Graphic LCD Temp. Controller

Cold Trap Bath
User Guide Version 1.0

Model
CTB40, CTB80, VCT42, VCT85

LK LAB KOREA

Thank you for purchasing product of LK Lab Korea co.,Ltd.
This User Guide describes your product's function, operation and safe use.
Please read carefully and keep them in mind before you operate products.
In case some parts which need extra care for users, we put some mark as below for the occasion.

This is mark for Dangerous Situation.
If users ignore this, it might cause of serious personal injury or damage for products.

[Warning Mark]

This is mark come up with the situation which needs extra care.
When users recognize this sign, they have to operate more carefully.

[Attention Mark]

[Contents]

1. Preparation

1.1 Instruction

This Cold Trap is designed for experiment with rapid freezing or for protecting Vacuum Pumps from Harmful Substance appeared from Vacuum line.
With various function and safety devices installed,
designed for users' convenience and safety as the biggest priority of this equipment.

1.2 Feature

1.2.1▸ Function and Convenience

- Available to Control Temperature Operating
- Less noise with compact design
- Handy to Maintaining Compressor with Construct with Detachable Front Cover
- Installing Drain Tap for Easier Drain from Bath

1.2.2▸ Safety

- Prevent overload of the equipment by circuit breaker
- Abnormal Situation Occurs, buzzer and message will notice the situation to user

1.3 Structure

Inside Feature before
Bath Cover Applying

Feature after Bath Cover Applying

[Cold Trap Bath]

[1] Temperature Controller

[2] Power Swtich

[3] Bath Cover

[4] Lower Cover

[5] Circuit Braker

[6] Power Cord

[7] Drain tap

[1] Temperature Controller

[2] Power Swtich

[3] Bath Cover

[4] Lower Cover
Detach the cover by knob on cover, there is Condenser inside

[5] Circuit Braker
Break overcurrent

[6] Power Cord
To supply power to the equipment

[7] Drain
Use for draining solutions inside the bath. To open this valve,
rotate to clockwise *Before draining, please check the temperature of
solution. User might get burned.

1.4 Installation

1.4.1▸ Contents of product (with delivery)

> **Main Body-1set, Power Cord-1ea, User Guide-1copy, Drain Key**

1.4.2▸ Installation Environment

- Avoid direct light— Place where with less vibration and flat surface
- Maintain the temperature of surrounding area the product placed between 5 to 40℃
- Maintain the humidity of surrounding area the product placed below RH 80%
- Avoid the place where may occur flammable gas— Avoid the place where may occur noise and high frequency
- Avoid the place where may occur overcurrent or water leak
- Avoid the place where may occur corrosive gas or dust
- Avoid the place where is sealed
- Space around 20cm needed to place the equipment

> ⚠ **/ Place where within 5~40℃ of temperature and below 80% of humidity**

1.4.3▸ Connecting of Power

1) Set power switch as OFF
2) In case the power cord is separated from main body, connect them first and plug the cord to power supply point(outlet)

> ⚠ **/ Before you plug to supply electronic power, please carefully check for electrical specification of equipment and considering the specification.**
> **/ Must use power supply point that completely ground connected. Do not touch the power cord with wet hand**

1.4.4▸ Initial Setting

1) Fully fill the solutions into the bath. (Alcohol)
2) Install Glass Trap.

2. Operation

2.1 Naming and Function of Temperature Controller
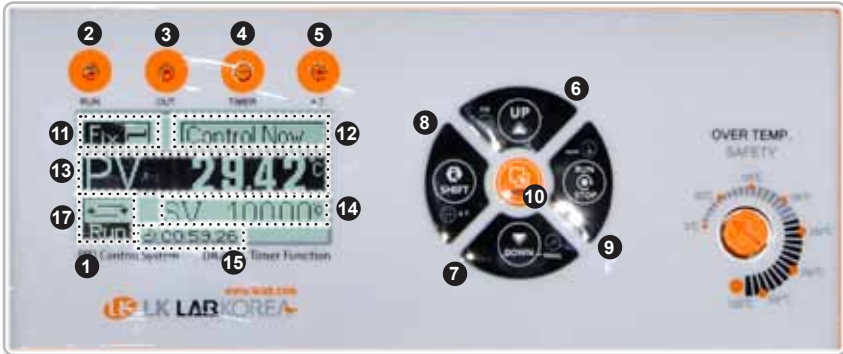
[1] Graphic LCD

Available to check status of the equipment and display data.

[2] Run Lamp

Light on during operation.

[3] Out Lamp

Light during with compressor operated.

[4] Timer Lamp

Light on during timer is operating.

[5] A.T Lamp

Light on during auto tunning.

[6] UP key

Use for increasing of set value.

[7] Down key

Use for decreasing of set value.

[8] Shift key

Use for moving the position of set value and set of Auto-Tuning Mode.

[9] Run/Stop key

Use for operating, stop and set values.

[10] Mode key

Use for changing menu.

[11] Mode Display

User can select one between FIX(one temp.) and
Program(multiple temp.) Mode.

[12] Message Displaying Window

Display of the message related status of the product.

[13] PV Display

Display current temperature of the equipment.

[14] SV Display

Display target temperature the user set.
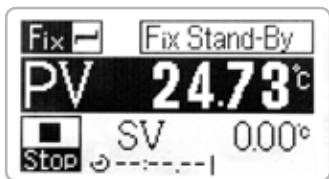
[15] Timer Display

Timer display remain time for operation"--.--.--" means timer off.
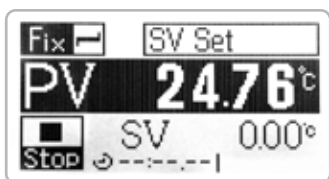
[16] RUN/STOP Display

Display the status RUN or STOP.

2.2 FIX MODE(one temp. operation) / Operation Method
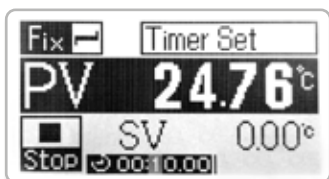
Check the mode status and if not set as FIX MODE, press 'UP KEY' for 3 seconds to change FIX MODE.
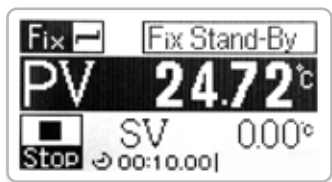

· Fix Mode Stand-By

· SV Set Mode
  - Set SV Value.

· Timer Set Mode
  - Set Time Value.

· Fix Mode Stand-By

· Start Running

2sec.
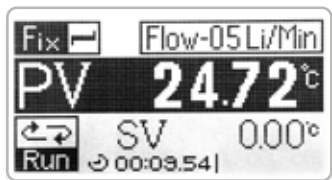
2.3 Program MODE(multiple temp. operation) / Operation Method

Check the mode status and if not set as PROGRAM MODE,
press 'DOWN KEY' for 3 seconds to change PROGRAM MODE.

· Program Mode Stand-By

· End Step Set mode
 - Set number of steps
 - As number of steps set,
   user can set temperature steps.

· Step-1 SV Set mode
 - Set number of steps
 - As number of steps set,
   user can set temperature steps.

13

· Step-1 Timer Set mode
  - Set time value for Step - 1

· Step-2 SV Set mode
  - Set SV Value for Step - 2

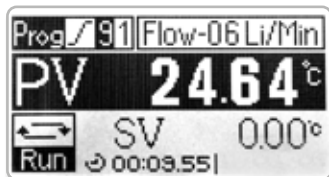· Step-2 Timer Set mode
  - Set time value for Step - 2

· With same method, set values till the last step.

· Program Mode Stand-By

2Sec.

· Start Running

2.4 Additional Function

Auto Tuning is provide the best value for P.I.D Gain after calculation with considering treat environment automatically,
so that user can experiment more accuracy and quickly.
Calculated Gain value is saved automatically, if user wish to same experiment once again, the user need only tuning once.
Auto Tuning is only available during RUN session.
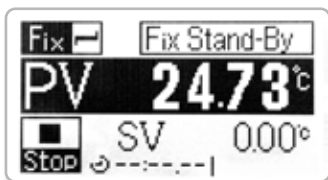
· Fix control mode
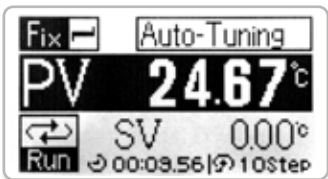
· Start with Auto-Tuning message.

* After the Auto-Tuning, the equipment will operate with set temperature.

* In case stop Auto-Tuning, apply Shift and RUN/STOP at the same time.

/ During Auto-Tuning, due to calculate, in order to reach set temperature Heater gives 100% output, so temperature go higher than set value.

3. Maintain

3.1 Maintaining after Use

[1] After treat, Power Switch have to be turned off.

[2] If the equipment contaminated plug off the Power Cord and cleaning with Alcoholic liquid.

[3] If the equipment would not be used for a long time, plug off the Power Cord and cleaning and store the equipment.

> ⚠️ / Do not use strong acid ,alkaline or volatility solution for cleaning the equipment.
> Also completely dry the equipment after cleaning.
> *Using soft brush when you clean the Compressor Condenser.

3.2 Disorder and Solution

3.2.1▸ Power On Disorder

1) Please check power supply.

2) Please check if Earth Leakage Breaker is 'ON'.

3) Please check if Power Switch is 'ON'.

4) Please check if Power Cord is well connected with main body.

5) Please check if the consent's breaker is 'ON'.

6) If no problem with the check list above, contact our Technical Support Department.

3.2.2▸ Earth Leakage Breaker is keeping short continuously

1) Contact our Technical Support Department.

3.2.3 ▸ Temp. Control Disorder

1) Please operate Auto-Tuning.
2) If still not working after those solution above, contact our Technical Support Department.

3.2.4 ▸ Sensor Open Error

1) Sensor Open error

*Occur when there's some problem with sensor.
 Please contact our Technical Support Department.

2) LBA(Control Routine Breaking Down Alarm)

*Occur when there's some problem with compressor
 Please contact our Technical Support Department.

3.3 After Sales Service(A/S)

[1] Warranty

Warranty period is expired by 1 year after purchasing equipment.
After 1 year, cannot get warranty repairing service. User has to pay for
replacing parts or repairing work. Within warranty period, user can get
service from LK Lab Korea's Technical Support Department or Supplier of
the equipment.

[2] Exceptional Case of Warranty

Damage or defective by fire or inundation, carelessness usage,
don't use standard liner power supply recommended, operation at
abnormal condition, misuse or unskilled usage cannot be get warranty
service.

[3] Applying A/S

Firstly, contact to our Technical Support Department or Supplier of the
products and inform detailed sympathy with contact of user by mail or
fax. After receipt of A/S inquiry, our technician quotes and user decides
after get quoted. The product after 2 weeks from receipt of A/S inquiry
without response will be return to the user.

⚠️ / In case apply A/S, user have to inquire to our Technical Support
Department or Supplier of the equipment. If user randomly
disassembles or changes parts inside, repair of equipment cannot
be available.
Disorder or defective out of reasonable ranges, cannot be
available to repair.

Technical Support Department of LK Lab Korea Co.,Ltd: +82 31 572 4952

4. Specification

Cat. No	Model	Capacity	Temp.
B04-01-230	CTB40	4.2 L	Down to -40℃
B04-01-240	CTB80		Down to -70℃

Cat. No.		B04-01-230	B04-01-240
Model		CTB40	CTB80
Capacity		4.2 L	
Controller	Control	PID Control, Autotuning	
	Resolution	0.1℃	
Temperature	Range	Down to -40℃	Down to -70℃
Dimension	Internal	Φ210×h220 mm	
	External	w340×d440×h680 mm	w450×d640×h750 mm
Electric Supply	Power	1 Phase / 220~230 VAC / 60 Hz	
	Max Consumption	400 W (1.9 A)	800 W (3.7 A)
	Power Line	Standard Plug	
Material	Interior	304 Stainless Steel	
	Exterior	Powder Coated Steel	
Other	Drain	1/4" Hose Nipple Male	

* To Condensate of Harmfulness Substance or Fume from Vacuum Line

* Precision Temperature Control by PID Temp. Controller

* Using 2 Handy Glass Trap(Including with Delivery)

* Compact Type Cold Trap with Lower Noise

* Handy to Maintaining Compressor with Construct with Detachable Front Cover

* Installing Drain Tap for Easier Drain from Bath

* Product Liability Insurance

Cat. No	Model	Capacity	Temp.
B04-01-310	VCT42	4.2 L	Down to −40℃
B04-01-320	VCT85		Down to −70℃

Cat. No.		B04-01-230	B04-01-240
Model		CTB40	CTB80
Capacity		4.2 L	
Controller	Control	PID Controller, Autotuning	
	Resolution	0.1℃	
Temperature	Range	Down to −40℃	Down to −70℃
Dimension	Interior	Φ210×h220 mm	
	Exterior	w340×d400×h680 mm	w450×d640×h750 mm
Electric Supply	Power	1 Phase / 220~230 VAC / 60 Hz	
	Max Consumption	400 W (1.9 A)	800 W (3.7 A)
	Power Line	Standard Plug	
Material	Interior	304 Stainless Steel	
	Exterior	Powder Coated Steel	
Other	Drain	1/4" Hose Nipple Male	

* To Condensate of Harmfulness Substance or Fume from Vacuum Line

* Handy to Maintaining Compressor with Construct with Detachable Front Cover

* Installing Drain Tap for Easier Drain from Bath

* Product Liability Insurance

K·BIZ 중소기업중앙회

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