-mail: dixell@dixell.com - http://www.dixell.com