

XW60K WALK-IN CONTROLLER WITH ON-DEMAND DEFROST®

1 GENERAL WARNING

1.1 PLEASE READ BEFORE USING THIS MANUAL

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

1.2 SAFETY PRECAUTIONS

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

2 GENERAL DESCRIPTION

Model **XW60K** is microprocessor based controller suitable for applications on medium or low temperature refrigerating units. It has to be connected by means of a two-wire cable 18-24 gauge, at a distance of up to 100 Ft. to the keyboard **T620T** or **T620** or **VX620** or **CX620**. It is provided with four relay outputs to control Liquid Line solenoid, defrost (which can be either electrical or hot gas), the evaporator fans and light or Alarm. It is also provided with up to 4 NTC or PTC probe inputs, one for temperature control, one to control the defrost end temperature and evaporator fan control and the third for Discharge Air (required for On Demand defrost) and fourth to control condenser temperature or to display another temperature. The control features an On-Demand Defrost®.

The HOT KEY output allows connecting the unit, by means of the external module XJ485-CX, to a network line ModBUS-RTU compatible such as the **dixell** monitoring units of XWEB family. It allows you to program the controller by means of a HOT KEY.

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

3 CONTROLLING LOADS

3.1 THE LIQUID LINE SOLENOID VALVE

The regulation is performed according to the temperature measured by the thermostat probe P1, placed in the return air stream with a positive differential from the set point: if the temperature increases and reaches set point plus differential the LLS is opened and then closed when the temperature reaches the set point value again.

In case of a fault in the thermostat probe the start and stop of the LLS are timed through parameters **Con** and **CoF**.

3.2 FAST FREEZING – OPTIONAL THROUGH PROGRAMMING

When defrost is not in progress, a continuous chill mode can be activated by holding the **▲ UP** key pressed for about 3 sec. The solenoid operates to maintain the **CCS** set point for the time set through the **CCt** parameter. The cycle can be terminated before the end of the set time by pressing the **▲ UP** key for 3 sec.

3.3 DEFROST (ON-DEMAND®) OR RTC* OPTIONAL (*MUST BE ORDERED)

Hot Gas or Electric Defrost can be managed through the **tdF** parameter, electric (**tdF = EL**) and hot gas defrost (**tdF = in**).

The **EdF** parameter determines the defrost interval time type. "in" interval between defrost, "ond" on demand defrost®, or "rtC" Real Time Clock (optional). Do not select if the control was not ordered with RTC.

-EdF=in: a defrost starts after elapsing the **idf** time (standard way for controller without RTC).

-EdF=ond the instrument is able to perform an "on demand defrost®" monitoring pull down time, difference between inlet and outlet temperature and door openings to determine when a defrost is required. **idf** should be set to 0. No other adjustments are needed. Enter a manual defrost within the first 12 hours to help recognise the defrost cycle time.

-EdF=rtC: (Optional) defrosts are scheduled by using a real time clock system, depending on the hours set in the parameters **Ld1...Ld6**, during workdays, and in **Sd1...Sd6** during weekends.

Other parameters are used to control defrost cycles: its maximum length (**ndF**) and two defrost modes: timed or controlled by the evaporator's probe (**P2P**).

At the end of defrost dripping time is started, its length is set in the **Fdt** parameter. With **Fdt=0** the dripping time is disabled.

3.4 CONTROL OF EVAPORATOR FANS

The fan control mode is selected by means of the **FnC** parameter:

FnC = C_n: fans will switch ON and OFF with the solenoid and **not run** during defrost;

FnC = o_n fans will run even if the solenoid is off, and not run during defrost;

After defrost, there is a timed fan delay allowing for drip time, set by means of the **Fnd** parameter.

FnC = C_Y fans will switch ON and OFF with the solenoid and **run** during defrost;

FnC = o_Y fans will run continuously also during defrost.

An additional parameter **FSt** provides the setting 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 his temperature is lower than set in **FSt**.

3.4.1 Forced activation for fans

This function, managed by the **Fct** parameter, is designed to avoid short cycles of fans, that could happen when the controller is switched on or after a defrost, when the room air warms the evaporator.

If the difference between the evaporator temperature and the room temperature is higher than the **Fct** value, the controller will activate the fans. This function is disabled if **Fct=0**.

3.4.2 Timed activation of the fans when the solenoid is off.

When **FnC=C-n** or **C-Y** (fans in parallel to the solenoid), the fans will be able to carry out on and off cycles even if the LLS is closed. The on and off interval of time follow the **Fon** and **FoF** parameters. When the LLS is closed the fans will go on working for the **Fon** time. On the other side, with **Fon=0** the fans will stay always off when the LLS is closed.

4 SPECIAL FUNCTIONS

By means of the parameter **oA3**, it's possible to configure the functions of the light relay (22-23), as described in the following paragraphs:

4.1 LIGHT RELAY (FACTORY SETTING, OA3 = LIG)

By setting **oA3=Lig** the relay will work as light relay, it is switched on and off by the light button on the keyboard and is affected by status of the digital input when **iIF=dor**.

The parameter **Lht** (**Light timer**) sets the time the light will stay on after pressing the light switch on the keyboard. Every time the key is pushed the timer is re-loaded.

4.2 SECOND SOLENOID MANAGEMENT (OA3 = CP2) OPTIONAL

By setting **oA3=CP2**, the relay at terminals 22-23 will operate as "second solenoid". It will be activated in parallel with the relay of the first solenoid, with a possible delay set in the **AC1** parameter (seconds). Both the solenoids are switched off at the same time.

4.3 ON –OFF RELAY (OA3 = ONF) OPTIONAL

By setting **oA3=onF**, the relay will operate as "on-off" relay: it will be activated when the controller is switched on and it will be switched off when the controller is in stand-by status.

4.4 DOOR HEATER VIA 4TH PROBE (OA3=AUS)

By setting **oA3=AUS**, the relay 22-23 will work as auxiliary thermostat (ex. anti condensing heater).

Parameters involved:

- **ACH (cL, Ht):** Kind of regulation for the auxiliary relay: **Ht** = heating / **CL** = cooling;
- **SAA (-40/230°F)** Set point for auxiliary relay
- **SHy (0/25°F)** Differential for auxiliary output.
With **ACH = CL:** aux relay **cut in** is **SAA+SHy**, cut out **SAA**.
With **ACH = Ht:** aux relay **cut in** is **SAA-SHy**, cut out **SAA**.
- **ArP (nP, P1, P2, P3, P4)** Probe for auxiliary relay
- **Sdd (n, Y)** Auxiliary output working during defrost

4.5 ALARM RELAY (OA3 = ALR) OPTIONAL

By setting **oA3=ALr** the relay will work as alarm relay, it is switched on when an alarm happens.

Parameters involved:

- **tba (n, y)** Alarm relay and buzzer silencing
- **AOp (cL; oP)** Alarm relay polarity

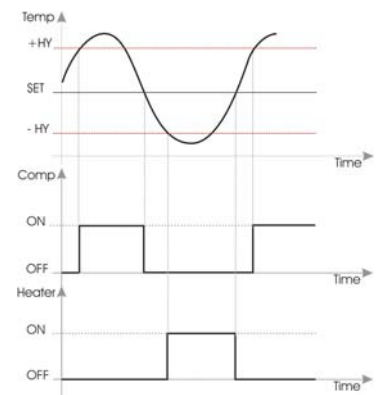
4.6 NEUTRAL ZONE (OA3 = DB) OPTIONAL

By setting **oA3=db** the controller will perform a "neutral zone" regulation.

The heating element has to be connected to the **oA3** relay (22-23)

If the temperature increases and reaches set point plus differential (**HY**) the **solenoid** is started and then turned off when the temperature reaches the set point value again.

If the temperature decreases and reaches the set point minus differential (**HY**) the **oA3** output (**heater**) is switched on and then turned OFF when the temperature reaches again the set point.



5 KEYBOARDS

T620T touch



VX620 Standard

CX620



KEYBOARD ICONS

	To display and modify target set point; in programming mode it selects a parameter or confirm an operation. By holding it pressed for 3 sec when max or min temperature is displayed it will be erased.
	(UP) To see the max stored temperature; in programming mode it browses the parameter codes or increases the displayed value. By holding it pressed for 3s the fast freezing cycle is started.
	(DOWN) To see the min stored temperature; in programming mode it browses the parameter codes or decreases the displayed value.
	(DEF) By holding it pressed for 3 sec the defrost cycle is initiated.
	(LIG) Switch ON and OFF the walk-in light.
	(ES) "Energy Pig" Press to enter into Energy Saving Mode (HES parameter)

KEY COMBINATIONS

+	To lock and unlock the keyboard.
+	To enter the programming mode.
+	To exit the programming mode.

5.1 USE OF LEDS

Each LED function is described in the following table.

LED	MODE	Function
	ON	The solenoid is running
	FLASHING	- Programming Phase (flashing with LED) - Anti-short cycle delay enabled
	ON	The fan is running
	FLASHING	Programming Phase (flashing with LED)
	ON	The defrost is enabled
	FLASHING	Drip time in progress
	ON	The Fast Freezing cycle is enabled
	ON	- ALARM signal - In "Pr2" indicates that the parameter is also present in "Pr1"
	ON	Continuous cycle is running
	ON	Energy saving enabled
	ON	Light on
AUX °C/°F	ON	Auxiliary relay on
	ON	Measurement unit

6 AUTOMATIC KEYBOARD LOCK (ONLY FOR T620T)

To avoid accidental modifications of the controller settings, the T620T keyboard will be locked automatically if no key will be touched for 60 seconds. The T620T will show "LoC" flashing for few seconds when it's locking. The light key is operating even if the keyboard is locked.

6.1 TO UNLOCK THE T620T

1. Touch any key.
2. The keys will be lighted.
3. Keep a key pushed for few seconds till the "on" message is displayed.

7 CONTROLLER INTERFACE

SET THE CURRENT TIME AND DAY (ONLY WITH OPTIONAL RTC)

When the instrument is switched on, it's necessary to program the time and day.

1. Enter the Pr1 programming menu, by pushing the **SET+ DOWN** keys for 3 sec.
2. The **rTc** parameter is displayed. Push the **SET** key to enter the real time clock menu.
3. The **Hur** (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 with **Min** (minutes), **dAy** (day), **dYM** (day of month), **Mon** (month) and **YAr** (year) parameters.

To exit: Push both **SET+UP** keys or wait for 15 sec without pushing any keys.

7.1 HOW TO SEE THE MIN TEMPERATURE

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

7.2 HOW TO SEE THE MAX TEMPERATURE

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

7.3 HOW TO RESET THE MAX AND MIN TEMPERATURE RECORDED

To reset the stored temperature, when max or min temperature is displayed:

1. Press **SET** key until "rST" label starts blinking.

Note: after the first start-up remember to **RESET** the temperature stored.

7.4 HOW TO SEE AND MODIFY THE SET POINT

1. Push and immediately release the **SET** key: the display will show the Set point value;
2. To change the **Set** value, push the **UP** or **DOWN** arrows within 10 sec.
3. To memorise the new set point value push the **SET** key again or wait for 10 sec.

7.5 TO START A MANUAL DEFROST

1. Push the **DEF** key for more than 2 sec and a manual defrost will start.

7.6 TO ENTER IN PARAMETERS LIST "PR1"

To enter the parameter list "Pr1" (user accessible parameters) operate as follows:

1. Enter the Programming mode by pressing the Set and DOWN key for few seconds (and start blinking).
2. The instrument will show the first parameter present in "Pr1"

7.7 THE HIDDEN MENU (PR2)

In the hidden menu there are all the parameters of the instrument.

7.7.1 ENTERING THE HIDDEN MENU

1. Enter the Programming mode by pressing the **SET+DOWN** keys for 3 sec (the "°C" or "°F" LED will start blinking).
2. **Release** the keys and then press again the **SET+DOWN** keys more than 7 sec. The "Pr2" label will be displayed immediately, followed from the **HY** parameter.
NOW THE HIDDEN MENU IS DISPLAYED
3. Select the required parameter.
4. Press **SET** key to display its actual value
5. Use **UP** or **DOWN** keys to change its value.
6. Press **SET** to store the new value and move to the following parameter.

To exit: Press **SET+UP** or wait for 15 sec without pressing any key.

NOTE1: if no parameter is present in the "Pr1" level, after the first 3 sec the "noP" message will be displayed. Keep **SET+DOWN** keys pushed till the "Pr2" message will be displayed.

NOTE2: the new set value will be stored even if the procedure is exited by waiting for the time-out to expire.

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

Each parameter present in the HIDDEN MENU can be moved or put into "THE FIRST LEVEL" (user level) by pressing **SET+DOWN** keys. In HIDDEN MENU, if a parameter is present also in the First Level (Pr1), the decimal point will be lit.

7.7.3 HOW TO CHANGE THE PARAMETER VALUE

1. Enter the Programming mode.
2. Select the required parameter with **UP** or **DOWN**.
3. Press the "SET" key to display its value (and LED starts blinking).
4. Use **UP** or **DOWN** to change its value.
5. Press **SET** to store the new value and move to the following parameter.

To exit: Press **SET+UP** or wait for 15 sec without pressing any key.

NOTE: the new programming is stored even when the procedure is exited by waiting the time-out.

7.8 HOW TO LOCK THE KEYBOARD (MANUALLY)

1. Keep the **UP** and **DOWN** keys pressed together for more than 3 sec the **UP** and **DOWN** keys.
2. The "PoP" message will be displayed and the keyboard is locked. At this point it is only possible the viewing of the set point or the MAX or Min temperature stored and to switch ON and OFF the light, the auxiliary output and the instrument.



TO UNLOCK THE KEYBOARD

Keep the **UP** and **DOWN** keys pressed together for more than 3 sec.

7.9 ON/OFF FUNCTION (STAND BY) OPTIONAL INSTEAD OF ES MODE



By pushing the **ON/OFF** key, the instrument shows "OFF" for 5 sec. and the ON/OFF LED is switched ON. During the OFF status, all the relays are switched OFF and the regulations are stopped; if a monitoring system is connected, it does not record the instrument data and alarms. When the instrument is in stand by the keyboard displays "OFF".

N.B. During the OFF status the Light and AUX buttons are active.

7.10 TO SEE THE PROBE VALUES

1. Enter in "Pr1" level.
2. Parameters "dP1", "dP2", "dP3" and "dP4" display the value of probes 1(Room), 2(Def), 3(Pb3) and 4(Pb4).

8 PARAMETER LIST

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

HY	Differential: (0.1 to 25.5°C; 1 to 45°F) intervention differential for set point. Solenoid Cut IN is Set Point + differential (HY). Solenoid Cut OUT is when the temperature reaches the set point.
LS	Minimum set point: (-55°C to SET; -67°F to SET) sets the minimum value for the set point.
US	Maximum set point: (SET to 150°C; SET to 302°F) set the maximum value for set point.
ot	Thermostat probe calibration: (-12.0 to 12.0°C; -21 to 21°F) allows to adjust possible offset of the thermostat probe.
P2P	Second probe presence: (n; Y) n = not present, the defrost stops by time; Y = present, the defrost stops by temperature. P2 should be placed inside the evaporator.
oE	Second probe calibration: (-12.0 to 12.0°C; -21 to 21°F) allows to adjust possible offset of the evaporator probe.
P3P	Third probe presence (P3): (n; Y) n = not present, Y = present. P3 should be placed in the discharge air.
o3	Third probe calibration (P3): (-12.0 to 12.0°C; -21 to 21°F) allows to adjust possible offset of the third probe.
P4P	Fourth probe presence: (n; Y) n = Not present; Y = present. For Condenser alarm.

o4	Fourth probe calibration: (-12.0 to 12.0°C; -21 to 21°F) allows to adjust possible offset of the fourth probe.
odS	Outputs activation delay at start up: (0 to 255min) this function is enabled at the initial start up of the instrument and inhibits any output activation for the period of time set in the parameter.
AC	Anti-short cycle delay: (0 to 50min) minimum interval between the solenoid stop and the following restart.
AC1	2 nd solenoid delay at start up (0to255s) Used only with oA3 or oA4 = cP2 Time interval between the switching on of the first solenoid and the second one. OPTIONAL
rtr	Percentage of the second and first probe for regulation: (OPTIONAL) 0 to 100; 100=P1, 0=P2) allows regulation according to the percentage of the first and second probe, per the following formula (rtr(P1-P2)/100 = P1).
CCt	Solenoid ON time during continuous cycle: (0.0 to 24h00min, res. 10min) the maximum length of the continuous cycle. Solenoid stays on without interruption during CCt time. This is useful, for instance, when the room is filled with new products.
CCS	Set point for continuous cycle: (-55 to 150°C; -67 to 302°F) the set point used during the continuous cycle. Use P1 probe.
Con	Solenoid ON time with faulty probe: (0 to 255min) time during which the solenoid is active in case of faulty thermostat probe. With Con=0 solenoid is always OFF.
CoF	Solenoid OFF time with faulty probe: (0 to 255min) time during which the solenoid is OFF in case of faulty thermostat probe. With CoF=0 solenoid is always active.

DISPLAY

CF	Temperature measurement unit: (°C; °F) °C = Celsius; °F = Fahrenheit. WARNING: When the measurement unit is changed the SET point and the values of the parameters HY, LS, US, ot, ALU and ALL have to be checked and modified (if necessary).
rES	Resolution (for °C): (in=1°C; dE=0.1°C) allows decimal point display only in °C
rEd	Keyboard display: (P1; P2, P3, P4, SET, dtr) it selects which probe is displayed by the Keyboard. P1 = Thermostat probe; P2 = Evaporator probe; P3 = Third probe (P4 = Fourth probe, SET = set point; dtr = percentage of visualization.
dLY	Display delay: (0 to 20min: 00s; res. 10s) when the temperature increases, the display is updated of 1°C or 1°F after this time.
dtr	Percentage of the second and first probe for visualization when rEd=dtr: (0 to 99; 100=P1, 0=P2) if rEd=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)/100 + P2).

DEFROST

EdF	Defrost mode (only for controller with RTC): - rtC: Real Time Clock mode. Defrost time follows Ld1 to Ld6 parameters on workdays and Sd1 to Sd6 on holidays. - in: interval mode. The defrost starts when the time idf is expired. - ond: On Demand Defrost ® (manually initiate first def for the control to learn the defrost cycle)
tdF	Defrost type: (EL; in) EL = electrical heater; in = hot gas.
Pdt	Type of pump down: Fan: only the fan will run during pump down - F-C: fan and liquid line solenoid will be open during pump down
Pdn	Pump down duration: (0to255min) The pump down starts before defrost. During the pump down the fans (and LLS) are forced to be active for the Pdn time, before the defrost starts. With Pdn = 0 the pump down is disabled
dFP	Probe selection for defrost termination: (nP; P1; P2; P3; P4) nP = no probe; P1 =return air probe; P2 = evaporator probe; P3 =discharge air probe; P4 = configurable probe.
dtE	Defrost termination temperature: (-55 to 50°C; -67 to 122°F) (enabled only when EdF=Pb) sets the temperature measured by the evaporator probe, which causes the end of defrost.
idf	Interval between defrost cycles: (0 to 120hours) determines the interval of time between two defrost cycles. If idF = 0, and EdF = ond, the On-Demand Defrost is selected
ndF	(Maximum) length for defrost: (0 to 255min) when P2P=n, (not evaporator probe: timed defrost) it sets the defrost duration. When P2P=Y (defrost end based on temperature) it sets the maximum length for defrost as a safety.
dSd	Start defrost delay: (0 to 99min) this is useful when different defrost start times are necessary to avoid defrosts to start together.
dFd	Temperature displayed during defrost: (rt; it; SEt; dEF) rt = real temperature; it = temperature at defrost start; SEt = set point; dEF = "dEF" label.
dAd	MAX display delay after defrost: (0 to 255min) sets the maximum time between the end of defrost and the restarting of the real room temperature display.
Fdt	Drip time: (0 to 120min) is the interval time between reaching defrost termination temperature and the restoring of the control's normal operation. This time allows the evaporator to eliminate water on the evaporator before the next cycle.
dPo	First defrost after start-up: (n; Y) n = after the idF time, Y = immediately. Also First defrost after a power outage.
dAF	Defrost delay after continuous cycle: (0.0 to 24h00min, res. 10min) time interval between the end of the fast freezing cycle and the following defrost related to it.

FANS

FnC	Fans operating mode: (C-n; o-n; C-Y; o-Y) C-n = runs with the solenoid, OFF during defrost; o-n = continuous mode, OFF during defrost; C-Y = runs with the solenoid, ON during defrost; o-Y = continuous mode, ON during defrost.
Fnd	Fans delay after defrost: (0 to 255min) interval between the end of a defrost cycle and evaporator fans start.
FCt	Temperature differential to avoid fan short cycles: (0 to 59°C; 0 to 90°F) (N.B.: FCt=0 means function disabled) if the difference of temperature between the evaporator and the room probes is higher than FCt value, the fans will be switched on.

FSt	Fans stop temperature: (-55 to 50°C; -67 to 122°F) setting of temperature, detected by evaporator probe, above which fans are always OFF.
Fon	Fan ON time: (0 to 15min) with Fnc=C_n or C_Y , (fan activated in parallel with LLS) it sets the evaporator fan ON cycling time when the LLS is closed. With Fon=0 and FoF#0 the fan are always off, with Fon=0 and FoF=0 the fan are always off.
FoF	Fan OFF time: (0 to 15min) With Fnc=C_n or C_Y , (fan activated in parallel with LLS) it sets the evaporator fan off cycling time when the LLS is closed. With Fon=0 and FoF#0 the fan are always off, with Fon=0 and FoF=0 the fan are always off.
FAP	Probe selection for fan management: (nP; P1; P2; P3; P4) nP = no probe; P1 =return air probe; P2 = evaporator probe; P3 =discharge air probe; P4 = configurable Probe

OA3 = AUS: AUX THERMOSTAT CONFIGURATION (terms. 22-23) OPTIONAL i.e. Door Heater

ACH	Kind of regulation for auxiliary relay: (Ht; CL) Ht = heating; CL = cooling.
SAA	Set Point for auxiliary relay: (-55.0 to 150.0°C; -67 to 302°F) it defines the temperature set point to switch auxiliary relay. Can be used for door / glass heaters.
SHY	Differential for auxiliary output: (0.1 to 25.5°C; 1 to 45°F) intervention differential for auxiliary output set point. • ACH=CL , AUX Cut in is [SAA+SHY] ; AUX Cut out is SAA . • ACH=Ht , AUX Cut in is [SAA-SHY] ; AUX Cut out is SAA .
ArP	Probe selection for auxiliary: (nP; P1; P2; P3; P4) nP = no probe, the auxiliary relay is switched only by the digital input; P1 = Probe 1 (Return air probe); P2 = Probe 2 (evaporator probe); P3 = Probe 3 (discharge probe); P4 = configurable Probe 4.
Sdd	Auxiliary relay off during defrost: (n; Y) n = the auxiliary relay operates during defrost. Y = the auxiliary relay is switched off during defrost.
LHt	Light timer: (0-255 min) The time that the light will stay on after pressing the light switch on the keyboard, or after closing the door.

ALARMS

ALP	Probe selection for alarm: (nP; P1; P2; P3; P4) nP = no probe, the temperature alarms are disabled; P1 = Probe 1 (Return Air probe); P2 = Probe 2 (evaporator probe); P3 = Discharge Air Probe; P4 = Fourth probe.
ALC	Temperature alarms configuration: (Ab; rE) Ab = absolute temperature, alarm temperature is given by the ALL or ALU values. rE = temperature alarms are referred to the set point. Temperature alarm is enabled when the temperature exceeds the [SET+ALU] or [SET-ALL] values.
ALU	MAXIMUM temperature alarm: • If ALC=Ab : [ALL to 150.0°C or ALL to 302°F] • If ALC=rE : [0.0 to 50.0°C or 0 to 90°F] when this temperature is reached the alarm is enabled, after the ALd delay time.
ALL	Minimum temperature alarm: • If ALC=Ab : [-55°C to ALU; -67 to ALU] • If ALC=rE : [0.0 to 50.0°C or 0 to 90°F] when this temperature is reached the alarm is enabled, after the ALd delay time.
AFH	Differential for temperature alarm recovery: (0.1 to 25.5°C; 1 to 45°F) intervention differential for recovery of temperature alarm.
ALd	Temperature alarm delay: (0 to 255 min) time interval between the detection of an alarm condition and alarm signaling.
dAo	Exclusion of temperature alarm at start-up: (0.0 to 24h00min, res. 10min) 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; P1; P2; P3; P4) nP = no probe; P1 = thermostat probe; P2 = evaporator probe; P3 = discharge air probe; P4 = Configurable probe.
AL2	Low temperature alarm of condenser: (-55 to 150°C; -67 to 302°F) when this temperature is reached the LA2 alarm is signaled, possibly after the Ad2 delay.
Au2	High temperature alarm of condenser: (-55 to 150°C; -67 to 302°F) when this temperature is reached the HA2 alarm is signaled, possibly after the Ad2 delay.
AH2	Differential for temperature condenser alarm recovery: 0.1 to 25.5°C; 1 to 45°F.
Ad2	Condenser temperature alarm delay: (0 to 255 min) time interval between the detection of the condenser alarm condition and alarm signaling.
dA2	Condenser temperature alarm exclusion at start up: 0.0 to 24h00min, res. 10min.
bLL	Solenoid off with low temperature alarm of condenser: (n; Y) n = solenoid keeps on working; Y = solenoid is switched off till the alarm is present, in any case regulation restarts after AC time at minimum.
AC2	Solenoid off with high temperature alarm of condenser: (n; Y) n = solenoid keeps on working; Y = solenoid is switched off till the alarm is present, in any case regulation restarts after AC time at minimum.

RELAY OA3 (22-23) CONFIGURATION

tbA	Alarm relay silencing (with oA3 =ALr): (n; Y) 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.
oA3	Third relay configuration (XW60K: terminals 22-23): (dEF; FAn; ALr; LiG; AUS; onF; db; dEF2; HES) dEF = defrost; FAn = do not select it; ALr = alarm; LiG = light (Default) ; AUS = Auxiliary relay; onF = always on with instrument on; db = neutral zone; dEF2 = do not select it; HES = night curtain
AoP (oA3=Alr)	Alarm relay polarity: (CL; oP) it set if the alarm relay is open or closed when an alarm occurs. CL = terminals closed during an alarm; oP = terminals open during an alarm.

DIGITAL INPUT

iP	First digital input polarity: (oP; CL) oP = the digital input is activated by opening the contact; CL = the digital input is activated by closing the contact.			
iF	First digital input configuration: (EAL; bAL; PAL; dor; dEF; ES; AUS; Htr; FAn; HdF; onF; Sbt) 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 (use i2b); dEF = activation of a defrost cycle; AUS = auxiliary relay activation with oA3=AUS ; Htr = type of inverting action (cooling or heating); FAn = fan; ES = energy saving; HdF = Holiday defrost (enable only with RTC); onF = to switch the controller off; LHt = to activate the light (Use Keyboard i2b=dor)			
did	Digital input 1 alarm delay: (0 to 255 min) delay between the detection of the external alarm condition and its signalling. When iF= PAL , it is the interval of time to calculate the number of pressure switch activation.			
i2b	Second digital input on base (n,y) n = the second digital input is placed on the VX620 keypad. Use the (2) D.I. and (3) minus terminals. <table border="1" style="margin: 5px auto;"> <tr> <td style="text-align: center;">+</td> <td style="text-align: center;">D.I</td> <td style="text-align: center;">-</td> </tr> </table> y = the second digital input is placed on the XW60K, use terminals 8-9.	+	D.I	-
+	D.I	-		
i2P	Second digital input polarity: (oP; CL) oP = the digital input is activated by opening the contact; CL = the digital input is activated by closing the contact.			
i2F	Second digital input configuration: (EAL; bAL; PAL; dor; dEF; ES; AUS; Htr; FAn; HdF; onF; Sbt) 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 = auxiliary relay activation with oA3=AUS ; Htr = type of inverting action (cooling or heating); FAn = fan; ES = energy saving; HdF = Holiday defrost (enable only with RTC); onF = to switch the controller off; LHt = to activate the light (activated through i2b=dor)			
d2d	Digital input 2 alarm delay: (0 to 255 min) delay between the detection of the external alarm condition and its signalling. When i2F= PAL , it is the interval of time to calculate the number of pressure switch activation.			
nPS	Number of pressure switch activation: (0 to 15) Number of activation, during the did or d2d interval, before signalling an alarm event (i1F , i2F=PAL). If the nPS activation during did or d2d time is reached, switch off and on the instrument to restart normal regulation.			
odC	Controller status when open door: (no; FAn; CPr; F_C) no = no effect FAn = FAN off; CPr = LLS Closed, F_C = Fan and LLS OFF.			
rrd	Outputs restart after door open alarm: (n; Y) n = outputs follow the odC parameter. Y = outputs restart with a door open alarm.			
LES	Light off during Energy Saving status: n; Y.			
HES	Delta temperature during an Energy Saving cycle: (-30.0 to 30.0°C; -54 to 54°F) it sets the increasing value of the set point [SET+HES] during the Energy Saving cycle.			

9 REAL TIME CLOCK PARAMETERS (OPTIONAL)

CURRENT TIME AND WEEKLY HOLIDAYS (ONLY FOR MODELS WITH RTC)

Hur	Current hour: 0 to 23h.
Min	Current minute: 0 to 59min.
dAY	Current day: Sun to SAT.
dYM	Day of the month: 1 to 31.
Mon	Month: 1 to 12.
YAr	Year: 00 to 99.
Hd1	First weekly holiday: (Sun to nu) set the first day of the week which follows the holiday times.
Hd2	Second weekly holiday: (Sun to nu) set the second day of the week which follows the holiday times.

N.B.: Hd1, Hd2 can be set also as "nu" value (Not Used).

ENERGY SAVING TIMES (ONLY FOR MODELS WITH RTC)

ILE	Energy Saving cycle start during workdays: (0 to 23h50min) during the Energy Saving cycle the set point is increased by the value in HES so that the operation set point is SET+HES .
dLE	Energy Saving cycle length during workdays: (0 to 24h00min) sets the duration of the Energy Saving cycle on workdays.
ISE	Energy Saving cycle start on holidays: 0 to 23h50min.
dSE	Energy Saving cycle length on holidays: 0 to 24h00min.

TO SET DEFROST TIMES (ONLY FOR MODELS WITH RTC)

Ld1...Ld6	Workday defrost start: (0 to 23h50min) these parameters set the beginning of the 6 programmable defrost cycles during workdays. Ex: when Ld2=12.4 the second defrost starts at 12.40 during workdays.
Sd1...Sd6	Weekend defrost start: (0 to 23h50min) these parameters set the beginning of the 6 programmable defrost cycles on holidays. Ex: when Sd2=3.4 the second defrost starts at 3.40 on holidays.

oA3=HES NIGHT CURTAINS or LIGHTS (ONLY FOR MODELS WITH RTC)

ILE	Energy Saving cycle start during workdays: (0 to 23h50min) Start of the Energy Saving period the oA3 relay is active.
dLE	Energy Saving cycle length during workdays: (0 to 24h00min) sets the duration of the Energy Saving period the oA3 relay is active on workdays.
ISE	Energy Saving cycle start on holidays: 0 to 23h50min.
dSE	Energy Saving cycle length on holidays: 0 to 24h00min.

Note: rTC parameters, to disable a defrost cycle set it to "nu" (not used).

OTHER

Adr	Serial address: (1 to 247) identifies the instrument address when connected to a ModBUS compatible monitoring system.
PbC	Type of probe: (PtC; nTC) it allows to set the kind of probe used by the instrument: - PtC = PTC probe; nTC = NTC probe.
onF	Energy Pig Key: (nU; oFF; ES) nU = disabled; oFF = On/OFF; ES = Energy Saving Mode
dP1	Thermostat probe display.
dP2	Evaporator probe display.
dP3	Third probe display.
dP4	Fourth probe display
rSE	Real set point: it shows the set point used during the energy saving cycle or during the continuous cycle.
rEL	Software release for internal use.
Ptb	Parameter table code: readable only.

10 DIGITAL INPUT

The free voltage digital input is programmable in different configurations by the **i1F** and **i2F** parameters.

10.1 DOOR SWITCH INPUT (i2F = DOR) STANDARD

It signals the door status and the corresponding relay output status through the **odC** parameter: **no** = no change; **Fan** = Fan OFF; **CP**r = LLS Closed; **F_C** = Both LLS and fan OFF.
Since the door is opened, after the delay time set through parameter **did**, the door alarm is enabled, the display shows the message **"dA"** and the regulation restarts is **rtr = yES**. The alarm stops as soon as the external digital input sees the door closed. With the door open, the high and low temperature alarms are disabled.

10.2 GENERIC ALARM (i1F = EAL) OPTIONAL

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

10.3 SERIOUS ALARM MODE (i1F = BAL) OPTIONAL FOR LEAK DETECTOR

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

10.4 PRESSURE SWITCH (i1F = PAL) OPTIONAL FOR CONDENSER ALARM

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

10.5 AUXILIARY OUTPUT SWITCHING (i1F = AUS) OPTIONAL

With **oA3=AUS** and **i1F=AUX** it switches the fourth relay (22-23).

10.6 START DEFROST (i1F = DFR) OPTIONAL

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 **MdF** safety time is expired.

10.7 KIND OF ACTION: HEATING OR COOLING (i1F = HTR) OPTIONAL

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

10.8 ENERGY SAVING (i1F = ES) STANDARD I.E. GET A SIGNAL FROM A SMART METER

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

10.9 DIGITAL INPUTS POLARITY

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

11 TTL/RS485 SERIAL LINE

The TTL connector allows, by means of the external module TTL/RS485 (**XJ485CX**), to connect the unit to a network line **ModBUS-RTU** compatible as the **dixell** monitoring system. The same TTL connector is used to upload and download the parameter list of the **"HOT-KEY"**.

12 HOW TO: USE OF THE PROGRAMMING "HOT KEY"

12.1 PROGRAM A HOT-KEY FROM AN INSTRUMENT (UPLOAD)

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

NOTE: the **"Err"** message appears in case of a failed programming operation. In this case push again button if you want to restart the upload again or remove the **"HOT-KEY"** to abort the operation.

12.2 PROGRAM AN INSTRUMENT BY USING A HOT-KEY (DOWNLOAD)

1. Turn OFF the instrument.
2. Insert a **pre-programmed "HOT-KEY"** into the **5-PIN receptacle** and then turn the Controller **ON**.
3. The parameter list of the **"HOT-KEY"** will be automatically downloaded into the Controller memory. The **"doL"** message will blink followed a by a flashing **"End"** label.
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.

13 ALARM SIGNALS

Message	Cause	Outputs
P1	Thermostat probe failure	Alarm signal ON; Solenoid output according to parameters Con and CoF .
P2	Evaporator probe failure	Alarm signal ON; Other outputs unchanged
P3	Probe 3 probe failure	Alarm signal ON; Other outputs unchanged
P4	Probe 4 probe failure	Alarm signal ON; Other outputs unchanged
HA	Maximum temperature alarm	Alarm signal ON; Other outputs unchanged
LA	Minimum temperature alarm	Alarm signal ON; Other outputs unchanged
HA2	Condenser high temperature	It depends on the AC2 parameter
LA2	Condenser low temperature	It depends on the bLL parameter
dA	Door open	Solenoid and fans restart
EA	External alarm	Output unchanged.
CA	Serious external alarm (i1F=bAL)	All outputs OFF.
CA	Pressure switch alarm (i1F=PAL)	All outputs OFF
EE	Data or memory failure	Alarm signal ON; Other outputs unchanged

The alarm message is displayed until the alarm condition is recovered.
All the alarm messages are shown alternating with the room temperature except for the "P1" which is flashing.
To reset the "EE" alarm and restart the normal functioning press any key, the **"rSt"** message is displayed for about 3 sec.

13.1 SILENCING BUZZER

Once the alarm signal is detected the buzzer can be silenced by pressing any key. Buzzer is mounted in the keyboard.

13.2 "EE" ALARM

The **dixell** instruments are provided with an internal check for the data integrity. The "EE" alarm flashes when a failure in the memory data occurs. In such cases the alarm output is enabled.

13.3 ALARM RECOVERY

Probe alarms: **"P1"** (probe1 faulty), **"P2"**, **"P3"** and **"P4"**; they automatically stop 10 sec after the probe restarts normal operation. Check connections before replacing the probe.
Temperature alarms **"HA"**, **"LA"**, **"HA2"** and **"LA2"** automatically stop as soon as the temperature returns to normal values.
Alarms **"EA"** and **"CA"** (with **i1F=bAL**) recover as soon as the digital input is disabled.
Alarm **"CA"** (with **i1F=PAL**) recovers only by **switching off and on** the instrument.

14 INSTALLATION AND MOUNTING

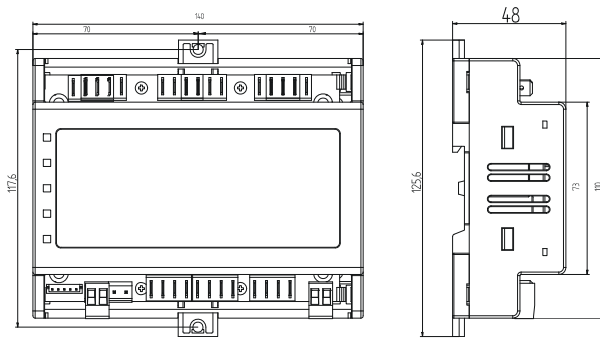
T620 keyboard shall be mounted on vertical panel, in a 150x31 mm hole, and fixed using two screws \varnothing 3 x 2mm. To obtain an IP65 protection grade use the front panel rubber gasket (mod. RG-L).

VX620 keyboard shall be mounted on vertical panel, in standard low voltage J-Box, and fixed using two screws \varnothing 3 x 2mm. To obtain an IP65 protection grade use the front panel rubber gasket included (mod. RGW-V).

CX620 keyboard shall be mounted on vertical panel, in a 29x71 mm hole, and fixed using the special bracket supplied.

The controller **XW60K** can be mounted in a din rail or wall mounted. It must be connected to the keyboard by means of a two-wire cable (\varnothing 1mm). The ambient temperature range should be -10 to 60°C/14 - 140F (Avoid places subject to strong vibrations, corrosive gases, excessive dirt or humidity. The same recommendations apply to probes. An enclosure is recommended for certain environments.

14.1 XW60K – 8 DIN CASE - DIMENSIONS



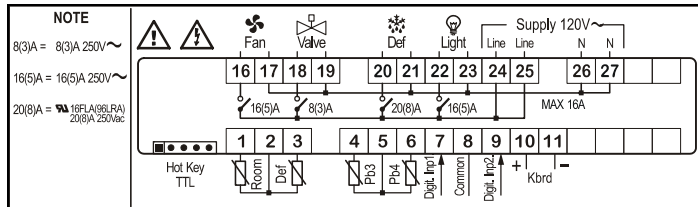
15 ELECTRICAL CONNECTIONS

XW60K is provided with screw terminal blocks to connect cables with a cross section up to 2.5 mm² for the RS485 (optional) and the keyboard. To connect the other inputs, power supply and relays, **XW60K** is provided with Faston connections (6.3mm). Heat-resistant cables should 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, and 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.

NOTE: the maximum current allowed for all the loads is 16A.

15.1 PROBE CONNECTIONS

The probes shall be mounted with the bulb angled upwards to prevent damage due to casual liquid infiltration. It is recommended to place the return air probe 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. Place the Discharge Air Probe on the discharge side of the evaporator.



16 Technical data

KeyPads

Housing: self extinguishing ABS

Case: T620 and T620T: face 38x185 mm; depth 23mm

VX620: face 72x56 mm; depth 23mm;

CX620: face 75x36 mm; depth 23mm

Mounting: T620T panel mounting in a 150x31 mm panel cut-out with the 2 metal brackets supplied.

VX620: panel mounting in a standard J-Box, can be low voltage

CX620: panel mounting in a 71x29mm panel cut-out

Frontal protection: IP65 with frontal gasket

Connections: Screw terminal block ≤ 2.5 mm²

Power supply: from XW60K power module

Display: 3 digits, red LED, 14.2 mm high

Alarm Output: buzzer.

Power module XW60K

Case: 8 DN: 140X176X148

Connections: Screw terminal block ≤ 2.5 mm² heat-resistant wiring and 6.3mm Faston

Power supply: 230Vac or 110Vac ± 10% or 24Vac

Power absorption: 6VA max

Inputs: 4 NTC or PTC probes

Digital inputs: 2 free voltage

Relay outputs: Total current on loads MAX. 16A

Liquid Line Solenoid: relay SPST 8 A, 250Vac

Fan: relay SPST 16 A, 250Vac

Defrost: relay SPST 16A, 250Vac

Light (oA3): relay SPST 16A, 250Vac

Serial output: TTL standard

Communication protocol: Modbus - RTU

Data storing: on the non-volatile memory (EEPROM)

Kind of action: 1B

Pollution degree: normal

Software class: A

Operating temperature: -10 to 60°C (14 to 140°F)

Storage temperature: -25 to 60°C (-13 to 140°F)

Relative humidity: 20 to 85% (no condensing)

Measuring and regulation range:

NTC probe: -40 to 110°C (-58 to 230°F)

PTC probe: -50 to 150°C (-58 to 302°F)

Resolution: 0.1°C or 1°C or 1°F (selectable)

Accuracy (ambient temp. 25°C): ±0.5°C ±1 digit

17 Default setting values

Label	Name	Range	Default	Level
REGULATION				
SET	Set point	LS; US	0	---
rtc	Real time clock menu (OPTIONAL)	-	-	Pr1
HY	Differential	[0.1 to 25.5°C] [1 to 45°F]	4	Pr1
LS	Minimum set point	[-55.0°C to SET] [-67°F to SET]	-58	Pr2
US	Maximum set point	[SET to 150°C] [SET to 302°F]	230	Pr2
ot	Thermostat probe calibration	[-12 to 12°C] [-21 to 21°F]	0	Pr1
P2P	Evaporator probe presence	n=not present; Y=pres.	yes	Pr1
oE	Evaporator probe calibration	[-12 to 12°C] [-21 to 21°F]	0	Pr2
P3P	Discharge Air Probe presence	n=not present; Y=pres.	no	Pr2
o3	Third probe calibration	[-12 to 12°C] [-21 to 21°F]	0	Pr2
P4P	Fourth probe presence (opt. cond. probe)	n=not present; Y=pres.	no	Pr2
o4	Fourth probe calibration	[-12 to 12°C] [-21 to 21°F]	0	Pr2
od5	Outputs activation delay at start up	0 to 255 min	0	Pr2
AC	Anti-short cycle delay	0 to 30 min	1	Pr1
AC1	Second solenoid delay	0 to 255 sec	5	Pr2
rtc	P1-P2 percentage for regulation	0 to 100 (100=P1, 0=P2)	100	Pr2
CCt	Solenoid ON time during fast freezing	0.0 to 23h50min, res. 10 min	0.00	Pr2
CCS	Set point for continuous cycle	[-55.0 to 150.0°C] [-67 to 302°F]	-5	Pr2
Con	Solenoid ON time with faulty probe	0 to 255 min	15	Pr2
CoF	Solenoid OFF time with faulty probe	0 to 255 min	30	Pr2
DISPLAY				
CF	Temperature measurement unit	°C; °F	°F	Pr2
RES	Resolution (integer/decimal point)	in; dE	in	Pr1
REd	Keyboard display	P1; P2; P3; P4: dtr	P1	Pr2
dLY	Display temperature delay	0.0 to 20min; 00sec, res. 10 sec	1.00	Pr2
dtr	P1-P2 percentage for display	1; 100	50	Pr2
DEFROST				
EdF	Defrost interval selection	in, rtc, ond	in	Pr2
EdF	Defrost type	EL; in	EL	Pr1
Pdt	Type of pump down	Fan, F-C	FAn	Pr1
Pdn	Pump down time	0to255min	1	Pr1
dFP	Probe selection for defrost termination	nP; P1; P2; P3; P4	P2	Pr2
dtE	Defrost termination temperature	[-50.0 to 150°C] [-58 to 302°F]	46	Pr1
idf	Interval between defrost cycles 0=on-demand	0 to 120 h	0	Pr1
ndF	(Maximum) length for defrost	0 to 255 min	30	Pr1
d5d	Start defrost delay	0 to 99 min	0	Pr2
dFd	Displaying during defrost	rt; it; SET; dEF; dEG	DEF	Pr2
dAd	MAX display delay after defrost	0 to 255 min	30	Pr2
Fdt	Draining time	0 to 60 min	1	Pr2
dPo	First defrost after start up	n; Y	n	Pr2
dAF	Defrost delay after fast freezing	0.0 to 23h50min, res. 10 min	0.00	Pr2
FANS				
FnC	Fans operating mode	C-n; C-y; O-n; O-y	O_n	Pr1
Fnd	Fans delay after defrost	0 to 255 min	10	Pr1
FCL	Differential of temperature for forced activation of fans	[0 to 50°C] [0 to 90°F]	20	Pr2
FSt	Fans stop temperature	[-55.0 to 50°C] [-67 to 302°F]	36	Pr1
Fon	Fan on time with solenoid off	0 to 15 min	0	Pr2

Label	Name	Range	Default	Level
<i>Fof</i>	Fan off time with solenoid off	0 to 15 min	0	Pr2
<i>FAP</i>	Probe selection for fan management	nP; P1; P2; P3; P4	P2	Pr2
AUXILIARY THERMOSTAT				
<i>ACH</i>	Kind of action for auxiliary relay	CL; Ht	CL	Pr2
<i>SAP</i>	Set Point for auxiliary relay	[-55.0 to 150.0°C] [-67 to 302°F]	32	Pr2
<i>SHY</i>	Differential for auxiliary relay	[0.1 to 25.5°C] [1 to 45°F]	4	Pr2
<i>Ar-P</i>	Probe selection for auxiliary relay	nP; P1; P2; P3	nP	Pr2
<i>Sdd</i>	Aux. output working during defrost	n; Y	n	Pr2
<i>LHT</i>	Light on timer	0to255min	0	Pr1
ALARMS				
<i>ALP</i>	Probe setting for temperature alarm	P1; P2; P3; P4	P1	Pr2
<i>ALC</i>	Temperature alarms configuration	rE; Ab	Ab	Pr2
<i>ALU</i>	MAXIMUM temperature alarm	[-55.0 to 150.0°C] [-67 to 302°F]	230	Pr1
<i>ALL</i>	minimum temperature alarm	[-55.0 to 150.0°C] [-67 to 302°F]	-58	Pr1
<i>AFH</i>	Temperature alarm and fan differential	[0.1 to 25.5°C] [1 to 45°F]	4	Pr2
<i>ALd</i>	Temperature alarm delay	0 to 255 min	15	Pr2
<i>dAo</i>	Delay of temperature alarm at start up	0.0 to 23h50min, res. 10 min	2.30	Pr2
<i>AP2</i>	Probe for temperat. alarm of condenser	nP; P1; P2; P3; P4	P4	Pr2
<i>AL2</i>	Condenser for low temperat. alarm	[-55.0 to 150.0°C] [-67 to 302°F]	-58	Pr2
<i>AU2</i>	Condenser for high temperat. alarm	[-55.0 to 150.0°C] [-67 to 302°F]	230	Pr2
<i>AH2</i>	Differential for condenser temperature alarm recovery	[0.1 to 25.5°C] [1 to 45°F]	10	Pr2
<i>Ad2</i>	Condenser temperature alarm delay	0 to 254 min , 255=nU	15	Pr2
<i>dA2</i>	Delay of cond. temper. alarm at start up	0.0 to 23h50min, res. 10 min	2.30	Pr2
<i>bLL</i>	Solenoid off because of condenser low temperature alarm	n(0); Y(1)	no	Pr2
<i>AC2</i>	Compr. off for condenser high temperature alarm	n(0); Y(1)	no	Pr2
AUXILIARY OUTPUT				
<i>tba</i>	Alarm relay disabling	n=no; Y=yes	yes	Pr2
<i>oA1</i>	Second relay configuration (20-21)	ALr = alarm; dEF = do not select it; Lig =Light; AUS =AUX; onF=always on; Fan= do not select it; db = do not select it; dF2 = do not select it	dEF	Pr1
<i>oA2</i>	Third relay configuration (16-17)	ALr = alarm; dEF = do not select it; Lig =Light; AUS =AUX; onF=always on; Fan= do not select it; db = do not select it; dF2 = do not select it	FAn	Pr1
<i>oA3</i>	Fourth relay configuration (22-23)	ALr = alarm; dEF = do not select it; Lig =Light; AUS =AUX; onF=always on; Fan= do not select it; db = do not select it; dF2 = do not select it	LiG	Pr2
<i>RoP</i>	Alarm relay polarity (if oA3=ALr)	oP; CL	CL	Pr2
DIGITAL INPUT				
<i>iIP</i>	Digital input polarity	oP=opening;CL=closing	CL	Pr1
<i>iIF</i>	Digital input configuration on KeyPad	EAL; bAL; PAL; dor; dEF; ES; Htr; FAN; ONF; AUS; LHT	EAL	Pr1
<i>dId</i>	Digital input alarm delay	0 to 255 min	15	Pr1
<i>i2b</i>	Second Digital input on base	n, y	no	Pr2
<i>i2P</i>	Digital input polarity	oP=opening;CL=closing	CL	Pr1
<i>i2F</i>	Second Digital input configuration	EAL; bAL; PAL; dor; dEF; ES; Htr; FAN; ONF; AUS; LHT	dor	Pr1
<i>d2d</i>	Digital input alarm delay	0 to 255 min	0	Pr1
<i>nPS</i>	Number of activation of pressure switch	0 to 15	15	Pr2
<i>odC</i>	Compress and fan status when open door	no; FAn; CPr; F_C	F-C	Pr2
<i>rrd</i>	Regulation restart with door open alarm	n; Y	yes	Pr2
<i>LES</i>	Light off during energy saving status	n; Y	no	Pr2
<i>HES</i>	Differential for Energy Saving	[-30 to 30°C] [-54 to 54°F]	0	Pr2

Label	Name	Range	Default	Level
<i>Hur</i> *	Current hour	read only (after first set up)	-	rtc
<i>Min</i>	Current minute	read only (after first set up)	-	rtc
<i>dAY</i> *	Current day	read only (after first set up)	-	rtc
<i>dYM</i>	Day of the month	read only (after first set up)	-	rtc
<i>Mon</i>	Month	read only (after first set up)	-	rtc
<i>YAR</i> *	Year	read only (after first set up)	-	rtc
<i>Hd1</i>	First weekly holiday	Sun to SAT; nu	nu	rtc
<i>Hd2</i>	Second weekly holiday	Sun to SAT; nu	nu	rtc
<i>ILE</i> *	Energy Saving cycle start during workdays	0.0 to 23h50min	0	rtc
<i>dLE</i> *	Energy Saving cycle length during workdays	0.0 to 24h00min	0	rtc
<i>ISE</i> *	Energy Saving cycle start on holidays	0.0 to 23h50min	0	rtc
<i>dSE</i> *	Energy Saving cycle length on holidays	0.0 to 24h00min	0	rtc
<i>Ld1</i>	1 st workdays defrost start	0.0 to 23h50min; nu	6.0	rtc
<i>Ld2</i>	2 nd workdays defrost start	0.0 to 23h50min; nu	13.0	rtc
<i>Ld3</i>	3 rd workdays defrost start	0.0 to 23h50min; nu	21.0	rtc
<i>Ld4</i>	4 th workdays defrost start	0.0 to 23h50min; nu	0.0	rtc
<i>Ld5</i>	5 th workdays defrost start	0.0 to 23h50min; nu	0.0	rtc
<i>Ld6</i>	6 th workdays defrost start	0.0 to 23h50min; nu	0.0	rtc
<i>Sd1</i>	1 st holiday defrost start	0.0 to 23h50min; nu	6.0	rtc
<i>Sd2</i>	2 nd holiday defrost start	0.0 to 23h50min; nu	13.0	rtc
<i>Sd3</i>	3 rd holiday defrost start	0.0 to 23h50min; nu	21.0	rtc
<i>Sd4</i>	4 th holiday defrost start	0.0 to 23h50min; nu	0.0	rtc
<i>Sd5</i>	5 th holiday defrost start	0.0 to 23h50min; nu	0.0	rtc
<i>Sd6</i>	6 th holiday defrost start	0.0 to 23h50min; nu	0.0	rtc

* RTC only for Real Time Clock Models

OTHER

<i>Adr</i>	Serial address	1 to 247	1	Pr1
<i>PbC</i>	Kind of probe	PTC; nTC	nTC	Pr2
<i>onF</i>	on/off key enabling	nu, oFF; ES	oFF	Pr2
<i>dP1</i>	Room probe display	read only	-	Pr1
<i>dP2</i>	Evaporator probe display	read only	-	Pr1
<i>dP3</i>	Third probe display	read only	-	Pr1
<i>dP4</i>	Fourth probe display	read only	-	Pr1
<i>rSE</i>	Current set point	read only	-	Pr1
<i>rEL</i>	Software release	read only	-	Pr2
<i>Ptb</i>	Map code	read only	-	Pr2

18 CERTIFICATIONS



19 FOR WARRANTY AND OTHER INFORMATION



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