Dixell

XW60K Walk-In Controller

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Introduction

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XW Walk In (XW60K)

Replace old Mechanical devices with the XW60K

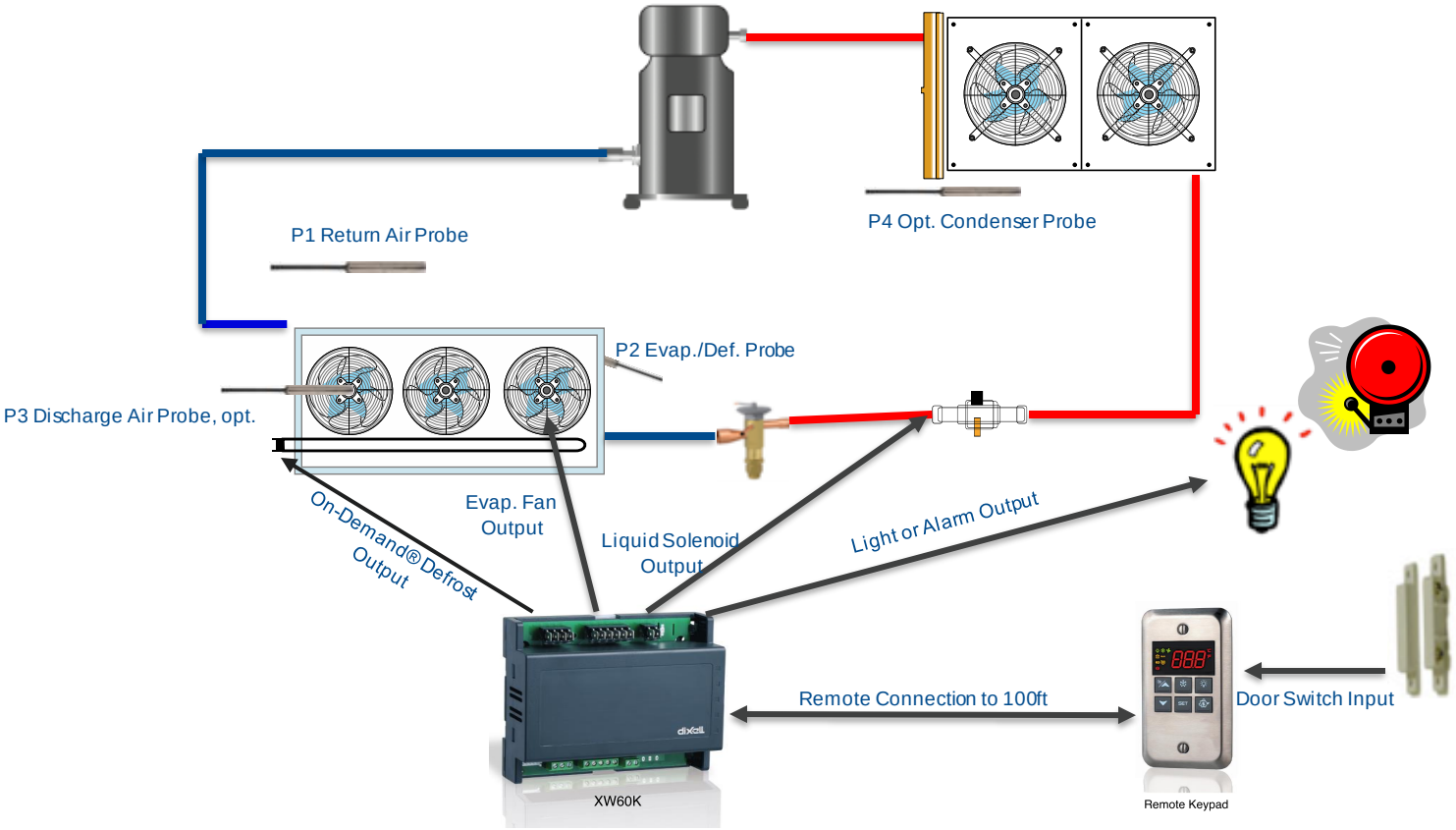
XW60K Kit

XW Walk In (XW60K)

- Replaces:
  - mechanical thermostat
  - defrost time clock
  - fan control
  - alarm
  - temperature display
- Medium and Low temperature
- Shows equipment status in an easy to read, remote LED Display
- Line voltage power (120V or 230V ac)
- Large internal relays (16a) to ensure a long and reliable operation.
- UL and NSF listed

Application Image

XW60K Walk-in Control with On-Demand® Defrost



**Must be mounted outside of cooler/freezer.

Dixell Networked Refrigeration Controls Family

iPAD/Tablet

Restaurants

Temp & Door Alarms

Refrigeration Case Control

HVAC

XWEB 500D EVO

CoreSense

X-line CU

Lighting

Option for Wireless Connection

Monitoring for Humidity/Pressure Probes

Walk-Ins

Inputs & Outputs

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Inputs and Outputs – XW60K

Relay Outputs

- **Relay Outputs**
  - Fan
  - Liquid Line Solenoid
  - Defrost
  - Light or Alarm or Mullion Heat

Digital Inputs

- **Digital Inputs**
  - 2 configurable
    - External Alarm
    - Pressure Switch Alarm
    - Door Switch
    - External Defrost Activation
    - Energy Saving Mode
    - Fan
    - Standby

Analog Inputs

- **Probe Inputs**
  - Room/Return Air Temp
  - Evaporator Temp
  - Discharge Air (Opt)
  - Condenser Temp (Opt)

Analog Outputs

- **N/A**

Device Layout & Connections

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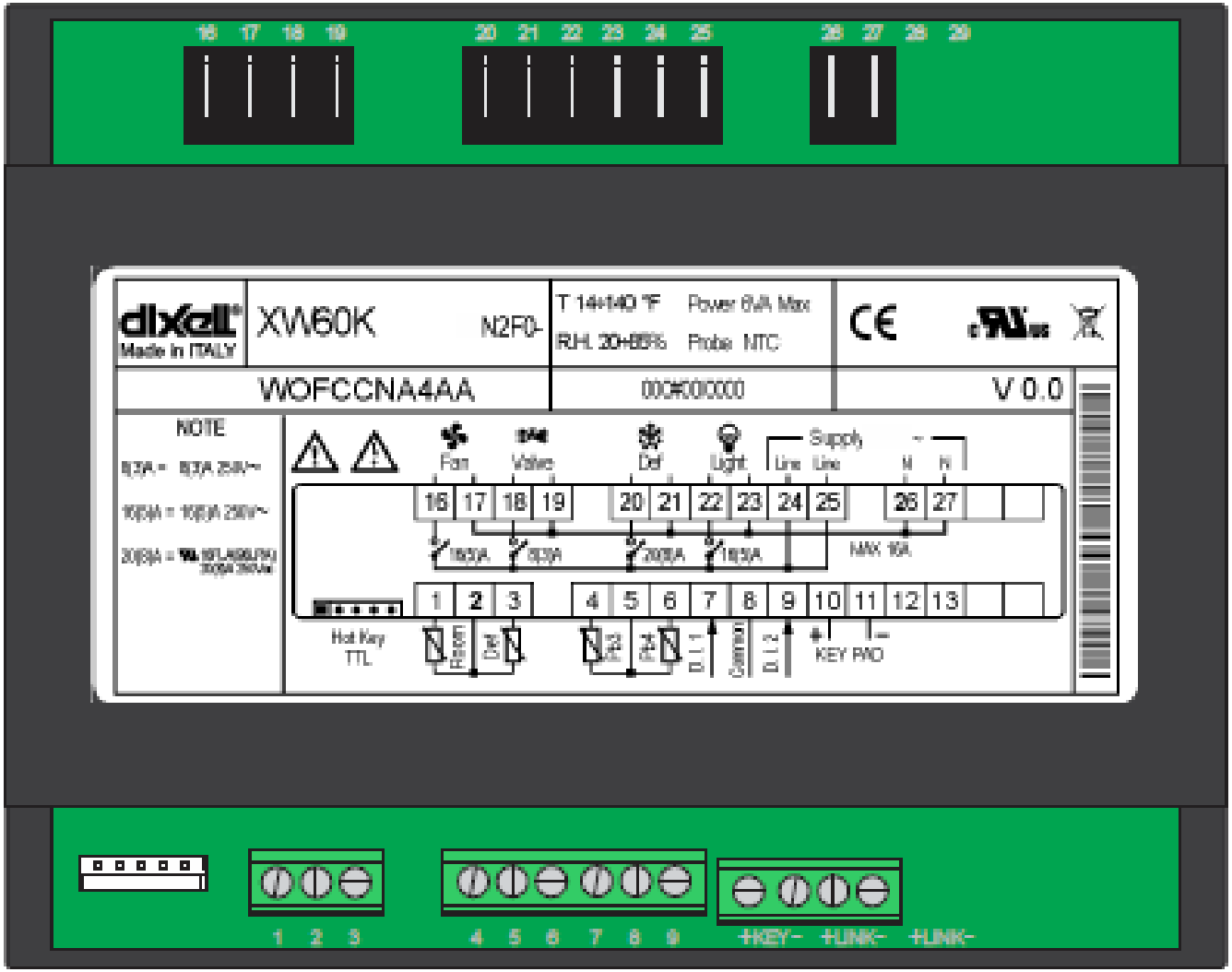
Device Layout



Device Layout – Keypad Connections

Basic Operation

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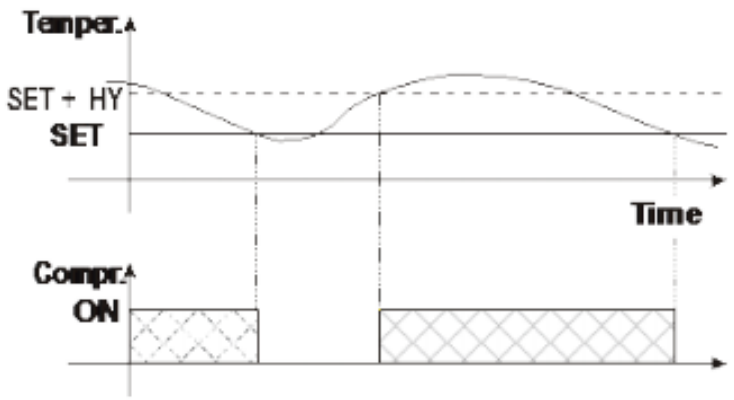
Cooling Regulation



- If the temperature increases and reaches setpoint plus differential, the liquid line solenoid contact is closed. It then opens when the temperature reaches the setpoint value again.
- In case of faulty thermostat probe, the start and stop of a compressor (LLS) are timed through “COn” (15 min) and “COF” (30 min) parameters.

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Basic Operation Overview

Interval Defrost or *Real Time Clock

- EdF=in – defrost is made every "IdF" time.
- EdF="rtc" – defrost is made in real time depending on the hours set in the parameters Ld1…Ld6 on workdays and in Sd1…Sd6 in holidays.
- Configurable Defrost Output Type
  - tdF=EL for Electric (**Default Setting**)
  - tdF_in for Hot Gas
- *RTC available by special order

On-Demand® Defrost

- The controller monitors system parameters to determine when defrost is required:
  - Pull down time
  - Difference between inlet and outlet temperature
  - Door openings
- Configurable Defrost Output Type
  - tdF=EL for Electric (**Default Setting**)
  - tdF_in for Hot Gas
- Enter a manual defrost within the first 12 hours to help recognize the defrost cycle time.

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On-Demand® Defrost – Example Baseline

Defrost Termination Temp to High!

Def. Every 3 hours

Erratic temps

Too many Door Openings

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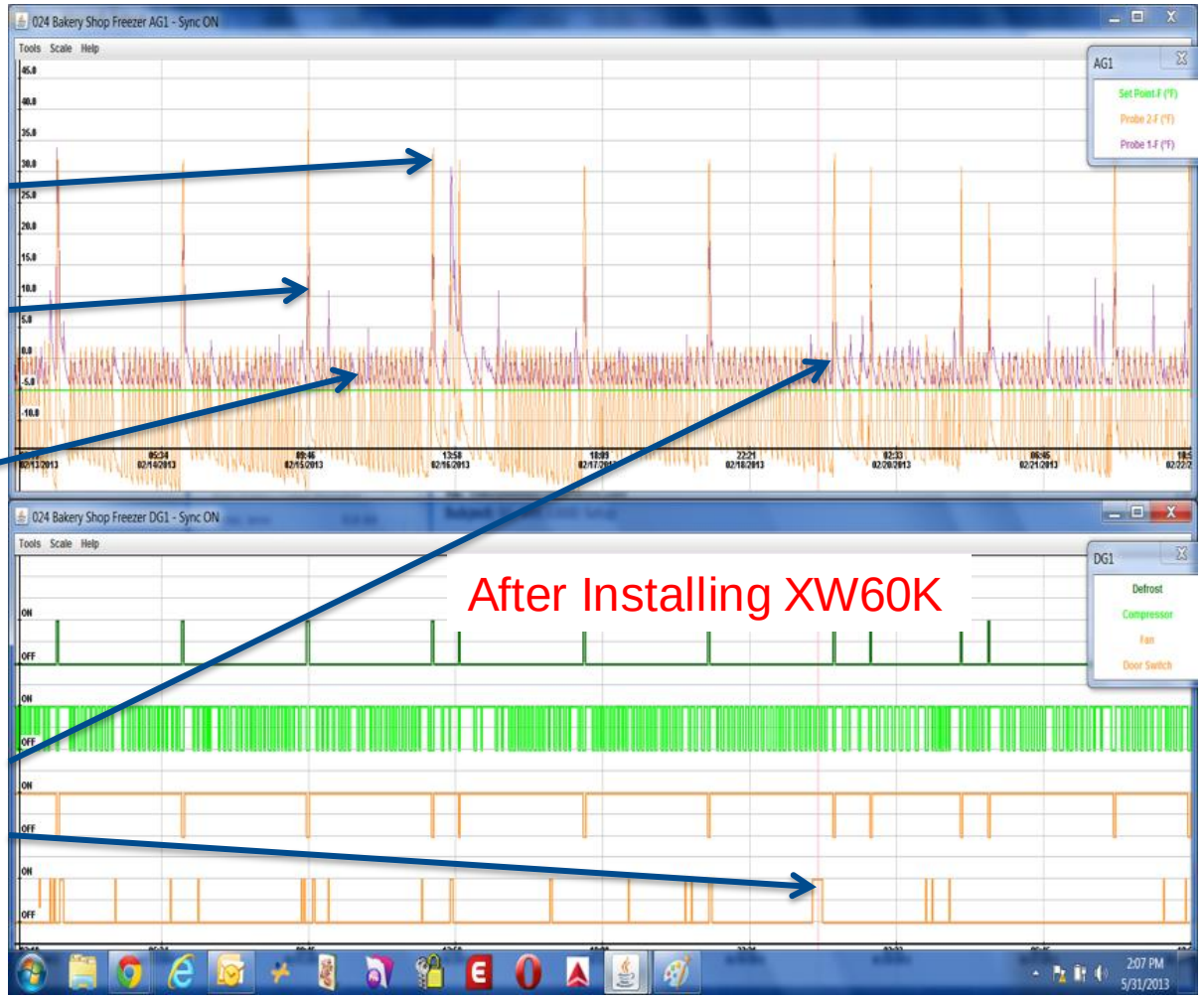
On-Demand® Defrost

47°F Def.
end temps

Defrosts Only
When needed

Consistent
Temperatures

Long Door
Openings
Create need
for Defrost



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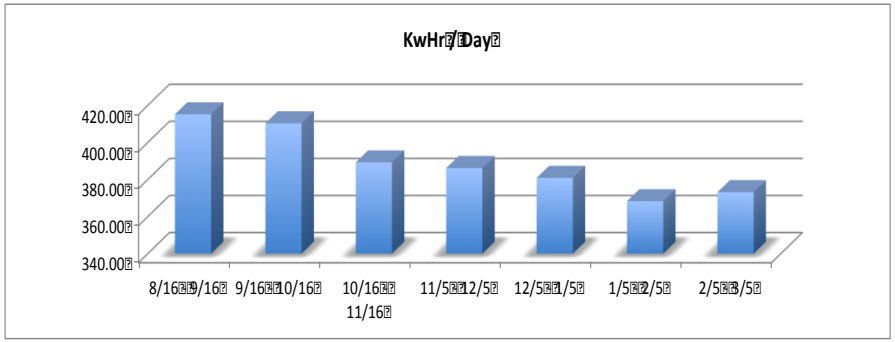
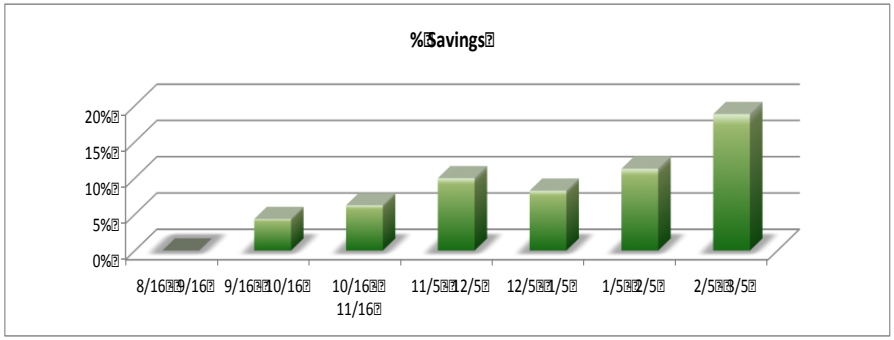
On-Demand® Defrost

Month	KwHr/Day	Days	KwHr usage	Month	% Savings	% Savings	Notes
8/16-9/16	415.16	31	12870.00	8/16-9/16	0%	0	Monitoring only
9/16-10/16	410.30	30	12309.00	9/16-10/16	4%	-0.04358974	Monitoring Only
10/16-11/16	389.23	31	12066.00	10/16-11/16	6%	-0.06247086	Controlling started
11/5-12/5	386.17	30	11585.00	11/5-12/5	10%	-0.0998446	
12/5-1/5	380.87	31	11807.00	12/5-1/5	8%	-0.08259518	Charge off Freon needed due to leak excessive long compressor runs
1/5-2/5	368.32	31	11418.00	1/5-2/5	11%	-0.11282051	
2/5-3/5	373.14	28	10448.00	2/5-3/5	**19%**	-0.18819959	Fine tuning of the system started
3/5-4/5							Added ES mode from 10PM to 6AM expect an additional few % of savings





19%
Energy Savings
From On-Demand
Defrost vs. Time clock

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Basic Operation Overview

Control of Evaporator Fans

- FnC=C_n – fans will switch ON and OFF with the compressor and not run during defrost.
- FnC=o_n – fans will run even if the compressor is OFF, and not run during defrost. (**Default Setting**)
- FnC=C_Y – fans will switch ON and OFF with the compressor and run during defrost.
- FnC=o_Y – fans will run continuously also during defrost.
- FSt - Fan Stop Temperature – Fans will not run until PR2 - evaporator temperature probe drops below this value (Default Setting=36).
- FCt - Forced activation of fans – If the temperature difference between the evaporator and room probes is more than the value of the Fct parameter, the fans are switched ON. When Fct=0, the function is disabled (Default Setting=20).

Fast Freezing

- Timed alternate setpoint to quick chill product.
- When defrost is not in progress, it can be activated by holding the UP arrow key for about 3s.
- The compressor (LLS) operates in continuous mode for the time set through the “CCt” parameter.
  - (Default Setting=0.00) Resolution = 10 minutes.
- Setpoint is adjusted by value of CCS parameter
  - (Default Setting= -5)
- The continuous cycle can be terminated before the end of the set time using the same activation key, press the UP arrow button for about 3s.

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Training & Development
Basic Operation Overview

Energy Saver Mode

- Acts like a second cooling setpoint
- Activated by keypad (Pig button), digital input, or RTC
- -54 to 54 range
- HES = (Default Setting=0)

Other Features

- **Auto-On/Off Light timer / Manual light switch**
  - Low voltage at the keypad to reduce risk of electrical shock
- Door open alarm switch input
- Display update delay
- Configurable Aux Relay
- Temp alarms configurable
  - Relative to Setpoint
  - Absolute Temperatures (Default Setting)
- Two levels of parameter menus
- **Use Light/Aux relay for Mullion Heat**

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User Interface

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Training & Development
User Interface

Remote Keypad Included

KEYBOARD ICONS

SET	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.
SET +	To enter the programming mode.
SET +	To exit the programming mode.

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Training & Development
User Interface

Remote Keypad Included

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	ON	Auxiliary relay on
°C/°F	ON	Measurement unit

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Getting Started

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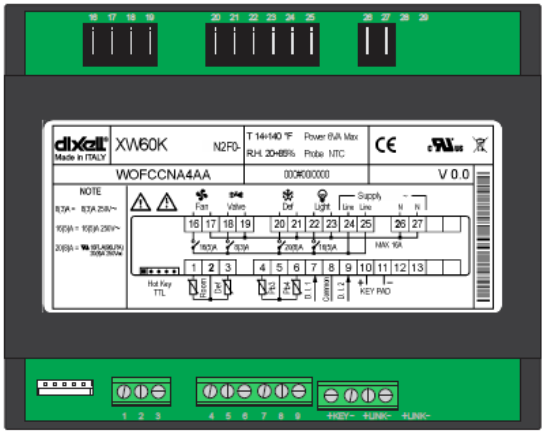
Basic Functions & Navigation

Select Desired Defrost Program

Kit includes two hot keys:

- On-Demand Defrost configuration
- Interval Defrost Temperature terminated configuration



How to upload program

1. When the controller is on, insert the "Hot Key" and press the **UP** key; the "uPL" message appears followed a by a flashing “End" label.
2. Press the **SET** key and the "End" label will stop flashing.
3. Turn the controller off, remove the “Hot Key” and then turn it on again.

How to download program

1. Turn the controller off.
2. Insert a pre-programmed "Hot Key" into the 5-pin receptacle and 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 controller will restart working with the new parameters
5. Remove the "Hot Key".

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Getting Started – The Important Steps

Step 01 Modify the Setpoint and Differential

- **Set -** Setpoint Compressor Cut out
- **Hy -** Differential for set point
- **LS -** Sets the minimum value for the set point..
- **US -** Set the maximum value for set point.

Step 02 Modify Defrost and Fan Parameters

- **tdF** - Defrost type EL= electrical heater, in= hot gas
- **dtE** - Defrost termination temperature
- **idF** - Interval between defrost cycles
- **MdF** - Maximum length for defrost
- **FAP** –Probe selection for fan management
- **FnC** - Fans operating mode
- **FSt** - Fans stop temperature

Step 03 Set the Alarms

- **ALP** - Probe selection for alarm
- **ALU** - Maximum temperature alarm
- **ALL** - Minimum temperature alarm
- **ALd** - Temperature alarm delay

Training & Development
Basic Functions & Navigation

How to see/change the setpoint

1. Push the **SET** key for more than 2s to change the setpoint value.
2. Tha value of the setpoint will be displayed and the "^{0}F" LED starts blinking.
3. To change the setpoint value, push the **UP** or **DOWN** arrow keys within 10s.
4. To memorize the new setpoint value, push the **SET** key again or wait for 10s.

How to see the Max temperature

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

How to see the Min temperature

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

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. (rSt message will be displayed)
2. To confirm the operation the "rSt" message starts blinking and the normal temperature will be displayed

Training & Development
Basic Functions & Navigation Cont...

How to lock the keyboard

1. Keep both **UP** and **DOWN** buttons pressed for more than 3 sec.
2. The “PoF” message will be displayed and the keyboard will be locked. At this point it will be possible only to see the setpoint or the Max or Min temperature stored.
3. If a button is pressed more than 3 sec the “PoF” message will be displayed.

How to change a parameter value

1. Enter the programming mode by pressing the **SET** + **DOWN** keys for 3s.
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.

How to do manual defrost

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

How to enter the hidden menu

1. Enter the programming mode by pressing the **SET** + **DOWN** key for 3s
2. Release the keys then push again the **SET** + **DOWN** keys for more than 7s. The Pr2 label will be displayed immediately followed from the Hy parameter.
3. Select the required parameter
4. Press the **SET** key to display its value.
5. Use the **UP** or **DOWN** arrow keys to change its value.
6. Press **SET** to store the new value.

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Basic Functions & Navigation Cont...Hidden Menu

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

Label	Name	Range	Default	Level
odS	Outputs activation delay at start up	0 to 255 min	0	Pr2
AC	Anti-short cycle delay	0 to 30 min	1	Pr1
AC I	Second solenoid delay	0 to 255 sec	5	Pr2
rtr	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

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Alarm Codes, Messages & Common Concerns

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LED/Alarm Codes

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.

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How To Order

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How To Order – ERS in Kinnesaw

Part Numbers & Descriptions

Name	Description	Part Number
XW60K - 120	120V with Keypad, 2 NTC Probes and 2 Hotkeys	818-9416
XW60K - 230	230V with Keypad, 2 NTC Probes and 2 Hotkeys	818-9417

*Real Time Clock version optional, 6 to 8 week lead time

Questions

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