MURO

H11
H78
CLASSIC WALL

ISO9001

Maintenance
And Use Manual

OSCARTEK
1441 Rollins Road
Burlingame, CA 94010
Tel: 855.885.2400 | 650.342.2400
Fax: 650.342.7400
www.oscartek.com
sales@oscartek.com
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 80433/1) : Realization of Electric Installations
- Norm CEI EN 60335-1 (CEI 61-150) : Safety of household and similar electrical appliances
- Norm CEI EN 60335-2-24 (CEI 61-56) : Special norms for refrigerators, freezers and ice machines
- UL471
- 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

![SAMPLE](image)

<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>Production Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Cl. 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 W</td>
<td>17 W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Cl. 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pmax 12 psig</td>
<td>13 psig</td>
</tr>
<tr>
<td>Pmin 10 psig</td>
<td>13 psig</td>
</tr>
</tbody>
</table>

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 code (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/current absorbed during defrost
15. Max. power absorbed during defrost
16. Nominal power absorbed by heating elements (only if higher than 100 W)
17. 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 raining.
- 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 to not 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 what 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 no 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 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 air 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 showcast has a remote condensing unit, it is necessary make the connection of defrosting water outlet with the main water drain outlet.
| AGD | DIGITAL FLAVOURS DISPLAY FEEDER | RES28 | FRONT GLASS LOWER FRAME HEATING ELEMENT |
| AEL | ELECTRONIC BALLAST | RES29 | FRONT GLASSES COUPLING PROFILE HEATING ELEMENT |
| AP  | SERVICE VALVE | RES30 | DOORS FRAME MIDDLE POST HEATING ELEMENT |
| CA  | SUPPLY CAN | RES31 | GLASS FRAME WASHER HEATING ELEMENT |
| CAR | AIR CONDENSER | RES32 | HEATED DOORS HEATING ELEMENTS |
| CE  | ELECTRONIC CONTROL | RES33 | WATER DRAIN HEATING ELEMENT |
| CN  | MULTIPOLAR CONNECTOR | RES34 | DOORS FRAME HEATING ELEMENT |
| CO  | COMPRESSOR | RES35 | COMPRESSOR CRANKCASE HEATING ELEMENT |
| D   | DIOID | RES36 | FRONT GLASS FRAME HEATING ELEMENT |
| DEV | SHUNT | RES37 | CABINET FRAMING HEATING ELEMENT |
| DR  | REMOTE DISPLAY | RES38 | HOT COMPARTMENT HEATING ELEMENT |
| EM  | PHOTOCCELL EMITTER | REV | CONDENSER FAN SPEED CONTROL |
| EV  | EVAPORATOR | REVC | CONDENSER FAN RELAY |
| F   | FUSE | RI | REFRIGERANT TAP |
| FD  | FILTER DRIER | RIC | COMPRESSOR DELAY |
| FL  | WATER FLOW SWITCH | RICV | PHOTOCCELL RECEIVER |
| FR  | COMPRESSOR THERMAL PROTECTION | RIS | RESERVE, ANTI-FOG HEATING ELEMENT |
| HL  | COMPRESSOR ALARM LIGHT | RL | LIQUID RECEIVER |
| I   | GENERIC SWITCH | RLA | WATER LEVEL ELECTRONIC CONTROL |
| IEC | WATER EVAPORATION BIN SWITCH | RO | OIL HEATER ELEMENT |
| IGD | DIGITAL FLAVOURS DISPLAY | SAA | ABSENCE OF WATER LIGHT |
| J   | LIGHTING SWITCH | SC | CONDENSER PROBE |
| IL  | SIGHT GLASS | SD | TERMINAL BOX |
| I MC | WARM SHELF SWITCH | SDC | COMPRESSOR TERMINAL BOX |
| INV | INVERTER | SE | PROXIMITY SENSOR |
| IR  | REFRIGERATION SWITCH | SEC | MAIN SWITCH |
| IRP | LIGHT REFRIGERATION SWITCH | SF | TANK BOTTOM HEATING COIL |
| IV  | INTERNAL FAN SWITCH | SHDG | FLAVOURS DISPLAY DIGITAL SYSTEM |
| NM  | CONTACTOR | SL | LIQUID SEPARATOR |
| LF  | FRONT LIGHTING | SLA | WATER LEVEL PROBE |
| LI  | INTERNAL UPPER LIGHTING | SPC | COMPRESSOR LIGHT |
| LIA | FRONT LIGHTING | SPMC | WARM SHELF LIGHT |
| LIG | FLAVOURS DISPLAY LIGHTING | SPR | ELECTRIC SUPPLY LIGHT |
| LIP | REAR LIGHTING | SPS | DEFROSTING LIGHT |
| MDIG | DIGITAL MODULE FOR FLAVOURS DISPLAY | SS | DEFROSTING PROBE |
| MM  | SPINNING SHELLES ELECTRIC MOTOR | ST | TEMPERATURE PROBE |
| MUC | CONDENSING UNIT ELECTRIC CONNECTIONS | STR | LIGHTING STARTER |
| PA  | HIGH PRESSURE CONTROL | SU | HUMIDITY PROBE |
| PD  | HIGH-LOW PRESSURE CONTROL | T | TEMPERATURE CONTROL |
| PO  | WATER PUMP | TE | WINTER THERMOSTAT |
| QE  | EXTERNAL ELECTRIC PANEL | TC | CAPILLARY TUBE |
| QF  | MAGNETIC-THERMIC SWITCH | TE | TIMER |
| R   | LIGHTING BALLAST | TER | THERMOMETER |
| RAD | RECTIFIER | TF | FUSIBLE PLUG |
| RE  | GENERIC RELAY | TMC | WARM SHELF THERMOSTAT |
| REL | ELECTRONIC BALLAST | TP | LIGHTING FIXTURES REFRIGERATOR THERMOSTAT |
| REP | ELECTRONIC CONTROL TEMPERATURE REPEATER | TRA | TRANSFORMER |
| RES1 | COLD AIR DISCHARGE HEATING ELEMENT | TRC | ELECTRONIC CONTROL TRANSFORMER |
| RES2 | FRONT PROFILE HEATING ELEMENT | TREV | WATER EVAPORATION HEATER ELEMENT THERMOSTAT |
| RES3 | RIGHT/LEFT GLASS HEATING ELEMENT | TS | SECURITY THERMOSTAT |
| RES4 | FRONT GLASS HEATING ELEMENT | TVC | CONDENSER FAN THERMOSTAT |
| RES5 | DEFROST HEATING ELEMENT | VF | COMPRESSOR FAN / GENERAL USE |
| RES6 | WATER EVAPORATION HEATING ELEMENT | VC | CONDENSER FAN |
| RES7 | TOP LIGHTING FIXTURE HEATING ELEMENT | VEC | WATER EVAPORATION BIN |
| RES8 | LATERAL GLASS SUPPORT HEATING ELEMENT | VES | EXPANSION VALVE |
| RES9 | FRONT BANDING HEATING ELEMENT | VI | INTERNAL FAN |
| RES10 | COUPLING BANDING HEATING ELEMENT | VPA | CONDENSING PRESSURE CONTROL WATER VALVE |
| RES11 | SERVICE TOP HEATING ELEMENT | VR | CHECK VALVE |
| RES12 | UPPER BAND/DOOR FRAME HEATING ELEMENT | VRA | SUCTION PRESSURE REGULATION VALVE |
| RES13 | HOT DRY/BAIN MARIE DISPLAY HEATING ELEMENT | VRE | EVAPOTATING PRESSURE REGULATION VALVE |
| RES14 | ANTI-FOG SUCTION AIR BAND HEATING ELEMENT | VS | GENERAL USE SOLENOID VALVE |
| RES15 | WARM SHELF HEATING ELEMENT | VSA | SOLENOID WATER VALVE |
| RES16 | SIDE BANDS/FRONT GLASS HINGE HEATING ELEMENT | VSAB | BY-PASS SOLENOID WATER VALVE |
| RES17 | DEHUMIDIFICATION HEATING ELEMENT | VSC | REVERSING CYCLED SOLENOID VALVE |
| RES18 | DEFROSTING WATER DRAIN HEATING ELEMENT | VSL | LIQUID SOLENOID VALVE |
| RES19 | RING FRAME HEATING ELEMENT | VSS | DEFROSTING SOLENOID VALVE |
| RES20 | SIDE BANDING HEATING ELEMENT | VT | POWER REGULATOR |
| RES21 | SUCTION AIR GLASS HEATING ELEMENT | VV | GLASS FAN |
| RES22 | OUTLET AIR HEATING ELEMENT | X1 | CABINET CONNECTIONS |
| RES23 | REAR GLASS HEATING ELEMENT | X2 | EXTERNAL ELECTRIC PANEL CONNECTIONS |
| RES24 | INTERNAL GLASS HEATING ELEMENT | X3 | CONDENSING UNIT CONNECTIONS |
| RES25 | FRONT GLASS UPPER FRAME HEATING ELEMENT | RES26 | FRONT GLASS LATERAL/LOWER FRAME HEATING ELEMENT |
| RES27 | FRONT GLASS LATERAL FRAME HEATING ELEMENT |
probes is more than the value of the Fd parameter, the fans are switched on. With Fd=0 the function is disabled.

3.3.2 Cyclical activation of the fans with compressor off.
When Fc1 or Fc2 or Fc3 (fans in parallel to the compressor), or means of the Fc1 and Fc2 parameters the fans can carry out on and off cycles even if the compressor is switched off. When the compressor is stopped the fans go on working for the Fc1 time. With Fc2=0 the fans remain always off, when the compressor is off.

3.4 LIGHT RELAY CONFIGURATION
The functioning of the auxiliary relay (terminal 1-3) can be set by the a3 parameter, according to the kind of application. In the following paragraph the possible settings:

3.4.1 Auxiliary thermostat
(IE. 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: \text{H}: heating; \text{C}: cooling;
- SAA Set point for auxiliary relay
- SBY Differential for auxiliary relay
- A-P Probe for auxiliary relay
- Sdd 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 SBY 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=0 (no probe for auxiliary output).
In this case the relay 1-3 can be activated only by digital input with F1F or 2F= 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= off the relay 1-3 can control a heater element to perform a neutral zone action.
a3 cut in = SET-HY
a3 cut out = SET

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= ALt the relay 1-3 operates as alarm relay. It is activated every time an alarm happens.
Its status depends on the a3 parameter. If "a3 \neq 0", the relay is silenced by pressing any key.
If "a3 = 0", the alarm relay remains on until the alarm condition recovers.

3.4.6 Night blind management during energy saving cycles
With a3= NS6, the relay 1-3 operates to manage the night blind: the relay is energised when the energy saving cycle is activated, by digital input, frontal button or RTC (optional).

4. FRONT PANEL COMMANDS

4.1 STANDARD FRONTAL 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.
(DUP): To see the selected temperature; in programming mode it blows the parameter codes or increases the displayed value.
(DOWN): To see the min stored temperature; in programming mode it blows the parameter codes or decreases the displayed value.

To switch the instrument off, if onF=0 Ff.

To switch the light, if a3= Lig.

KEY COMBINATIONS:
- To lock & unlock the keyboard.
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 (85 message will be displayed).
2. To confirm the operation the “85” 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, its program automatically the time and day.
1. Enter the P11 programming menu, by pressing the SET + – keys for 3s.
2. The no parameter is displayed. Push the SET key enter to the real time clock menu.
3. The hour (h) parameter is displayed.
4. Push the SET and set current hour by the UP and Down keys, then push SET to confirm the value.
5. Repeat the same operations on the Min (minutes) and s (seconds) parameters.
To exit: Press SET+UP keys or wait for 15 sec without pressing any keys.

6.2 HOW TO SEE THE SET POINT
1. Push and immediately release the SET key: the display will show the set point.
2. Push 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. 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 – arrow within 10s.
4. To memorise the new set point value push 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.
To exit: Press SET + UP or wait 10s without pressing a key.
Note: the set value is stored even when the procedure is ceased by waiting the time-out to expire.

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. Repeatedly press the SET key for more than 7s. The Pi2 label will be displayed immediately followed by the Pi2 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 the FIRST LEVEL (user level) by pressing “SET + –” in HIDDEN MENU until a parameter is present in the first level.

6.7 HOW TO LOCK THE KEYBOARD
1. Keep pressed for more than 3s the UP + DOWN keys.
2. The “POST” 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 “POST” message will be displayed.

6.8 TO UNLOCK THE KEYBOARD
Keep pressed together for more than 3s the and keys, till the “Post” message will be displayed.

6.9 THE ON/OFF FUNCTION

With “on/off” pressed, the ON/OFF function is activated.

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

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

REGULATION
Hy Differential: (0.1 + 25°C/1°C to 255°F) Intervention differential for set point. Compressor Cut In is Set Point + differential (Hy). Compressor Cut Out is the temperature at which the set point.
LS Minimum set point: (5°C to 50°C/Safety + set) Sets the minimal value for the set point.
US Maximum set point: (+150°C/SET + 230°F) Sets the maximum value for set point.
Ot Thermostat probe calibration: (-120°C to 120°C) Adjusts to adjust the positive offset of the thermostat probe.
P2P Evaporator probe presence: n: not present; the defrost stops by time; y: present; the defrost stops by temperature.
OE Evaporator probe calibration: (-120°C to 120°C) Adjusts to adjust the possible offset of the evaporator probe.
P3P Third probe presence (P3): n: not present; the terminals 13-14 operate as digital input; y: present; the terminals 13-14 operate as third probe.
P4P Fourth probe presence (P4): n: not present; y: present.
G1 Four probe calibration (-120°C to 120°C) Adjusts to adjust the possible offset of the fourth probe.
G1s Output activation delay at start up: (0.25s to 25s) 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: (0.5s to 30s) Minimum interval between the compressor stop and the next start.
AC2 2nd compressor at start up: (0.25s to 25s) Used if OA2 = p2p. Time interval between the switching on of the first compressor and the second one.
Pr Percentage of the first and second probe for regulation: (0.00% to 100% + Pi, 0 to 2): it allows to set the regulation according to the percentage of the first and second probe, for the following formula (Pi1*P1+Pi2*P2).
CCI Compressor ON time during continuous cycle: (0.5s to 24h) Adjusts to set the length of the continuous cycle in hours.
CCS Set point for continuous cycle: (5°C to 150°C) It sets the point used during the continuous cycle.
CC0 Compressor ON time with faulty probe: (0.25s to 25s) Time during which the compressor is active in case of faulty thermostat probe. With CC0=0 compressor is always OFF.
COP Compressor OFF time with faulty probe: (0.25s to 25s) Time during which the compressor is OFF in case of faulty thermostat probe. With COP=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, OA1 and OA2 have to be checked and modified if necessary.
Res Solution (for °C): (1°C ≤ 0.1°C) Allows decimal point display.
CONDENSER TEMPERATURE ALARM

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.

AL1 Low temperature alarm of condenser: (−55°C to −50°C) when this temperature is reached the LAZ alarm is signalled, possibly after the AD2 delay.

AD2 High temperature alarm of condenser: (55°C to 50°C) when this temperature is reached the HAZ alarm is signalled, possibly after the AD2 delay.

AD2 Differential for temperature condenser alarm recovery (0.1°C to 1°C) after AD2 delay.

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

AD2 Condenser temperature alarm alarm exclusion at start up: (0 min to 23.5 hrs, max. 10 min).

A1B Condenser 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 returns to AC low temperature set point.

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 returns to AC low temperature set point.

AUXILIARY RELAY

A1B Alarm relay silencing (with A3 to A5): 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.

A2D Fourth relay configuration (1−3, 5−7, 9−11): DeF, FAn: do not select if: All alarms, light, lAg, lUs: Auxiliary relay, on/off; always on with instrument on; dbL = neutral zone; PC2 = second compressor; DeF2: do not select if: hES, night blind.

AE9 Alarm relay polarity: if set the alarm relay is open or closed when an alarm happens. CLe = terminals 1,3 closed during an alarm; dFa = terminals 1,3 open during an alarm.

DIGITAL INPUTS

1IP Digital input polarity (15−14): 0F: the digital input is activated by opening the contact; Cl: the digital input is activated by closing the contact.

1F Digital input configuration (15−14): 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: activation of a defrost cycle; AUS: not enabled; Htm: stop of action of thermostat; hLt: lighting; hSt: Energy saving; hId: Holiday defrost (enable only with RTCh): oF = to switch the controller off.

1dI Digital input delay: (0 to 255 min) with IIP or IEF = 1F = digital input alarm delay (13−14): delay between the detection of the external alarm condition and its signalling with IFD: door open signalling delay with IEF: PAL = time for pressure switch function: time interval to calculate the number of the pressure switch activation.

1PP 2nd digital input polarity (13−12): 0F: the digital input is activated by opening the contact; Cl: the digital digital input is activated by closing the contact.

2F 2nd digital input configuration (13−12): 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: activation of a defrost cycle; AUS: not enabled; Htm: key of action of thermostat (cooling − heating); FAN: not set if: SE; EES = Energy saving; hId: Holiday defrost (enable only with RTCh): oF = to switch the controller off.

2dI Digital input delay: (0 to 255 min) with IEF or IIP = 2F = digital input alarm delay (13−14): delay between the detection of the external alarm condition and its signalling with IFD: door open signalling delay with IEF: PAL = 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 (IF2 = PAL). If the nPS activation in the did time is reached, switch off and on the instrument to reset the normal regulation.

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

rod Outputs restart for alarm: no = outputs not affected by the doA alarm; yES = outputs restart with the doA alarm.

hES Temperature increase during the Energy Saving cycle:

(0°C to 30°C) it determines the increasing value of the set point during the Energy Saving cycle.

SET TO CURRENT TIME AND WEEKLY HOLIDAYS (ONLY FOR MODELS WITH RTCh)

hUr Current hour (0 − 23 h).

hMn Current minute (0 − 59 min).

dAy Current day (Sun to Sat).

hD1 First weekly holiday (Sun − SU). Set the first day of the week which follows the holiday times.

hD2 Second weekly holiday (Sun − SU). Set the second day of the week which follows the holiday times.

nB bH, bH2 can be set also as "ma" value (Not Used).

SET TO ENERGY SAVING TIMES (ONLY FOR MODELS With RTCh)

IEL Energy Saving cycle start during workdays: (0 − 23 h 50 min.) During the Energy Saving cycle the set point is increased by the value in hES so that the operation set point is set = 5°C less than the current temperature.

IeE Energy Saving cycle length during workdays: (0 − 24 h 00 min.) Sets the duration of the HES Energy Saving cycle on workdays.

Ise Energy Saving cycle start on holidays: (0 − 23 h 50 min.)

ISe Energy Saving cycle length on holidays: (0 − 24 h 00 min.)

SET TO DEFROST TIMES (ONLY FOR MODELS WITH RTCh)

1LD1−LD6 Workday defrost start (0 − 23 h 50 min.) These parameters set the beginning of the 6 programmable defrost cycles during workdays. Ex. When LD2 = 12 the second defrost starts at 12 o'clock within the day working.

Sd1−Sd6 Holiday defrost start (0 − 23 h 50 min.) These parameters set the beginning of the 6 programmable defrost cycles on holidays. Ex. When Sd2 = 3 the second defrost starts at 3 o'clock on holidays.

N.B. To disable a defrost cycle set it to "ma" (not used). Ex. If IEF2 = ma, the fifth defrost cycle is disabled.

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

The first digital input 13-14 is enabled with P3P = n.
With P3P = n and 1F = 12F the second digital input is disabled
The three voltage digital inputs are programmable by the “1F” and “2F” parameters.

8.1 GENERIC ALARM (1F or 12F = EAL)

As soon as the digital input is activated the unit will wait for “did” delay time before signaling the “EAL” alarm message. The outputs status will not change. The alarm stops just after the digital input is de-activated.

8.2 SERIOUS ALARM MODE (1F or 12F = BAL)

When the digital input is activated, the unit will wait for “did” delay before signaling 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 (1F or 12F = PAL)

If during the interval time set by “did” parameter, the pressure switch has reached the number of activation of the “APS” parameter, the “APS” 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 APS activation in the did time is reached, switch off and on the instrument to restart normal regulation.

8.4 DOOR SWITCH INPUT (1F or 12F = dor)

It signals the door status and the corresponding relay output status through the “edc” parameter. The door status and the corresponding relay output status are displayed.

8.5 START DEFROST (1F or 12F = 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 “M2P” safety time is elapsed.

8.6 SWITCH THE AUXILIARY RELAY (1F or 12F = AUS)

When Oa3=AUS the digital input switch the status of the auxiliary relay

8.7 INVERSION OF THE KIND OF ACTION: HEATING-COOLING (1F or 12F=Htr)

This function allows to invert the regulation of the control: from cooling to heating and vice versa.

8.8 ENERGY SAVING (1F = ES)

The Energy Saving function allows to change the set point value as the result of the TSET+TES parameter sum. This function is enabled after the digital input is activated.

8.9 HOLIDAY DEFROST (1F or 12F = HDF)—ONLY FOR MODELS WITH RTC

This function enabled the holiday defrost setting.

8.10 ON OFF FUNCTION (1F or 12F = onF)

To switch the controller on and off.

8.11 DIGITAL INPUTS POLARITY

The digital input polarity depends on the “1P” and “1PP” parameters.
HP or 1P 1PP: the input is activated by closing the contact.
IP or 1PP: 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, X435-CA, to connect the instrument to a monitoring system ModUS-RTU compatible such as the X4-RTUS02.X001300.

10. X-REP OUTPUT — OPTIONAL

As optional, an X-REP can be connected to the instrument, trough 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 (6m).

11. INSTALLATION AND MOUNTING

The controller XW60L shall be mounted on vertical panel, in a 150x31 mm hole, and fixed using two screws ø 3 x 2 mm. To obtain an IP50 protection grade use the front panel rubber gasket (mod. RS-L). 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 the air circulate 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 Fast-On 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 heavier loads use a suitable external relay.

N.B. Maximum current allowed for all the loads is 20A.

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 thermostatic 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 “dPL” 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 a 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 “dPL” 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 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

<table>
<thead>
<tr>
<th>Message</th>
<th>Cause</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Room probe failure</td>
<td>Compressor output alarm, to per “Com” and “COF”</td>
</tr>
<tr>
<td>P2</td>
<td>Evaporator probe failure</td>
<td>Defrost and is timed</td>
</tr>
<tr>
<td>P3</td>
<td>Third probe failure</td>
<td>Outputs unchanged</td>
</tr>
<tr>
<td>P4</td>
<td>Fourth probe failure</td>
<td>Outputs unchanged</td>
</tr>
<tr>
<td>H1</td>
<td>Maximum temperature alarm</td>
<td>Outputs unchanged</td>
</tr>
<tr>
<td>H2</td>
<td>Condenser high temperature</td>
<td>It depends on the “A2P” parameter</td>
</tr>
</tbody>
</table>
14.1 SILENCING BUZZER / ALARM RELAY OUTPUT

If TBA = Y, the buzzer and the relay are silenced by pressing any key. If TBA = N, only the buzzer is silenced while the alarm relay is on until the alarm condition recovers.

14.2 ALARM RECOVERY

Probe alarms P1, P2, P3, and P4 start some seconds after the fault in the related probe; they automatically stop some seconds after the probe restores normal operation. Check connections before replacing the probe.

Temperature alarms 'HA', 'LA', 'HA2' and 'L2' automatically stop as soon as the temperature returns to normal values.

Alarm 'EA' and 'CA' (with IF=4B) recover as soon as the digital input is disabled. Alarm 'CA' (with IF=4F) recovers only by switching off and on the instrument.

14.3 OTHER MESSAGES

Pen
Keyboard unlocked

PcF
Keyboard locked

noP
In programming mode: none parameter is present in Pr1
On the display or in dp7, dp8, dp4: the selected probe is not enabled

15. TECHNICAL DATA

Housing: self-extinguishing ABS
Case: face 38×165 mm, depth 85 mm
Mounting: panel mounting in a 50×65×1 mm panel cut-out with two screws. ø 3 mm x 2.5 mm
Distance between the holes 15 mm
Protection: IP20; Frontal protection: IP65 with frontal gasket mod RGL (optional)
Connections: Screw terminal block, 5×2 mm² flat wire, 0.1 x 0.1 x 0.1 mm² flat wire
Supply power: 220Vac or 24Vac ±10%
Power absorption: 8VA 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 PTC probes.
Digital inputs: 2 x live voltage
Relay outputs: Total current on loads MAX 20A
compressor relay: relay SPS 310/8 A, 250Vac
light relay: relay SPS 8 or 816 A, 250Vac
fams relay: SPS 8 (3) A, 250Vac
defrost relay: SPS 8 (3) A, 250Vac
Other output: 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)
Rated impulse voltage: 2500V. Over voltage Category: III
Operating temperature: 0-40 °C, Storage temperature: -30-85 °C.
Relative humidity: 20-85% (no condensing)
Measuring and regulation range: NTC probes: -40-110 °C (40-228°F), PTC probes: -50-150 °C (-59-302°F)
Resolution: 0.1 °C or 1 °F (selectable) Accuracy (ambient temp. 25°C) ±0.7 °C ±1 digit

16. CONNECTIONS

Supply: 120Vac or 24Vac: connect to terminals 11-12
The K-REP output is optional
The light relay can be also 16A according to the model

17. DEFAULT SETTING VALUES

<table>
<thead>
<tr>
<th>Label</th>
<th>Name</th>
<th>Range</th>
<th>&quot;°C&quot;</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>nC1</td>
<td>Set point</td>
<td>LS-US</td>
<td>5-9</td>
<td>p1</td>
</tr>
<tr>
<td>nC2</td>
<td>Real time clock menu</td>
<td>LS-US</td>
<td>5-9</td>
<td>p1</td>
</tr>
<tr>
<td>nC4</td>
<td>Hy</td>
<td>0.1-25.0</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC5</td>
<td>Differential</td>
<td>0-350</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC6</td>
<td>Maximum set point</td>
<td>0-350</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC7</td>
<td>Digital input 1 configuration (13-14)</td>
<td>EAL, B, PAL, D, DEF, HTR, AUS</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC8</td>
<td>Digital input 2 configuration (13-14)</td>
<td>EAL, B, PAL, D, DEF, HTR, AUS</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC9</td>
<td>Digital input 3 configuration (13-14)</td>
<td>EAL, B, PAL, D, DEF, HTR, AUS</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC10</td>
<td>Digital input 4 configuration (13-14)</td>
<td>EAL, B, PAL, D, DEF, HTR, AUS</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC11</td>
<td>Number of activation of pressure switch</td>
<td>0-15</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC12</td>
<td>Compressor and fan status when open door</td>
<td>no: Fan; CF: F_C</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC13</td>
<td>Regulation restart with door open alarm</td>
<td>0-15</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC14</td>
<td>Differential for Energy Saving</td>
<td>(0.3°C-30°C) (0.54°F-54°F)</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC15</td>
<td>Current hour</td>
<td>0-23</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC16</td>
<td>Current minute</td>
<td>0-59</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC17</td>
<td>Day of the week</td>
<td>Sun = S M</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC18</td>
<td>First weekly holiday</td>
<td>Sun = SA</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC19</td>
<td>Second weekly holiday</td>
<td>Sun = SA</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC20</td>
<td>Energy Saving cycle start during weekends</td>
<td>0-24 h</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC21</td>
<td>Energy Saving cycle length on holidays</td>
<td>0-24 h</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>nC22</td>
<td>Energy Saving cycle start on holidays</td>
<td>0-24 h</td>
<td>P1</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>Ld4*</td>
<td>4th workdays defrost start</td>
<td>0 to 23h 59 min. nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Ld5*</td>
<td>5th workdays defrost start</td>
<td>0 to 23h 59 min. nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Ld6*</td>
<td>6th workdays defrost start</td>
<td>0 to 23h 59 min. nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Sd1*</td>
<td>1st holiday defrost start</td>
<td>0 to 23h 59 min. nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Sd2*</td>
<td>2nd holiday defrost start</td>
<td>0 to 23h 59 min. nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Sd3*</td>
<td>3rd holiday defrost start</td>
<td>0 to 23h 59 min. nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Sd4*</td>
<td>4th holiday defrost start</td>
<td>0 to 23h 59 min. nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
<tr>
<td>Sd5*</td>
<td>5th holiday defrost start</td>
<td>0 to 23h 59 min. nu</td>
<td>0.0</td>
<td>rtc</td>
</tr>
</tbody>
</table>

Adr: Serial address 1-247 1 Fr2
PhC: Kind of probe Pmc, etc nce Fr2
omF: Off key-ensnbl nu, off, es off Fr2
dP1: Room probe display -- -- Fr2
dP2: Evaporator probe display -- -- Fr2
dP3: Third probe display -- -- Fr2
dP4: Fourth probe display -- -- Fr2
sRE: Real set actual set Fr2
rEL: Software release 1.5 Fr2
Pcb: Board code -- Fr2

* 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 Pieve d'Agordo (BL) ITALY
Tel. (+39) 0437 - 98 33 - Fax (+39) 0437 - 98 63 13
E-mail: dixell@dixell.com - http://www.dixell.com