K2 SCIENTIFIC

Ultra Low Temperature Freezer Manual

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

K203ULT & K205ULT

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 controller?

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

Some 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.

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CONTENTS

1 Warnings

Important operating and/or maintenance instructions. Read the accompanying text carefully.

Hot surface(s) present which may cause burns to unprotected skin or to materials which may be damaged by elevate temperatures.

Potential electrical hazards. Only qualified persons should perform procedures associated with this symbol.

Extreme temperature hazards, hot or cold. Use special handling equipment or wear special, protective clothing.

Safety Information

• All internal adjustments and maintenance must be performed by qualified service personnel.

• Do not use this appliance for other than its intended use.

• Do not cover the front grille or block the rear air entry by placing object up against the cabinet. Ensure adequate ventilation.

• If the main supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified and skilled persons in order to avoid hazard.

• Do not store explosive substances, such as aerosol cans with flammable propellant.

• Do not use mechanical devices or other means to accelerate the defrosting process.

• Disconnect the main power supply before attempting any cleaning, removal of any covers, or maintenance work.

2 Installation and Operation

Assembly

- Remove the appliance from the packaging and peel off any protective film from all surfaces.

- Ensure that this product is positioned on a level surface, so as to allow the door(s) to shut and seal correctly, as well as to allow proper drainage from the evaporator tray, to prevent any overflow.

Ventilation

- All models must have clear and unobstructed ventilation from the entire surface area of the front grille.

3 Temperature Controller

3 Power and Contacts

SET

- Enter a parameter setting
- Switch between menu and parameter

▲

- Adjust menu and parameters
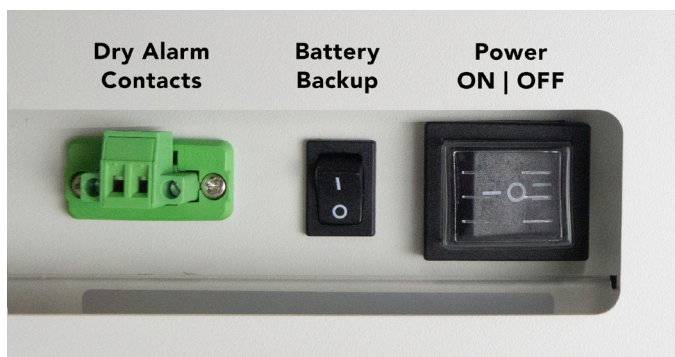- After 3s, parameter setting uploads

▼

- Adjust menu and parameters
- After 3s, parameter setting downloads

RST

- Exit from parameter settings
- Press for 3s to force stop capillary heating output

- Cleat alarm
- The mandatory cooling mode will be activated or 10s

Indicator light status description

Symbol	Status	Meaning
Set	ON	Parameter setting
	OFF	Status of temperature measuring and controlling
	ON	High temperature compressor work
	OFF	High temperature compressor stop
	FLASH	High temperature compresso time delay
	ON	Low-temperature compressor work in non-forced refrigeration mode
	OFF	Low temperature compressor is closed in non-forced refrigeration mode
	FLASH	Forced refrigeration mode
	ON	Capillary heating starts
	OFF	Capillary heating is closed
E2H	ON	High temperature alarm of secondary system condenser
E2P	ON	High temperature protection of secondary system condenser
Erd	ON	Door open alarm
	ON	Grid power supply anomaly
	OFF	Normal power supply

4 Parameters

Temperature parameter setting

Parameters	Description	Min	Max	Unit	Default
St	Temperature set value	C13	C14	°C/°F	-80
A8	Over temperature alarm upper deviation	0.1	20	°C/°F	10
A9	Over temperature alarm lower deviation	0.1	20	°C/°F	10
C13	Set Minimum temperature	-95	C14	°C/°F	-90
C14	Set Maximum temperature	C13	85	°C/°F	-50
C1	Temperature difference	0.1	20	°C/°F	0.4

Setting the Temperature

- Press Set key for 3 seconds. it display the code St.

- Press Set key again to display the temperature SETPOINT. Modify by pressing the UP or DOWN keys.

Changing Parameters - Enter Admin Section

- Press Set key for 3 seconds, it will display the code St.

- Press DOWN arrow to Po. Press Set - 00.

- Press DOWN arrow to password (55). Press Set.

- Choose parameter by scrolling with UP or DOWN arrows. Select parameter by pressing Set.

- Change parameter settings with the UP and DOWN arrow

- When finished changing parameters press Set.

Parameter	Description	Setting scope	Default
User menu			
St	Set cabinet temperature point	LS to US	-80
Administrator menu			
Po	Administrator menu password	(The password is 55 and cannot be changed)	55
C8	Cabinet temp. probe calibration when below 0° **Use this parameter to match temp display with datalogger**	-15.0~15.0	0
C9	Condenser probe calibration (High-temp. compressor loop)	-15.0~15.0	0
C10	Ambient temp. probe calibration	-15.0~15.0	0
C11	High-temp. evaporator probe calibration	-15.0~15.0	0
C13	**The Minimum set temp. of cabinet**	-95.0~C14	-86
C14	**The Maximum set temp. of cabinet**	C13~50.0	-40
C15	Maximum temp. of high-temp. evaporator when low-temp. compressor turned off	C7~10.0	-12
H1	The cycle time of capillary heating wire	1~300	108
H2	The working time of capillary heating wire	1~90	3
H3	Maximum delay time of capillary heating	1~90	60
A3	**Alarm output delay after opening cabinet door**	**0~60**	**1**
A4	Alarm ringback time when the alarm is not cleared	0~60	10
A5	Maximum temp. of over-temp. alarm of ambient (A5>A6)	A6~70.0	40
A6	Minimum temp. of over-temp. alarm of ambient (A6<A5)	-10.0~A5	5
A7	Delay time of over-temp. alarm of ambient	0~60	10
do1	**Door switch controls output**	**0:Cancel door switch** **1:Alarm when the door open**	0
do2	Whether a buzzer response is required when the door is open	0:No 1:Yes	1
Cd1	High temperature alarm starting value of condenser	30.0~Cd3	38

5 Product Description

Model		K205ULT
Technical Data	Cabinet Type	Chest
	Climate Class	N
	Cooling Type	Direct cooling
	Defrost Mode	Manual
	Refrigerant	CFC-Free
Performance	Cooling performance(℃)	-86
	Temperature Range(℃)	-40～-86
Control	Controller	Microprocessor
	Display	LED
Material	Interior	stainless steel
	Exterior	Galvanized steel powder coating
Dimensions	Capacity(L)	128
	Interior Dimensions(W*D*H)	640×450×470 (mm)
	Exterior Dimensions(W*D*H)	820×690×1030 (mm)
	Thickness of Cabinet Foamed Layer	90mm
	Thickness of Door	90mm
Power Supply(V/Hz)		115V/60Hz
Controller Functions	Display	Large digital display & adjusting keys
	High/Low Temperature	Y
	Hot Condenser	Y
	Power Failure	Y
	Sensor Error	Y
	Low Battery	Y
	High Ambient Temp	Y
	Alarm mode	Sound and light alarm, remote alarm terminal
Accessories	Caster	Y
	Test Hole	Y
	Chart Temperature Recorder	Optional
	Door locking device	Y
	Handle	Y
	Pressure balance hole	Y
	Racks & Boxes	Optional

6 Maintenance

Fault	Probable Cause	Action
The appliance is not working	The unit is plugged in correctly	Check the unit is plugged in correctly
	Plug or lead is damaged	Call our agent or qualified technician
	Power supply	Check power supply
	Internal wiring fault	Call our agent or qualified technician
The appliance turns on, but the temperature is too high or too low	Filter or condenser blocked with dust	Clean filter or condenser
	Doors are not shut properly	Check doors are shut and seals are not damaged
	Appliance is located near a heat source or air flow to the condenser is being interrupted	Move the appliance to a more suitable location
	Ambient temperature is too high	Increase ventilation or move appliance to a Low Temperature Freezer position
	Insufficient airflow to the fans	Remove any blockages to the fans
	Appliance is overloaded	Reduce the amount stored in the appliance
	Factory default parameters adjusted	Call our agent or qualified technician
The LED lights not working	Led light short Leaded damage	Call our agent or qualified technician
The appliance is unusually loud	The appliance is touching a neighboring object	Check installation position and chan ge if necessary
	The appliance has not been installed in a level or stable position	Check installation position and change if necessary

Alarm Code

Alarm code	Fault Description
E1	Tank temperature sensor failure
E2	Condensing sensor fails
E3	Ring temperature sensor failure
E4	Evaporator sensor failure
E1H	Tank temperature super high temperature alarm
E1L	Tank temperature super Low temperature alarm
E3H	Ring temperature and ultra high temperature alarm
E3L	Ring temperature and ultra low temperature alarm
E2H	High temperature alarm of condenser
E2P	High temperature protection of condenser
Erd	Door open alarm

7 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 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 at a very affordable rate.

Service

We 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

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