ROSA
DELI/PAstry/CHOCOLATE

ISO 9001

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 pastry 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 60439-1) : Realization of Electric Installations
- Norm CEI EN 80335-1 (CEI 51-150) : Safety of household and similar electrical appliances
- Norm CEI EN 80335-2-24 (CEI 61-56) : Special norms for refrigerators, freezers and ice machines

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>Oscartek</th>
<th>Oscartek</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>Production Date</td>
</tr>
<tr>
<td>Serial No. 2</td>
<td></td>
</tr>
</tbody>
</table>

4 V / 5 ph / 6 Hz
Type 7
No. 8
Gas 9
10 Kg
Cl. 11

Pmax 12 psig
Pmin 13 psig

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°C60% U.R., Cl. 4 = +30°C55% 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 100W)
17. Lighting nominal power
3. INSTALLATION

3.1. MACHINE HANDLING

- The chocolate display cabinet handling, from the truck to the final place, has to be made by any truck-lift, which is proper to its weight. The display cabinet shall be always balanced in order to ensure personnel integrity and machine functionality.

- The cabinet 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 display cabinet in order to not damage its frame, especially its glasses.

- Do not drag the display cabinet on the floor and do not push it on the upper glasses.

3.2. STOCK OF THE DISPLAY CABINET

- Whenever the cabinet has to be stoked, follow carefully what suggested before.

- Environmental temperature during the cabinet stock can have following range -15°C and +55°C and humidity between 30% and 90%.

- The display cabinet has always to be protected by sunrays and raining.

- In case the display cabinet 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 display cabinet 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. DISPLAY CABINET POSITION

The refrigerated display cabinet 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 display cabinet on the horizontal position in order to guarantee a perfect defrosting water drain and avoid boring compressor noises.

- The display cabinet 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 what described above is not observed, it can determinate an increase of temperature of displayed product and an increasing power consume.

- The display cabinet 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 display cabinet has not to be placed close any heat source as heaters, ovens, etc.

- The display cabinet 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 cool 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

- According to the model of ice cream display cabinet you have No.1 or No.2 internal, or remote, condensing units.
- The remote condensing unit has to be checked by specialised technicians and according to the required refrigerating power and their position respect the cabinet.
- 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.3.5)
  - 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 cabinets 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 display cabinet 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 closet 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 cabinet.
- The electric connection has to be made by qualified personnel and following manufacturer’s instructions taking into consideration the relevant norms in force.
- The display cabinet 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 display cabinet 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!
The display cabinet has no main switch breaking both the phases. Before any maintenance operation disconnect the electrical supply of the display cabinet (see label on the rear of the display cabinet).
4. ROUTINE MAINTENANCE AND PERIODIC CHECKS

- These kinds of operations are at client’s expenses.
- In case some malfunctioning of the unit are observed, please make sure this is not due to non-maintenance reasons, before you apply to qualified assistance.
- The accurate and periodic cleaning of the unit will reduce the risk of damages to the unit itself and to the products stored within.
- See following tab for reference.

ATTENTION! Before starting any maintenance and cleaning operation make sure you operate on the main switch in order to deactivate tension (pic. 4)

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>DESCRIPTION</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surfaces’ cleaning</td>
<td>• Wash exclusively with warm water and neutral soup; rinse abundantly and wipe off with a soft cloth.</td>
<td>weekly</td>
</tr>
<tr>
<td></td>
<td>• Do not use abrasive products</td>
<td></td>
</tr>
<tr>
<td>Plastic surfaces’ cleaning</td>
<td>• Wash exclusively with warm water and neutral soup; rinse abundantly and wipe off with a soft cloth.</td>
<td>weekly</td>
</tr>
<tr>
<td></td>
<td>• Do not use alcohol, acetone and any solvent that might spoil the look and structure of the material.</td>
<td></td>
</tr>
<tr>
<td>Glass surfaces’ cleaning</td>
<td>• Use only specific products for glass cleaning</td>
<td>daily</td>
</tr>
<tr>
<td></td>
<td>• Using water alone might lead to calcareous deposits on the glass surfaces</td>
<td></td>
</tr>
<tr>
<td>Wooden surfaces’ cleaning</td>
<td>• Use exclusively a wet cloth.</td>
<td>weekly</td>
</tr>
<tr>
<td>Additional defrost</td>
<td>• Under particular conditions of temperature and humidity, the frost that normally forms on the evaporator and fans might increase in volume, so leading to a faulty functioning the unit.</td>
<td>Waiting for qualified assistance</td>
</tr>
<tr>
<td></td>
<td>• If these conditions should last, the assistance of a qualified technician shall be needed. Waiting for this service, it is suggested to operate one or more defrost cycles (despite the damages this might cause to the stored product)</td>
<td></td>
</tr>
<tr>
<td>Periodic defrost</td>
<td>• In order to obtain the best performance from the cooling system, we suggest to operate an extended defrost cycle.</td>
<td>max. 15 DAYS</td>
</tr>
<tr>
<td></td>
<td>• Before you do that, please remove displayed products from inside the cabinet; always operate an additional defrost cycle in order to remove from the evaporator the largest possible amount of frost or ice. Turn the main switch off for 5 hours (min.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Before re-starting the unit, make sure that frost has totally melted and wipe carefully.</td>
<td></td>
</tr>
</tbody>
</table>

5. EXTRAORDINARY MAINTENANCE

This type of operation has to be made by qualified technician only.

ATTENTION! Before operating any maintenance, make sure the tension is deactivated. (pic.11).

- Lamps’ replacement: qualified technician needed.
- Air condenser cleaning: qualified technician needed. When the fan is switched off you can clean the condenser with a compressed air jet. Never use metallic brushes. Use protection gloves. (pic.5).
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 be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different from those described herein. It cannot be used as a safety device.
- Check the application limits before proceeding.

1.2 SAFETY PRECAUTIONS

- Always 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.
- Fill the probe where it is not accessible by the End User. The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor or to “Dixell S.p.A.” (see address) with a detailed description of the fault.
- Consider the maximum current which can be applied to each relay (see Technical Data).
- Ensure that the wires for probes, leads and the power supply are separated from each other, without crossing or intertwining.
- In case of applications in industrial environments, the use of non-flammable (FFRFT) in parallel with inductive loads could be useful.

2. GENERAL DESCRIPTION

Model XW60L, format 38x185mm, is a microprocessor-based controller, suitable for applications on medium or low temperature ventilated refrigeration units. It has 4 relay outputs to control compressor, fan, defrost, which can be either electrical or reverse cycle (hot gas) and light (configurable). It could be provided with a Real Time Clock which allows programming of up to 6 daily defrost cycles, divided into holidays and workdays. A “Day & Night” function with two different set points is fitted for energy saving. It is also provided with up to four RTC or PLC probe inputs, the first one for temperature control, the second one, to be located 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 X48S-CX, to a network line ModBus-RTU compatible such as the cdx88r, monitoring units of X-WEB family. It allows to program the controller by means the HOT KEY programming keyboard.

The instrument is fully configurable through special parameters that can be easily programmed through the keyboard.

3. CONTROLLING LOADS

3.1 COMPRESSOR

The control is performed according to the temperature measured at 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 the thermostat probe the start and stop of the compressor are timed through parameters “COn” and “COf”.

3.2 DEFROST

Two defrost modes are available through the “tDef” parameter: defrost through electrical heater (tDef = EL) and hot gas defrost (tDef = HG).

The defrost interval depends on the presence of the RTC (optional). If the RTC is present it is controlled by means of parameter “tDef”:
- With tDef = EL: the defrost is made every tDef time - standard way for controller without RTC;
- With tDef = HG: “tDef” is made in real time depending on the hours set in the parameters Ld1=...Ld6=0 on workdays and in Ld1=...Ld6= holidays.

Other parameters are used to control defrost cycles: its maximum length (dMax) and two defrost modes: timed or controlled by the evaporator’s probe (TDP).

At the end of defrost echo time it is first, its length is set in the Fd parameter. With Fd=0 the defrost is disabled.

3.3 CONTROL OF EVAPORATOR FANS

The fan control module is selected by means of the “FnC” parameter:

FnC = C0: fans will switch OFF and OFF with the compressor and not run during defrost.
FnC = C1: fans will run even if the compressor is off and not run during defrost.
FnC = C2: after defrost, there is a timed fan delay allowing for drip time, set by means of the “Fd” parameter.
FnC = C3: fans will run only if a defrost is active or in real time depending on the hours set in the parameters Ld1=...Ld6= on workdays and in Ld1=...Ld6= holidays.
FnC = C4: fans will run continuously also during defrost.

An additional parameter “FsR” provides the settings of temperature, detected by the evaporator probe, above which the fans are always OFF. This is used to make sure circulation of air only if the temperature is lower than set in TSB.

3.3.1 Forced activation of fans

This function manages the Fd 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 Fd=0 the function is disabled.

3.3.2 Cyclical activation of the fans with compressor only

When Fco < f or f > 0 and f < 1 (pars in parallel to the compressor), by means of the Fco and Fd parameters the fans can carry out on and off cycles even if the compressor is switched on. When the compressor is stopped the fans go on working for the Fco time. With Fco = 0 the fans remain always off, when the compressor is off.

3.4 LIGHT RELAY CONFIGURATION

The functioning of the auxiliary relay (terminals 1-3) can be set by the a03 parameter, according to the kind of application. In the following paragraph the possible setting

3.4.1 Auxiliary thermostat

I.E.: condensing heater) with the possibility of switching it on and off also by keyboard.

Parameters involved:

- ACH: Kind of regulation for the auxiliary relay: Ht: heating; C: cooling;
- A5A: Set point for auxiliary relay;
- A5h: Difference for auxiliary relay;
- ArP: Probe for auxiliary relay;
- Sfd: 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 A5h 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 a03 = AUS and ArP= 0 (no probe for auxiliary output).

In this case the relay 1-3 can be activated only by digital input with 1IF or 0Z = AUS.

3.4.2 On/off relay - a03 = on

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

3.4.3 Neutral zone regulation

With a03 = RB the relay 1-3 can control a heater element to perform a neutral zone action.

a03 out = SET-HY P

3.4.4 Second compressor

With a03 = 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 compressor are switched off at the same time.

3.4.5 Alarm relay

With a03 = ALR the relay 1-3 operates as alarm relay. It is activated every time an alarm happens.

Its status depends on the a6A parameter: if “a6A = y”, the relay is silenced by pressing any key. If “a6A = n”, the alarm relay remains on until the alarm condition recovers.

3.4.6 Night blind management during energy saving cycles

With a03 = HES, 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 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

(UP) To see the max. 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 on = off.

To switch the light, if a03 = Lg.

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>Defrost enabled</td>
</tr>
<tr>
<td>Flashing</td>
<td>Drip time in progress</td>
</tr>
<tr>
<td>Flashing</td>
<td>Fans enabled</td>
</tr>
<tr>
<td>Flashing</td>
<td>Fans delay after defrost in progress</td>
</tr>
<tr>
<td>Flashing</td>
<td>An alarm is occurring</td>
</tr>
<tr>
<td>Flashing</td>
<td>Continuous cycle is running</td>
</tr>
<tr>
<td>Flashing</td>
<td>Energy saving enabled</td>
</tr>
<tr>
<td>Flashing</td>
<td>Light on</td>
</tr>
<tr>
<td>Flashing</td>
<td>Auxiliary relay on</td>
</tr>
<tr>
<td>OFF</td>
<td>Measurement unit</td>
</tr>
<tr>
<td>OFF</td>
<td>Programming phase</td>
</tr>
</tbody>
</table>

5. MAX & MIN TEMPERATURE MEMORIZATION

5.1 HOW TO SEE THE MAX TEMPERATURE
1. Press and release the key.
2. The “Lo” 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.

5.2 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, (all messages will be displayed).
2. To confirm the operation the “di” 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 time and day.
1. Enter the program menu by pressing the SET + keys for 3s.
2. The time parameter is displayed. Push the SET key to enter the real time clock menu.
3. The hour (hour) 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 (minute) and day (day) parameters.
To exit: Push SET-UP keys or wait for 15s without using any key.

6.2 HOW TO SEE THE SETPOINT
1. Push and immediately release the SET key: the display will show the Setpoint.
2. Push and immediately release the SET key or wait for 5s to display the probe value again.

6.3 HOW TO CHANGE THE SETPOINT
1. Push the SET key for more than 2s to change the Setpoint value.
2. The value of the setpoint will be displayed and the “C” or “F” LED starts blinking.
3. To change the Setpoint push the “+” or “-” keys within 10s.
4. To memorize the new setpoint value push the SET key again or wait 10s.

6.4 HOW TO START A MANUAL DEFOST
Push the DEF key for more than 2s and a manual defrost will start.

6.5 HOW TO CHANGE A PARAMETER VALUE
To change the parameter’s value operate as follows:
1. Enter the Programming mode by pressing the SET + keys for 3s (the “C” or “F” LED starts blinking).
2. Select the required parameter. Press the SET key to display its value.
3. Use “UP” or “DOWN” to change its value.
4. Press “SET” to store the new value and move to the following parameter.
To exit Press SET + UP or wait 15s without pressing any key.
NOTE: the set value is stored even when the procedure is exited 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. Released the keys, then push again the SET + keys for more than 7s. The H2 label will be displayed immediately followed from the H1 parameter.
3. Select the required parameter.
4. Press the SET key to display its value.
5. Use “+” or “-” to change its value.
6. Press “SET” to store the new value and move to the following parameter.
To exit: Press SET + or wait 15s without pressing any key.

NOTE: In case the parameter is present in P1, after 3s the “hold” message is displayed.

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" (use 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 “Pofil” message will be displayed and the keyboard will be locked. At this point it will be possible only to see the set point of the MAX or MIN temperature stored.
3. If a key is pressed more than 3s the “Pofil” message will be displayed.

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

6.9 THE CONTINUOUS CYCLE
When defrost is in progress, it can be activated by holding the key pressed for about 3s. The compressor operates to maintain the “C” or “F” set point for the time set through the “C” or “F” parameter.

6.10 THE ON/OFF FUNCTION

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 (for controller with RTC)); to set the time and date and defrost start time.

REGULATION
Hy: Differential (0.1 + 25.0°C + 1/255°F) Intervention differential for set point. Compressor Cut IN is Set point + Differential (Hy). Compressor Cut OUT is when the temperature reaches the set point.
LS: Minimum set point (0°C SET/50°F=SET); Sets the minimum value for the set point.
US: Maximum set point (SET/110°F SET/230°F); Sets the maximum value for set point.
Ot: Thermostat probe calibration. (-120°C to 120°C); Adjust to low and high probe calibration.
P2P: Evaporator probe resistance: n= present; the defrost stops by temperature. P= present; the defrost stops by temperature.
P3P: Third probe resistance (P3): n= present; the terminals 13-14 operate as digital input; y= present; the terminals 13-14 operate as third probe.
O3: Third probe calibration (P3): (-120°C to 120°C); Adjust to low and high probe calibration.
P4P: Fourth probe resistance (n= Not present; y= present).
C4: Fourth probe calibration (120°C to 120°C); Adjust to low and high probe calibration.
Odds Outputs activation delay at start up: (0-2055s) The function is enabled at the initial start of the instrument and inhibits any output activation for the period of time set in the parameter.
AC: Anti short cycle delay (0s-50s); Minimum interval between the compressor start and the following restart.
AC2: 2nd compressor delay at start up (0s-255s); Used only if dA3 = C2 Time between the switching on of the first compressor and the second one.
rr: Percentage of the second and first probe for regulation (n=100; 100 = P1; P2 = P1 / P1) it allows to set the regulation according to the percentage of the first and second probe, as for the following formula (n=100; P1/P2 = P1 / P2)
CC1: Compressor ON time during continuous cycle: (0s-24h; res. 10s) Allows to set the length of the continuous cycle: compressor stays on without interruption for the CTC time. Can be used, for instance, when the room is filled with new products.
CCS: Set point for continuous cycle: (0s-50°C; res. 10s) Sets the setpoint used during the continuous cycle.
CoA: Compressor ON time with faulty probe: (0s-255s) time during which the compressor is active in case of faulty thermostat probe. With CoA=0 compressor is always OFF.
COP: Compressor OFF time with faulty probe: (0s-255s) 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, Ot, ALU and ALL have to be checked and modified if necessary.
E3R: Resolution for (°C) (n=1°C; d=0.1°C) allows decimal point display.
**DEFOST**
- EdF Defrost mode (only for controller with RTG):
  - rtG = Real Time Clock mode. Defrost time follows Ld1→Lb5 parameters on workdays and Sd1→Sd6 on holidays.
  - Initial timing interval [min] = 2 → 24

**FANS**
- FnF Fans operating mode: C = runs with the compressor. OFF during defrost.
  - C = continuous mode. OFF during defrost.
  - C = runs with the compressor. OFF during defrost.
  - C = continuous mode. OFF during defrost.

**FANs**
- FgF Temperature differential avoiding short cycles of fans (50°C, 40°C, 0°C) function disabled. If the difference of temperature between the evaporator and the room is more than the value of the FgF parameter, the fan will switch off.

**AUXILIARY THERMOSTAT CONFIGURATION**
- 1→3: 1 → 3 → AUX

**AUXILIARY THERMOSTAT CONFIGURATION**
- 1→3: 1 → 3 → AUX

**INSTALLING AND OPERATING INSTRUCTIONS**

**ALP**
- Probe selection for alarm:
  - PrP = no probe, the temperature alarms are disabled; PrP = Probe 1
  - Thermo-probe 1 (thermometer probe); PrP = Probe 2
  - PrP = Probe 2 (evaporator probe); PrP = Probe 3 (condenser probe); PrP = Probe 4 (hot key plug).

**CONDENSER TEMPERATURE ALARM**
- AP2 Probe selection for temperature alarm of condenser: PrP = no probe; PrP = thermistor probe; PrP = evaporator probe; PrP = condenser probe; PrP = hot key plug.

**AL2**
- Low temperature alarm of condenser: (35°C-150°C) when this temperature is reached the L2A alarm is signalled, possibly after the AL2 delay.

**A2**
- High temperature alarm of condenser: (35°C-150°C) when this temperature is reached the H2A alarm is signalled, possibly after the AL2 delay.

**A2R**
- Differential for temperature condenser alarm recovery: (0°C → 25°C; 1°C → 45°F)

**A2D**
- Condenser temperature alarm delay (0 → 25 min) time interval between the detection of the alarm and the alarm condition and alarm signaling.

**A2D**
- Condenser temperature alarm exclusion at start up: (0.9 min to 23.9 min, res. 10 min)

**B**
- Compressor off with low temperature alarm of condenser: n = no compressor keeps on working; Y = yes, compressor is switched off till the alarm is present, in any case regulation restarts after AC time at minimum.

**A2C**
- Compressor off with high temperature alarm of condenser: n = no compressor keeps on working; Y = yes, compressor is switched off till the alarm is present, in any case regulation restarts after AC time at minimum.

**AUXILIARY RELAY**
- a) Alarm relay switching (with a3 = AL3):
  - n = silenced: alarm relay switches on till alarm condition lasts, then silenced; alarm relay is switched off by pressing a key during an alarm.

**a0A**
- Fourth relay configuration (13-15): DEF, Fan Do not select at. AL3 alarm; light; a3s = Auxiliary relay: a3s always on with instrument on; a3s = neutral zone; a3p = second compressor; a3F: Do not select at; a3H: right.

**a3A**
- Alarm relay polarity: the alarm relay is open or closed when an alarm happens. CL: terminals 1, 3 closed during an alarm; a3p: terminals 1, 3 open during an alarm.

**DIGITAL INPUTS**
- H1 Digital input polarity (10-12): 0 = the digital input is activated by opening the contact; CL: the digital input is activated by closing the contact.

**h1F**
- Digital input configuration (13-15): EAL = external alarm: "EA" message is displayed. bA = serious alarm: "CA" message is displayed. PAl = pressure switch alarm, "CA" message is displayed; d = door switch function, dE = activation of a defrost cycle; AUS = not enabled; h = kind of action inversion (cooling → heating); Hs = ES Energy saving; HsF = Holiday defrost (not enabled only with RTG). OrF = the switch to the off controller. d = (0-25 min) with 1HF EAL or h = 1HF digital input alarm delay (13-12): delay between the detection of the external alarm condition and its signalizing. 0 = 0.1 min: 2HF EAL, h = 2HF digital input alarm delay (13-12); delay between the detection of the external alarm condition and its signalizing.

**2HF**
- Second digital input configuration (13-15): 2HF: the digital input is activated by opening the contact; CL: the digital input is activated by closing the contact.

**2H2**
- Digital input configuration (13-15): EAL = external alarm: "EA" message is displayed. bA = serious alarm: "CA" message is displayed. PAl = pressure switch alarm, "CA" message is displayed; d = door switch function, dE = activation of a defrost cycle; AUS = not enabled; h = kind of action inversion (cooling → heating); Hs = ES Energy saving; HsF = Holiday defrost (not enabled only with RTG). OrF = the switch to the off controller. d = (0-25 min) with 1HF EAL, h = 2HF digital input alarm delay (13-12): delay between the detection of the external alarm condition and its signalizing.

**pNPs**
- Pressure switch number: (0 = 15) Number of activation of the pressure switch, during the "dead" interval, before signaling the alarm event (2HF). PAl.

**n1P**
- If the activation of the delay is reached, switch off and on the instrument to resets normal regulation.

**tnoC**
- Compressor and fan status when open door: n = normal; Fan = Fan OFF, C = Compressor OFF, F = Fan ON, C = Fan OFF.

**nd**
- Outputs restart after door alarm: n = outputs not affected by the door alarm. YpS = outputs restart with the door alarm.

**HE3**
- Temperature increase during the Energy Saving cycle:
  - (3°C, 0°C, 3°C) it determines the value of the set point during the Energy Saving cycle.
8. DIGITAL INPUTS

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

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

As soon as the digital input is activated the unit will wait for 'did' time delay before signaling 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 (1F or 2F = 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 deactivated.

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

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

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

It signals the door status and the corresponding relay output status through the 'sdo' parameter. The alarm stops as soon as the digital input is disabled. With the open door, the high and low temperature alarms are disabled.

8.5 START DEFROST (1F or 2F = 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 for the "M0" safety time is expired.

8.6 SWITCH THE AUXILIARY RELAY (1F or 2F = auS)

With 1AU - 1US the digital input switch the status of the auxiliary relay.

8.7 INVERSION OF THE KIND OF ACTION: HEATING-COOLING (1F or 2F=Ht)

This function allows to invert the regulator of the controller: 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 set 1HES (parameter) sum. This function is enabled once the digital input is activated.

8.9 HOLIDAY DEFROST (1F or 2F = HDF) - ONLY FOR MODELS WITH RTC

This function enabled the holiday defrost setting.

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

To switch the controller on and off.

8.11 DIGITAL INPUTS POLARITY

The digital input polarity depends on the 1IP and 1IP2 parameters. 1IP or 1IP2 = CL, the input is acquired by closing the contact. 1IP or 1IP2 = OP, the input is acquired by opening the contact.

9. SERIAL LINE - FOR MONITORING SYSTEMS

The TTL serial line, available through the NO/T KEY connector, allows by means of the external TTL 0001 converter, XAR-C, to connect the instrument to a monitoring system ModBus-RTU compatible such as the X-WEB/SX00300300.

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/REP3 (5m).

11. INSTALLATION AND MOUNTING

The controller XW60L shall be mounted on vertical panel, in a 150x31 mm hole, and fixed using two screws ø 3.5 mm. To obtain an IP00 protection grade use the flat panel rubber gasket (mod. RG-U). The temperature range allowed for correct operation is 0 - 50 °C. Avoid placing subjects 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 analog inputs . Relays and power supply have a faster connection (3,5mm). Heat-resistant cables have to be used. Before connecting cables make sure the power supply complies with the instrument's requirements. Separate the power supply 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.

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 connected insert the “Hot key” and push “key”, the “dPL” message appears followed by a flashing “End”.
3. Push the “SET” key and the End will stop flashing.
4. Turn OFF the instrument remove the “Hot Key”, then turn it ON again.

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

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

1. Turn OFF the instrument.
2. Insert a programmed “Hot Key” into the 5 PIN receptacle and then turn the Controller ON.
3. Automatically the parameter list of the “Hot Key” is downloaded into the controller memory, the “dLS” message is blinking followed by a 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 on, to par: &quot;Con&quot; and &quot;DOF&quot;</td>
</tr>
<tr>
<td>P2</td>
<td>Evaporator probe failure</td>
<td>Defrost end 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>P5</td>
<td>Maximum temperature alarm</td>
<td>Outputs unchanged</td>
</tr>
<tr>
<td>P6</td>
<td>Minimum temperature alarm</td>
<td>Outputs unchanged</td>
</tr>
<tr>
<td>H1A</td>
<td>Condenser high temperature</td>
<td>It depends on the &quot;AG&quot; parameter</td>
</tr>
</tbody>
</table>
14.1 SILENCING BUZZER / ALARM RELAY OUTPUT

If 'BA' = 'y', the buzzer and the relay are silenced by pressing any key.
If 'BA' = '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 several seconds after the fault in the related probe. They automatically stop some seconds after the probe resets 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. Alarms 'EA' and 'CA' (both with 1F-PAL) recover as soon as the digital input is disabled. Alarm 'CA' (with 1F-PAL) recovers only by switching off and on the instrument.

14.3 OTHER MESSAGES

Pn In programming mode: none parameter is present in Pn+1.

15. TECHNICAL DATA

Housing: self extinguishing ABS
Case: 58x185 mm, depth 76 mm
Mounting: panel mounting in a 150x151 mm panel cut-out with two screws, o 3.2 mm.
Protection: IP20, front panel: IP65 with front gasket and M6 (optional)
Connections: Screw terminal block - 2.5 mm² non-stranded, or 0.5 mm² stranded, and 0.5 mm² Faston
Power supply: 230VAC or 110VAC in 10% fluctuation
Power absorption: 5VA max
Display: 3 digit, red LED, 14.2 mm high
Display: 3 digit, red LED, 14.2 mm high, Inputs: Up to 4 NTC or Pt100 probes
Digital inputs: 2 free voltage
Relay outputs: Total current on loads MAX 20A
-compressor relay SPST 0-20/20A, 250VAC
-light relay SPST 0-20/20A, 250VAC
-fan relay SPST 0-20/20A, 250VAC
-preheat relay SPST 0-20/20A, 250VAC
-optional relay SPST 0-20/20A, 250VAC
Serial output: TTL standard, Communication protocol: Modbus-RTU
Data storage: on non-volatile memory (EEPROM)
Internal clock back-up: 24 hours (only for model with RTC)
Kind of action: 1B: Pollution grade 2, Software class A
Rated impulsive voltage: 2500V, Over voltage category II
Operating temperature: 0°C-40°C, Storage temperature: -30°C-55°C
Relative humidity: 20-90% (no condensation)
Measuring and regulation range: NTC probe: -40°C-110°C (-40-230°F), Pt100 probe: -50°C-130°C (-50-266°F)
Resolution: 0.1°C or 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 X-REU output is optional. The light relay can be set to 16VAC according to the model

17. DEFAULT SET VALUES

Label | Name | Range | °C/°F | Level
--- | --- | --- | --- | ---
Set point | L1-15 | 5-6 | - | -
rt | Real time clock menu | - | - | -
ly | Lyf | 0.1-25°C, 0-250°F | 2.0 | 2.0
LS | Minimum set point | 50°C-70°F | 15 | 15
Lt | Maximum set point | 70°C-140°F | 15 | 15
Th | Thermostat probe calibration | - | - | -
P2P | Evaporator probe presence | n/present | Y | Y
DE | Evaporator probe calibration | -12°C-120°C | 0.0 | 0.0
GP | Glycol probe presence | n/present | Y | Y
P3 | Third probe calibration | -12°C-120°C | 0.0 | 0.0
P4 | Fourth probe calibration | n/present | Y | Y
O4 | Fourth probe calibration | -12°C-120°C | 0.0 | 0.0
G5S | Displays output at start up | 0-255 ms | 0 | 0

18. RESOLUTION

Resolution: display - 1 min, dec point - 1

19. ALARM RELAY DISABLING

Alarm relay disabling: no operation, normal operation, sample alarm relay, delay alarm relay

20. ALARM RELAY POLARITY

Alarm relay polarity (A3=Al): d=ON, c=OFF (c=ON, d=OFF)

21. DIGITAL INPUT POLARITY

Digital input polarity (13-14): d=ON, c=OFF (c=ON, d=OFF)

22. DIGITAL INPUT CONFIGURATION

Digital input configuration (13-14): EAL, IP, BAL, PAM, d=OFF, c=OFF

23. DIGITAL INPUT ADJUSTMENTS

Digital input adjustment (13-14): 0-255nm, 15 | P1

24. DIGITAL INPUT ALARM

Digital input alarm adjustment (13-14): 0-255nm, 15 | P1

25. ALARM RELAY ALARM

Alarm relay alarm (13-14): 0-255nm, 15 | P1

26. ALARM RELAY ALARM LEVEL

Alarm relay alarm level (13-14): 0-255nm, 15 | P1

27. NUMBER OF ADDITIONAL ALARM RELAYS

Number of additional alarm relays | 0-15 | 15

28. COMPRESSOR AND FAN STATUS

Compressors and fans status when open door | n/a, Fnd, Cpl, F_c, P_A

29. REGULATION RESTORE WITH OPEN DOOR

Regulation restore with open door menu (13-14): 0-255nm, 15 | P1

30. DIFFERENTIAL FOR ENERGY SAVING

Differential for Energy Saving | -30°C-30°C, 5°C | 0 | P1

31. CURRENT ALARM POINTS

Current alarm points (13-14): d=ON, c=OFF (c=ON, d=OFF)

32. CURRENT ALARM DELAY

Current alarm delay | 0-255nm, 15 | P1

33. CURRENT ALARM TRIP

Current alarm trip (13-14): EAL, IP, BAL, PAM, d=OFF, c=OFF

34. ALARM RELAY ALARM LEVEL

Alarm relay alarm level (13-14): 0-255nm, 15 | P1

35. ENERGY SAVING CYCLE LIFETIME

Energy saving cycle lifetime | 0-2400 min, 0 | n/a

36. ENERGY SAVING CYCLE START ON HOLIDAYS

Energy saving cycle start on holidays | 0-2400 min, 0 | n/a
<table>
<thead>
<tr>
<th>Label</th>
<th>Name</th>
<th>Range</th>
<th>°C/°F</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>L41</td>
<td>1st workdays defrost start</td>
<td>0 - 23 h 50 min - nu</td>
<td>6.0</td>
<td>ntc</td>
</tr>
<tr>
<td>L42</td>
<td>2nd workdays defrost start</td>
<td>0 - 23 h 50 min - nu</td>
<td>13.0</td>
<td>ntc</td>
</tr>
<tr>
<td>L43</td>
<td>3rd workdays defrost start</td>
<td>0 - 23 h 50 min - nu</td>
<td>21.0</td>
<td>ntc</td>
</tr>
<tr>
<td>L44</td>
<td>4th workdays defrost start</td>
<td>0 - 23 h 50 min - nu</td>
<td>0.0</td>
<td>ntc</td>
</tr>
<tr>
<td>L45</td>
<td>5th workdays defrost start</td>
<td>0 - 23 h 50 min - nu</td>
<td>0.0</td>
<td>ntc</td>
</tr>
<tr>
<td>L46</td>
<td>6th workdays defrost start</td>
<td>0 - 23 h 50 min - nu</td>
<td>0.0</td>
<td>ntc</td>
</tr>
<tr>
<td>S41</td>
<td>1st holiday defrost start</td>
<td>0 - 23 h 50 min - nu</td>
<td>6.0</td>
<td>ntc</td>
</tr>
<tr>
<td>S42</td>
<td>2nd holiday defrost start</td>
<td>0 - 23 h 50 min - nu</td>
<td>13.0</td>
<td>ntc</td>
</tr>
<tr>
<td>S43</td>
<td>3rd holiday defrost start</td>
<td>0 - 23 h 50 min - nu</td>
<td>21.0</td>
<td>ntc</td>
</tr>
<tr>
<td>S44</td>
<td>4th holiday defrost start</td>
<td>0 - 23 h 50 min - nu</td>
<td>0.0</td>
<td>ntc</td>
</tr>
<tr>
<td>S45</td>
<td>5th holiday defrost start</td>
<td>0 - 23 h 50 min - nu</td>
<td>0.0</td>
<td>ntc</td>
</tr>
<tr>
<td>S46</td>
<td>6th holiday defrost start</td>
<td>0 - 23 h 50 min - nu</td>
<td>0.0</td>
<td>ntc</td>
</tr>
<tr>
<td>Addr</td>
<td>Serial address</td>
<td>1 - 255</td>
<td>1</td>
<td>Pr2</td>
</tr>
<tr>
<td>Pnc</td>
<td>Kind of probe</td>
<td>Pic, etc, nic</td>
<td>nic</td>
<td>Pr2</td>
</tr>
<tr>
<td>onF</td>
<td>on/off key enabling</td>
<td>nu, off, ES</td>
<td>off</td>
<td>Pr2</td>
</tr>
<tr>
<td>dp1</td>
<td>Room probe display</td>
<td>--</td>
<td>-</td>
<td>Pr2</td>
</tr>
<tr>
<td>dp2</td>
<td>Evaporator probe display</td>
<td>--</td>
<td>-</td>
<td>Pr2</td>
</tr>
<tr>
<td>dp3</td>
<td>Third probe display</td>
<td>--</td>
<td>-</td>
<td>Pr2</td>
</tr>
<tr>
<td>dp4</td>
<td>Fourth probe display</td>
<td>--</td>
<td>-</td>
<td>Pr2</td>
</tr>
<tr>
<td>rSE</td>
<td>Real set</td>
<td>actual set</td>
<td>-</td>
<td>Pr2</td>
</tr>
<tr>
<td>rEL</td>
<td>Software release</td>
<td>--</td>
<td>1.0</td>
<td>Pr2</td>
</tr>
<tr>
<td>Ptb</td>
<td>Map code</td>
<td>--</td>
<td></td>
<td>Pr2</td>
</tr>
</tbody>
</table>

* Only for model with real time clock
* Only for XWSEL with X-REP output

Dixell S.p.A. Z.I. Via dell'Industria, 27
33010 Pieve d'Alpago (BL) ITALY
Tel. +39 - 0437 - 98 33 - fax +39 - 0437 - 98 03 13
E-mail: dixell@dixell.com - http://www.dixell.com
1. GENERAL WARNING

1.1 PLEASE READ BEFORE USING THIS MANUAL
- This manual is part of the product and should be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different from those described hereunder. It cannot be used on 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.
- Fill the probe where it is not accessible by the End User. The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor or to “Dixell S.P.A.” (see address) with a detailed description of the fault.
- Consider the maximum current which can be applied to each relay (see Technical Data).
- Ensure that the wires for probes, fans and the power supply are separated and for enough from each other, without crossing or intertwining.
- In case of applications in industrial environments, the use of mains filters (our model FT1) in parallel with inductive loads could be useful.

2. GENERAL DESCRIPTION

Model XW20LS, format 38x185mm, is a digital thermostat with cycle defrost designed for refrigeration applications at normal temperature. It has 2 relay outputs to control compressor and light. It could be provided with a Real Time Clock which allows programming of up to 8 daily defrost cycles, divided into holidays and weekdays. A “Day and Night” function with two different set points is fitted for energy saving. It is also provided with up to 2 NTC or PTC probe inputs, the first one for temperature control, the second one, to be located onto the evaporator and to control the defrost termination temperature. The digital input can operate as third temperature probe, 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 X-805, to a network line ModBus-RTU compatible such as the dixell ModBus-RTU adapter. 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 decreases to the set point value again.

In case of fault in the thermostat probe the start and stop of the compressor are timed through parameters “COe” and “COf”.

3.2 Defrost

Defrost is performed through a simple step of the compressor. The defrost interval depends on the presence of the RTC (optional). If the RTC is present it is controlled by means of parameter “Edf”.
- With “Edf = 0” the defrost is made every 1°F time (standard way for controller without RTC.
- With “Edf = 1°h” the defrost is made in real time depending on the hours set in the parameters L4d1..L4d5 on weekdays and in S1d..S6d in holidays.

Other parameters are used to control defrost cycles: its maximum length (MinF) and two defrost modes: timed or controlled by the evaporator probe (PDP).

4. FRONT PANEL COMMANDS

4.1 Standard Frontal Panel

4.2 Steel Finishing

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 TEMPERATURES

1. Hold press the SET key for more than 3s, while the max. or min. temperature is displayed. (If the message is displayed) the “Lo” message will be displayed.
2. To confirm the operation the “Lo” 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 time and day:
1. Enter the Pr1 programming menu by pressing the SET + ↗ keys for 3s.
2. The rtc parameter is displayed. Push the SET key to enter the real time clock menu.
3. The “Hr” (hour) 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 day (day) parameters.
To exit: Push 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 value.
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 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’s value operate as follows:
1. Enter the Programming mode by pressing the SET + ↗ keys for 3s (the ++”C” or ++”F” LED starts blinking).
2. Select the required parameter. Press the SET key to display its value.
3. Use "UP" or "DOWN" to change its value.
4. Press "SET" to store the new value and return to the previous parameter.
To exit: Press "SET" or "OK" 10s without pressing a key.

NOTE: The set value is stored even when the procedure is exited 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
Enter when the programming mode by pressing the Set + keys for 3s (the "CE" or "CF" LED starts blinking).
2. Release the keys, then press again the Set + keys for more than 7s. The P2 label will be displayed immediately followed by the HY parameter.

NOTE: You are in the hidden menu. Select the required parameter.
4. Press the "SET" key to display its value.
Use or to change its value.
Use the "SET" key to move to the next parameter.
To exit: Press "SET" or "OK" 10s without pressing a key.

6.6.2 HOW TO MOVE A PARAMETER FROM THE HIDDEN MENU TO THE FIRST LEVEL AND VICE-VERSA.
Each parameter present in the hidden menu can be removed or put into "THE FIRST LEVEL" (user level) by pressing "SET + ".
In the 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" or "DOWN" keys.
2. The "POF" message will be displayed and the keyboard will be locked. At this point it will be possible only to see the set point or the Min and Max temperature stored.
3. If a key is pressed more than 3s the "POF" message will be displayed.

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

6.9 THE CONTINUOUS CYCLE
When the display is on, it can be activated by pressing the "SET + " key for about 3s. The display will show the steady-state values of the measured variables.

6.10 THE ON/OFF FUNCTION
With the "CF" or "OK", pressing the ON/OFF key, the instrument is switched on/off. The "OFF" message will be displayed. In this configuration, the regulation is disabled.

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

REGULATION
Hy Differential: (0.15...20.5°C) / 150 °F Intervention differential for set point. Compressor Cut In is a Set Point + Differential (Hy). Compressor Cut Out is when the temperature reaches the set point.
LS Min set point. (in °C SET = 100°F SET): Set the minimum value for the set point.
M courses temperature probe calibration: (10°C...20°C...120°C...100°C) allows to adjust the possible offset of the temperature probe.
P3P Evaporator probe calibration: (12°C...10°C...120°C...190°C) adjusts the possible offset of the evaporator probe.
P3P Evaporator probe calibration: (12°C...10°C...120°C...190°C) adjusts the possible offset of the evaporator probe.
P3P Outputs activation delay at start up: (0-255ms): This function is enabled at the initial start step of the system and inhibits any output activation for the period of time set in the parameter.
AC Anti-short cycle delay: (0-50 min) minimum interval between the compressor stop and the following restart.
Percentage of the second and first probe for regulation (99:100, 100:0, 0:2): It allows to set the regulation according to the percentage of the second and first, probe, as for the following formulas (m2P + P2) / (P1P + P2).
C Cann Compressor ON time during continuous cycle: (0-24h, 1-365): Allows to set the amount of time the compressor is activated for the continuous cycle mode.
Compressor ON time with faulty probe: (0-255ms): Time during which the compressor is active in case of faulty thermostat probe. With CO2 compressor is always OFF.
C Cann Compressor OFF time with faulty probe: (0-255ms): Time during which the compressor is OFF in case of faulty thermostat probe. With CO2 compressor is always active.

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.

DISPLAY
CF Temperature measurement unit: °C/°F: Fahrenheit. When the measurement is changed the set point and the parameters of the system, °C, °F, and ALU have to be checked and modified if necessary.
Resolution for °C: (n = 1°C, °F = 0.1°F) allows decimal point display.
Load probe display: P1, P2, P3, P4. The probe display is an indicated by the instrument. P1 = Probes thermostats; P2 = Evaporator probe; P3 = Thermostat probe (for model with this option enabled); P4 = NOT SET IT; SET = set point; dtr = percentage of visualization.
X-RP display (optional): [P1, P2, P4, SET, dtr]: It displays which probe is displayed by the instrument. P1 = Probes thermostats; P2 = Evaporator probe; P3 = Thermostat probe (for this option enabled); P4 = NOT SET IT; SET = set point; dtr = percentage of visualization.
Display delay: (0-200ms, res: 10ms): When the temperature increases, the display is updated at 1s interval.

Percentage of the second and first probe for visualization when the load dtr = (0-100) = Set point = P1, P2; if Load dtr = it allows to set the visualization according to the percentage of the first and second probe, as for the following formula dtr (P1-P2)/P2.

DEFrost
EdF Defrost mode (only for controller with RTC): nC = Real Time Clock mode.
Duration follows Lh+Lh parameters on weekdays and Sd+Sd on holidays.
in = interval mode.
The defrost start when the time is expired.
Probe selection for defrost termination: nP = no probe; P1 = thermostat probe; P2 = evaporator probe; P3 = convertible probe; P4 = NOT SET IT.
Defrost termination temperature: (-50...+50 °C/-59...+122°F) (Enabled only when EdF is P4) sets the temperature measured by the evaporator probe, which causes the end of defrost.
Interval between defrost cycles: (0-250): Determines the time interval between the beginning of two defrost cycles.
Max (Maximum) length for defrost: (0-255ms): When P2P = nC (not evaporator probe) points the defrost will be initiated, when P2P = y (defrost is based on temperature) it sets the maximum length for defrost.
Defrost temperature displayed during defrost: (n = real temperature; r = temperature at defrost start; SET = set point; dtr = DEFrost label).
Max display delay after defrosting: (0-255ms): Sets the maximum time between the end of defrost and the restart of the real-time temperature display.

ALARMS
AP1 Probe selection for alarm: nP = no probe, the temperature alarms are disabled; P1 = Thermostat probe; P2 = Probe 2 (evaporator probe); P3 = Probe 3 (evaporator probe); P4 = NOT SET IT.
AC1 Temperature alarms configuration: (Av; Al): Ab: absolute temperature, alarm triggering is given by the ALL or ALU values.
R: temperature alarms are referred to the set point. Temperature alarm is enabled when the temperature exceeds the "SET" or "ALL" values.
Max MAXIMUM temperature alarm: (SET=110°C, SET=230°F) when this temperature is reached the alarm is enabled, after the "ALL" delay time.
Min Minimum temperature alarm: (SET = 0°C, SET = -22°F) when this temperature is reached the alarm is enabled, after the "ALL" delay time.
AHF Differential for temperature alarm recovery: (0.1...25.5°C, 1...45°F) Interventions for the recovery of temperature alarm.
AL4 Temperature alarm delay: (0-255 min) time interval between the detection of alarm condition and alarm signal.
Exclusion of temperature alarm at start-up: (0-60 min to 23.5 h) time interval between the detection of the temperature alarm condition after instrument power on and alarm signaling.

CONDENSER TEMPERATURE ALARM
AP2 Probe selection for temperature alarm of condenser: nP = no probe, p1 = thermostat probe, p2 = Probe 2 (evaporator probe), p3 = Probe 3 (evaporator probe), p4 = NOT SET IT.
2. Low temperature alarm of condenser: (5...15°C): When this temperature is reached the L2 alarm is signalled, possibly after the AD2 delay.
A51 High temperature alarm of condenser: (5...15°C): When this temperature is reached the AH2 alarm is signalled, possibly after the AD2 delay.
A62 Differential for temperature condenser alarm recovery: (0.1...25.5°C, 1...45°F) Interventions for the recovery of temperature alarm.
AD2 Condenser temperature alarm delay: (0-255 min) time interval between the detection of the condenser alarm condition and alarm signal.
AD4 Condenser temperature alarm signal at start up: (0.0 min to 23.5 h, res: 10min).
B4 Compressor off with low temperature alarm of condenser: nC = no compressor keeps on working, y = yes, compressor is switched off till the alarm is present, in any case regulation resumes after AC time at minimum.
AC3 Compressor off with high temperature alarm of condenser: nC = no compressor keeps on working, y = yes, compressor is switched off till the alarm is present, in any case regulation resumes after AC time at minimum.

DIGITAL INPUT
IP Digital input polarity: IP = digital input is activated by opening the contact. CL: digital input is activated by closing the contact.

did: (0-255 ms) with IF3: EAL = IIF = EAL digital input alarm delay (1-35): delay between the detection of the external alarm condition and its signaling.
with doF: door: open door operation function with IF3: EAL = PAL: time for pressure switch function: time interval to calculate the number of the pressure switch activation.
FSP Pressure switch number: (0...15): Number of activation of the pressure switch, during the "did" interval, before signaling the alarm event (1F; doF). If the nS activation in the dId time is reached, switch off and on the instrument to restart normal operation.
C3C Compressor status when open door: no, Fan = normal, C: compressor OFF. R1: Door open after restart: alarm: not outputs affected by the door alarm, yEs: outputs affected by the door alarm.
HE5 Temperature decrease during the Energy saving cycle: (0...30°C) it reduces the setting value of the setpoint during the Energy saving cycle.

To set current time and weekly holidays (only for Models with RTC)

-FC Current hour (0-23h)
-MC Current minute (0-59min)
Installing and Operating Instructions 1592027320

8. DIGITAL INPUT (ENABLED ONLY IF P3P = N)

8.1 GENERIC ALARM (IF1 = EAL)

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

8.2 SERIOUS ALARM MODE (IF1 = bAL)

When the digital input is activated, the unit will wait for "dIf" delay before de-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 (IF1 = PAL)

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

8.4 DOOR SWITCH INPUT (IF1 = dor)

When the door is closed, the corresponding relay output status through the "dor" parameter, no. Fan is normal (any change), cPr, F = Compressor OFF.

Since the door is opened, after the delay time set through parameter "dor", the alarm is enabled, the display shows the message "aCA" and the regulation waits for the "nE" alarm. The alarm stops as soon as the external digital input is disabled again. With the door open, the low and high temperature alarms are disabled.

8.5 START DEFROST (IF1 = 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 de-activated otherwise the instrument will wait until the "MOP" is at 0.

8.6 INVERSION OF THE KIND OF ACTION: HEATING-COOLING (IF1 = H-Hr)

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

8.7 ENERGY SAVING (IF1 = E)

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

8.8 HOLIDAY DEFROST (IF1 = HDF) - ONLY FOR MODELS WITH RTC

This function enabled the holiday defrost setting.

8.9 ON OFF FUNCTION (IF1 = on)

To switch the controller on and off.

8.10 DIGITAL INPUTS POLARITY

The digital input polarity depends on the "pIP" parameter:
- IFp = "P": the input is activated by closing the contact.
- IFp = "G": the input is activated by opening the contact.

9. TTL SERIAL LINE - FOR MONITORING SYSTEMS

The TTL serial line, available through the HOY KEY connector, allows to connect the instrument to a monitoring system modbus-RTU-compatible such as the X-WEB030/03/B.

10. X-REP OUTPUT - OPTIONAL

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

11. INSTALLATION AND MOUNTING

The controller XW20LS shall be mounted on a vertical panel, in a 150x31mm hole, and fixed using two screws of 3 x 2mm. To obtain an IP68 protection grade use the front panel rubber gasket (mod. RG-L). The temperature range allowed for correct operation is 0 - 60 °C. Avoid places subject to strong vibrations, corrosive gases, excessive dust or humidity. The same recommendations apply to probes. Let the air circulate by the cooling holes.

11.1 CUT OUT

11.2 STEEL FINISHING MOUNTING

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 inputs and the power connections. Do not exceed the maximum current allowed on each relay, in case of heavier loads use a suitable external relay. M.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 thermostat probe away from air streams to avoid modifying 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. Turn off the instrument.
2. Insert a programmed "Hot Key" into the 5 PIN receptacle and then turn the Controller ON.
3. When the controller is ON insert the "Hot key" and push into the "OFL" message appears followed by flashing "End".
4. Push "SET" key and the End will stop flashing.
5. Turn the Instrument off to remove the "Hot key", then turn it ON again.

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.
14. ALARM SIGNALS

<table>
<thead>
<tr>
<th>Message</th>
<th>Cause</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;P1&quot;</td>
<td>Room probe failure</td>
<td>Compressor output goes to &quot;On&quot; and &quot;OFF&quot;</td>
</tr>
<tr>
<td>&quot;P2&quot;</td>
<td>Evaporator probe failure</td>
<td>Defrost end is timed</td>
</tr>
<tr>
<td>&quot;P3&quot;</td>
<td>Third probe failure</td>
<td>Outputs unchanged</td>
</tr>
<tr>
<td>&quot;H1&quot;</td>
<td>Maximum temperature alarm</td>
<td>Outputs unchanged.</td>
</tr>
<tr>
<td>&quot;L1&quot;</td>
<td>Minimum temperature alarm</td>
<td>Outputs unchanged.</td>
</tr>
<tr>
<td>&quot;L2&quot;</td>
<td>Condenser high temperature</td>
<td>It depends on the &quot;A2&quot; parameter.</td>
</tr>
<tr>
<td>&quot;L2&quot;</td>
<td>Condenser low temperature</td>
<td>It depends on the &quot;L1&quot; parameter.</td>
</tr>
<tr>
<td>&quot;G1&quot;</td>
<td>Door open</td>
<td>Compressor and fans restart.</td>
</tr>
<tr>
<td>&quot;L1&quot;</td>
<td>External alarm</td>
<td>Outputs unchanged.</td>
</tr>
<tr>
<td>&quot;G1&quot;</td>
<td>Serious external alarm (1F-14)</td>
<td>All outputs OFF.</td>
</tr>
<tr>
<td>&quot;G2&quot;</td>
<td>Pressure switch alarm</td>
<td>All outputs OFF.</td>
</tr>
</tbody>
</table>

14.1 SILENCING BUZZER / ALARM RELAY OUTPUT

If "B1" = +1, the buzzer and relay are silenced by pressing any key. If "B1" = -1, 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" start some seconds after the fault in the related probe; they automatically stop some seconds after the probe restarts normal operation. Check connections before replacing the probe.

Temperature alarms "HA", "LA", "HA2" and "LA2" automatically stop as soon as the temperature returns to normal values. Alarms "SA" and "CA" (with IF-PAL) recover as soon as the digital input is disabled.

Alarm "CA" (with IF-PAL) recovers only by switching off and on the instrument.

14.3 OTHER MESSAGES

Pon Keyboard unlocked
Poff Keyboard locked
nsp In programming mode: no parameter is present in P1.

15. TECHNICAL DATA

- Housing: self-extinguishing ABS
- Case: 30x38x118 mm; depth 45 mm
- Mounting: panel mounting in a 150x11 mm panel cut-out with two screws. © 3 x 2 mm
- Distance between the holes 156 mm
- Protection: IPX3: Frontal protection - IP65 with frontal gasket mod RGL (optional)
- Connections: Screw terminal block © 2,5 mm² heat-resistant wiring and 8,5 mm Faston
- Power supply: 230Vac or 210Vac ±10% Power absorption: 50VA max.
- Display: 3 digits, red LED, 14 mm high, inputs up to 5 NTC or PT100 probes.
- Digital input: 1 free space
- Relay outputs: Current source loads MAX 20 mA
- Compressor: relay SPST 20/5 A, 230 Vac
- Light: relay SPST 2A, 230 Vac
- Other output: buzzer (optional)
- Data storage: on the non-volatile memory (EEPROM)
- Internal clock back-up: 24 hours (only for model RTG)
- Kind of alarm: 1B: Bollers grade 2; Software class A;
- Rated impedance voltage, 230Vac. Over voltage Category II
- Operating temperature: +40°C; Storage temperature: -30°C - +85°C
- Relative humidity: 20-90% (no condensing)
- Measuring and regulation range: NTC probe: -40°C -110°C (40 -230°F); PT100 probe: -50°C -150°C (32°F - 302°F)
- Resolution: 0.1°C or 1°C or 1°F (selectable). Accuracy (ambient temp, 25°C): ±0.1°C ±0.1°F

16. CONNECTIONS

16.1 XW20LS - DRY CONTACTS

Supply: 120Vac or 24Vac: connect to terminals 7-8
The X-REP output is optional

16.2 XW20LS - DIRECT CONNECTIONS OF LOAD

Supply: 120Vac or 24Vac: connect to terminals 5-6
The X-REP output is optional

17. DEFAULT SET 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>Set</td>
<td>Start point</td>
<td>LS-US</td>
<td>3.0</td>
<td>-</td>
</tr>
<tr>
<td>Label</td>
<td>Name</td>
<td>Range</td>
<td>°C</td>
<td>Level</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------</td>
<td>--------------------</td>
<td>----</td>
<td>-------</td>
</tr>
<tr>
<td>S41“</td>
<td>1st holiday defrost start</td>
<td>0 - 23h 59 min - ru</td>
<td>6.0</td>
<td>std</td>
</tr>
<tr>
<td>S42“</td>
<td>2nd holiday defrost start</td>
<td>0 - 23h 59 min - ru</td>
<td>12.0</td>
<td>std</td>
</tr>
<tr>
<td>S43“</td>
<td>3rd holiday defrost start</td>
<td>0 - 23h 59 min - ru</td>
<td>23.0</td>
<td>std</td>
</tr>
<tr>
<td>S44“</td>
<td>4th holiday defrost start</td>
<td>0 - 23h 59 min - ru</td>
<td>6.0</td>
<td>std</td>
</tr>
<tr>
<td>S45“</td>
<td>5th holiday defrost start</td>
<td>0 - 23h 59 min - ru</td>
<td>0.0</td>
<td>std</td>
</tr>
<tr>
<td>S46“</td>
<td>6th holiday defrost start</td>
<td>0 - 23h 59 min - ru</td>
<td>0.0</td>
<td>std</td>
</tr>
<tr>
<td>Adr</td>
<td>Serial address</td>
<td>1-247</td>
<td>1</td>
<td>Pr2</td>
</tr>
<tr>
<td>PrE</td>
<td>Kind of probe</td>
<td>Pic, etc</td>
<td>etc</td>
<td>Pr2</td>
</tr>
<tr>
<td>smF</td>
<td>Input key enabling</td>
<td>ru, off, ES, on</td>
<td>off</td>
<td>Pr2</td>
</tr>
<tr>
<td>dp1“</td>
<td>Room probe display</td>
<td>-</td>
<td>-</td>
<td>Pr2</td>
</tr>
<tr>
<td>dp2“</td>
<td>Evaporator probe display</td>
<td>-</td>
<td>-</td>
<td>Pr2</td>
</tr>
<tr>
<td>dp3“</td>
<td>Third probe display</td>
<td>-</td>
<td>-</td>
<td>Pr2</td>
</tr>
<tr>
<td>rRE</td>
<td>Real set</td>
<td>actual set</td>
<td>-</td>
<td>Pr2</td>
</tr>
<tr>
<td>rEL</td>
<td>Software release</td>
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<td>1.6</td>
<td>Pr2</td>
</tr>
<tr>
<td>RHb</td>
<td>Map code</td>
<td>-</td>
<td>-</td>
<td>Pr2</td>
</tr>
</tbody>
</table>

1 Only for model with real time clock
2 Only for XW20LS with X-REP output