K2 SCIENTIFIC

Dixell XR60CX Operating Manual

Thank you for your purchase.
This manual contains: set-up instructions, unit specs, safety information, controller operation and maintenance steps.

K202, K204, K210

IMPORTANT:

Your unit is preprogrammed

Place your unit in the desired location. Plug the unit in and allow it to cool and become stable for a minimum of 24 hours before logging temperature or stocking products.

Be careful when setting or changing temperatures

WARNING: Changing some controller parameters can damage your unit and/or result in a loss of product. K2 will not be held responsible for losses due to unauthorized parameter changes.

Changing advanced parameters may damage the unit or void your warranty. Please contact K2 before attempting to change advanced parameters.

Unfamiliar with the operation of a K2 controller?

Use the video tutorials on our website resources page or call us for assistancee with special parameters.

Some K2 units can be changed from Celsius to Fahrenhiet. We do not recommend changing your unit to Farhenheit. Your controller has operational parameters that rely on data in Celsius to maintain proper function.

11.16.2020

CONTENTS

1 Front Panel Commands - QUICK GUIDE

SET This key displays your target set point. When in programming mode, it confirms an opperation.

This key starts a manual defrost

In programming mode, this key browses parameter codes or increases display value.

AUX In programming mode it browses the parameter codes or decreases the displayed value

LED	MODE	SIGNIFICATO
	On	Compressor enabled
	Flashing	Anti short cycle delay enabled (AC parameter)
	On	Defrost in progress
	Flashing	Dripping in progress
	On	Fans output enabled
	Flashing	Fans delay after defrost
°C	On	Measurement unit
	Flashing	Programming mode
°F	On	Measurement unit
	Flashing	Programming mode

Meaning

Key Combination

- + To lock or unlock the keyboard
- SET + To enter in programming mode
- SET + To return to room temperature display

Basic Parameters

How to see the set point

1. Push and immediately release the **SET** key, the set point will be shown.

How to change the set point

1. Push the SET key for 3s 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 values push the or arrows.
4. To save the new set point value push the SET key again or wait 10s.

How to start the a manual defrost

Push the **DEF** book for 3s and a manual defrost will start.

Advanced Parameters

1. Enter the Programming mode by pressing the SET+ keys for 3s (°C or °F LED starts blinking).
2. Release the keys, then push again the SET+ keys for more than 7s. The L2 label will be displayed immediately followed from the Hy parameter.

(NOW YOU ARE IN THE PROGRAMMING MODE)

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 a key.

2 Parameters - How to change a parameter value

1. Enter the programming mode by pressing SET+▽ keys for 3s. (°C or °F LED starts blinking)
2. Use the up and down keys to select the required parameter. Press the SET key to display its value.
3. Use △ or ▽ to change its value.
4. Press SET to store the new value and move to the following parameter using the up and down arrows.
To Exit: press SET+△ or wait 15s without pressing a key.

Changing advanced parameters may damage the unit void your warranty. Please contact K2 before attempting to change advanced parameters.

Regulation

US Maximum SET POINT: Set the maximum value for set point.
ot First probe calibration: Allows to adjust possible offset of the first probe.
P2 Evaporator probe presence: n= not present; y= the defrost stops by temperature.
oE Second probe calibration: Allows to adjust possible offset of the second probe.
od Outputs activation delay at start up: 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: Minimum interval between the compressor stop and the following restart.
Cy Compressor ON time with faulty probe: Time during which the compressor is active in case of faulty thermostat probe. With Cy=0 compressor is always OFF.
Cn Compressor OFF time with faulty probe: Time during which the compressor is OFF in case of faulty thermostat probe. With Cn=0 compressor is always active.

Defrost

td Defrost type: EL= electrical heater, compressor OFF; in= hot gas, compressor ON.
dE Defrost termination temperature: If P2=Y it sets the temperature measured by the evaporator probe, which causes the end of defrost.
id Interval between defrost cycles: Determines the time interval between the beginning of two defrost cycles.
Md Maximum length for defrost: When P2=n, (not evaporator probe: timed defrost) it sets the defrost duration, when P2 = y (defrost end based on temperature) it sets the maximum length for defrost.
dd Start defrost delay: This is useful when different defrost start times are necessary to avoid overloading the plant.
dF Display during defrost: rt= real temperature; it= start defrost temperature; SP= SET-POINT; dF= label dF.
dt Drip time: Time interval between reaching defrost termination temperature and the restoring of the control's normal operation. This time allows the evaporator to eliminate water drops that might have formed due to defrost.
dP Defrost at power –on: y= at power on defrost starts; n= defrost doesn't start at power-on.

Display

CF 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, oE, o1, AU, AL have to be checked and modified if necessary.**
rE Resolution (only for °C): dE= decimal between -9.9 and 9.9°C; in= integer
Ld Default display: P1= thermostat probe; P2= evaporator probe. SP=Set point (only XR04CX)
dy Display delay: When the temperature increases, the display is updated of 1 °C/1°F after this time.

Fans

FC Fans operating mode: (cn, on, cY, oY) cn= in runs with the compressor, OFF during defrost;
on= Continuous mode, OFF during defrost; cY= runs with the compressor, ON during defrost.
oY= Continuous mode, ON during defrost.
Fd Fans delay after defrost: (0÷99 min) Interval between end of defrost and evaporator fans start.
FS Fans stop temperature: (-55÷50°C / -67°F ÷ 99°F) setting of temperature, detected by evaporator probe, above which fans are always OFF.

Alarms

AU Maximum temperature alarm: When this temperature is reached the alarm is enabled, after the "Ad" delay time.
AL Minimum temperature alarm: When this temperature is reached the alarm is enabled, after the "Ad" delay time.
Ad Temperature alarm delay: Time interval between the detection of an alarm condition and alarm signalling.
dA Exclusion of temperature alarm at startup: Time interval between the detection of the temperature alarm condition after instrument power on and alarm signalling.

Digital Input

iP Digital input polarity: oP= activated by closing the contact; cL= activated by opening the contact;
iF Digital input configuration: EA= external alarm: "EA" message is displayed; bA= serious alarm "CA" message is displayed; do= door switch function; dF= defrost activation; Au= not used; Hc= inversion of the kind of action;
di Digital input delay: With iF=EA or bA delay between the detection of the external alarm condition and its signalling. With iF=do - delay to activate the door open alarm.
dC Compressor and fan status when open door: no= normal; Fn = Fans OFF; cP =Compressor OFF; Fc = Compressor and fans OFF.
rd regulation with door open: n = no regulation if door is opened;Y= when di is elapsed regulation restarts even if door open alarm is present.

3 Alarm Signaling

Code	Cause	Outputs
"P1"	Room probe failure	Compressor output according to “Cy” e “Cn”
"P2"	Evaporator probe failure	Defrost end is timed
"HA"	Maximum temperature alarm	Outputs unchanged
"LA"	Minimum temperature alarm	Outputs unchanged
“EA”	External alarm	Outputs unchanged
“CA”	Serious external alarm	All outputs OFF
“dA”	Door Open	Compressor and fans restarts

Alarm Recovery

Probe alarms **“P1”** and **“P2”** 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”** and **“LA”** automatically stop as soon as the temperature returns to normal values. Alarms **“EA”** and **“CA”** (with iF=bL) recover as soon as the digital input is disabled.

4 Default Setting Values

LABEL	DESCRIPTION	RANGE	DEFAULT
REGULATION			
Hy	Differential	0.1 ÷ 25°C/1 ÷ 45°F	2.0°C / 4 °F
LS	Minimum Set Point	-55°C÷SET/-67°F÷SET	-55 °C /-55°F
US	Maximum Set Point	SET÷99°C/ SET÷99°F	99 °C / 99°F
ot	First probe calibration	-9.9÷9.9°C/-17÷17°F	0.0
P2	Second probe presence	n – Y	y
oE	Second probe calibration	-9.9÷9.9°C/-17÷17°F	0.0
od	Outputs activation delay at start up	0 ÷ 99 min	0
AC	Anti-short cycle delay	0 ÷ 50 min	1
Cy	Compressor ON time faulty probe	0 ÷ 99 min	15
Cn	Compressor OFF time faulty probe	0 ÷ 99 min	30
DISPLAY			
CF	Measurement units	°C - °F	°C / °F
rE	Resolution (only for °C)	dE – in	dE
Ld	Default Display	P1 - P2 - SP	P1
dy	Display delay	0 ÷ 15 min	0
DEFROST			
td	Defrost type	EL – in	EL
dE	Defrost termination temperature	-55÷50°C/-67÷99°F	8.0 °C / 46 °F
id	Interval between defrost cycles	0 ÷ 99 hours	6
Md	Maximum length for defrost	0 ÷ 99 min.	30
dd	Start defrost delay	0 ÷ 99 min.	0
dF	Display during defrost	rt – in – SP – dF	**it**
dt	Drip time	0 ÷ 99 min	0
dP	Defrost at power-on	y - n	**n**
FANS			
FC	Fans operating mode	cn – on – cY – oY	on
Fd	Fans delay after defrost	0 ÷ 99 min	10
FS	Fans stop temperature	-55÷50°C/-67÷99°F	2.0 °C / 36 °F
ALARMS			
AU	Maximum temperature alarm	ALL÷99°C / ALL÷99°F	99 °C / 99 °F
AL	Minimum temperature alarm	-55°C÷ALU/-67°F÷ALU	-55 °C / -55 °F
Ad	Temperature alarm delay	0 ÷ 99 min	15
dA	Exclusion of temperature alarm at startup	0 ÷ 99 min	90
DIGITAL INPUT			
iP	Digital input polarity	cL – oP	cL
iF	Digital input configuration	EA – bA – do – dF – Au – Hc	EA
di	Digital input delay	0 ÷ 99 min	5
dC	Compressor and fan status when open door	no /Fn / cP / Fc	FC
rd	Regulation with door open	n - Y	y
OTHER			
d1	Thermostat probe display	Read Only	---
d2	Evaporator probe display	Read Only	---
Pt	Parameter code table	Read Only	---
rL	Firmware release	Read Only	---

5 How to Use the Hot Key

1. Program one controller with the front keypad.
2. When the controller is ON, insert the "Hot key" and push ^ key; the **"uP"** message appears followed a by flashing **"Ed"**.
3. Push **"SET"** key and the **"Ed"** will stop flashing.
4. Turn OFF the instrument remove the "Hot Key," then turn it ON again.

NOTE: the **"Er"** message 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.

Programming the Hot Key

1. Turn OFF the unit.
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 **"do"** message is blinking followed a by flashing **"Ed".**
4. After 10 seconds the instrument will restart working with the new parameters.
5. Remove the "Hot Key".

6 Fans

• **FC=cn** ➤ Will switch ON and OFF with the compressor and not run during defrost.

• **FC=on** ➤ Fans will run even if the compressor is off, and not run during defrost.

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

• **FC=cy** ➤ Fans will switch ON and OFF with the compressor and run during defrost.

• **FC=oY** ➤ Fans will run continuously also during defrost.

An additional parameter **"FS"** 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 **"FS"**.

Fans and Digital Input

When the digital input is configured as door switch iF=do, fans and compressor status depends on the **dC** parameter value:

• **dC=no** normal regulation
• **dC=Fn** fans OFF
• **dC=cP** compressor OFF
• **dC=Fc** compressor and fans OFF

When **rd=y**, the regulation restart with door open alarm.

7 Defrost **Two defrost modes are listed through the "td" parameter.**

• **td=EL** ➤ Defrost through electrical heater (compressor OFF)

8 Temperature Logging

When storing vaccines you may be required to preform a field validation test. A NIST callibrated external data logger may be used for this purpose. A dayta logger with text, email or online access is an added layer of protection for your product load in the event of a temperature excursion. K2 offers NIST calibrated data loggers to match your unit.

Service

K2 Scientific want to make sure you are happy with your purchase. There are several ways for you to contact us with questions or service needs. Be sure to include your four digit order number or at least your model number handy to speed up the process.

1; Contact us via our chat feature at www.k2sci.com
2: Email support@k2sci.com
3: Call 800-218-7613