BENCHY CARBON

Instruction manual

Portable 12V / 24V / 240V keg system

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Tap That Brewery & Keghouse
1/10 Ern Harley Dr, Burleigh Heads QLD 4220
0481 583 979 · cheers@tapthatbrewery.com.au

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This is the manufacturer's original manual, supplied by Tap That Brewery & Keghouse.
Always follow the manufacturer's safety and installation instructions.
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ECS-961neo Temperature controller

1、Description

ECS-961neo has user menu and administrator menu. User menu is used to adjust the temperature.The administrator menu will be only active with the correct password, it can help the user avoid to operating the controller mistake.

ECS-961neo has a very big display screen with the compressor and defrost indicator light which help the user check the statues of the refrigeration units easily.

2、User interface



Install size: 71mm×29mm controller size: 78.5mm×34.5mm×41mm

3.Technical date sheet

- Display range: -50℃～99℃（when the correction =0）
- Resolution: 0.1 or 1℃
- Accuracy: (-40℃～50℃): ±1℃; (51℃～70℃): ±2℃; others: ±3℃
- Measuring range: -50℃～99℃
- Power: 12VDC/24VDC
- Analogue inputs: 1 NTC sensor
- Water proof of front face: IP65
- Working temperature: 0℃ ～55℃
- Storage: -25℃～75℃
- Relative humidity: 20%～85%（no frost）

4、Indicator light

Light	Symbol	state	Meaning
Set light	set	Permanently on	Parameter setting
		off	Status of temperature measuring and controlling
Compressor light	❄	Permanently on	Compressor active
		off	Compressor turn off
		Flashing	A delay
Defrost light	❄	Permanently on	Defrost active
		off	Defrost turn off

5.Parameters

Menu	Description	Range	Defaults	M.U
User menu				
SEt	Temperature control set point	LSE～HSE	4.0℃	℃
Administrator menu				
PA1	Password	00～250	-	/
diF	Compressor relay activation differential	0.1℃～30.0℃	2.0	℃
HSE	Max value of the set point	SEt～99.0	90.0	℃
LSE	Min Value of the set point	-50.0～SEt	-50.0	℃
Ont	Ont: controller on time for fault probe; OFt: controller off time for fault probe; Ont=0, Oft= any: compressor off ; Ont≠0, OFt=0: compressor remains on;	0～250	0	min
OFt	Ont≠0, OFt≠0:compressor in duty cycle;	0～250	1	min
dOF	Compressor relay activation delay	0～250	0	min
OdO	Delay in activation output after the instruments is switch on	0～250	0	min
dit	Defrost cycle	1～250	6	hour
dCt	Selection of count mode for the defrost interval ： 0= compressor running time 1= natural time 2=compressor closing time	0/1/2	1	/
dOH	Delay for start of first defrost after request.	1～59	1	min
dEt	Defrost time; dEt=0 means that defrost is forbidden	0～250	30	min
dPO	Determines whether the instrument must enter defrost mode at start-up	n/y	n	/
LOC	Basic commands modification lock. y = yes; n = no.	n/y	n	/
PA1	Password setting	0～250	5	/
ndt	Decimal point display	n/y	y	/
CA1	Calibration1. Value to be added to the value read by probe 1	-12.0～12.0	0	℃
ddL	Display mode during defrost: 0=display real temperature of room; 1=display the temperature when start to defrost ,defrost closing and room temperature ≤the setting temperature, then will display the real temperature; 2=display “dEF” defrost closing and room temperature ≤the setting temperature ,then will display the real temperature;	0/1/2	1	/
HC	Cooling /heating	0：cooling 1：heating	0	/

Note:if the product default parameter value is adjusted, this manual will no longer be marked.

6、KEYS

6.1 KEYS

Name	Function	Action	Led
Set	Set enter	Press and release	**Set** light on
	Enter into the administrator menu	Pressing at least 5s	**Set** light on
	Opens Programming menu Confirm commands	Press	**Set** light on
▲	Scroll menu items Increases values	press	**Set** light on
	Upload the date to hot key	Pressing 3s	Success“uP”、fail “Er”
▼	Scroll menu items Increases values	press	**Set** light on
	Download the date from hot key	Pressing 3s	Success“do”、fail “Er”
❄	Quit from user menu	press	**Set** light off
	Activates the manual defrost function	pressing 3s	❄ light on or off
▲+▼	The values of user menu parameters recovery	Pressing 10s	“rSt”

6.2 Key operation

Set the temperature

a) Press and release “Set” to enter into the user menu, “set ” light on and display “SEt”.(Note： if LOC=n , it will display “LOC” and the value can’t be modified)

b) Press “Set” key will display the value of “SEt” .

c) Press ▲/▼ key to adjust the value of “SEt”.

d) Press ❄ key or waiting 30s to save the set point value and return to display status.

Enter password

a) Pressing “Set”key 5s, will display PA1.(Enter the correct password to enter into the administrator menu. If Password setting (PA1≠0), will display PA1. If Password setting(PA1=0), will enter into the administrator menu directly)

b) Press “Set” key will display “00”, then press “▲”/“▼” to enter the password.

c) After finishing to entering the password, press “Set” key will display PA1, if the password is correct ,then will enter into the administrator menu. Press ▲ or ▼ to choose the parameters: diF->HSE->.....->CA1->ddL; or the controller will quit from the setting status.

Universal password: 125

Parameter value set

a) Choosing the parameter code and press “Set” key.

b) Press ▲/▼ to adjust the value.

c) Press “Set” key to return the parameter display status.

d) Press ❄ or waiting 30s to save the set point and return to the temperature display status.

Parameter value recovery

a) When the controller in the temperature display status , pressing both ▲+▼ 10s, will display rSt code . it means that the controller already recovery.

b) When using the CPK-4 hot key to program the controller, it will auto double backup parameters.

c) The first is use to drive the controller and the second will use to recovery the controller.

d) Connect CPk-4 again and download the data if you want to modify the second backup parameter.

Manual Defrost function: pressing ❄ key 3s defrost will on or off.

Copy card

Upload (from the controller to copy card)

a) Program the controller first by hands;

b) Connect the copy card and pressing ▲ key until display “ uP” code;

c) After 5S , pull up the copy card;

Download (from the copy card to the controller)

a) After connecting the copy card, pressing ▼ key until display “ do” code;

b) After 5s, pull up the copy card;

Note: If it displays“Er”, it indicates the failure of programming. At this time, you need to check whether the copy card is reliably inserted, if yes, repeat the above steps again.

If it displays“EP”, it indicates inconsistent data between copy card and controller, programming fails. At this time, need to change to the right copy card and repeat the steps above; or upload the data of copy card again, and repeat the steps above.

And during this time , should provide a stable power and copy card is well connection .

7.Output instruction

Cooling/heating：

Normal status:

HC = 0 , cooling：

When the cabinet temperature is higher than the set temperature (SEt) + hysteresis (diF), and finish the compressor start Min. interval, the compressors will start ;

When the cabinet temperature is lower than the set temperature (SEt), the compressor will close.

HC = 1, heating ：

When the cabinet temperature is lower than the set temperature (SEt) , and finish the compressor start Min. interval, the heating will start ;

When the cabinet temperature is higher than the set temperature (SEt)+ hysteresis (diF), the heating will close.

Note: if the compressor is the first time power on, compressor delay time will according(OdO) or the compressor delay time will be according (doF).

Probe failure: Compressor will running according the set time cycle.

If Ont=0 and OFt=0, compressor will be always close.

If Ont=0 and OFt≠0, compressor will be always close.

If OFt=0 and Ont≠0, compressor will be always running.

Defrost:

1） dEt=0, defrost is forbidden.

2） dEt≠0, defrost will be activation according any below conditions:

a) If dPO=y, defrost will start after running out the time of defrost delay(dOH).

b) After running out the time of “dit”, will start the defrost function.

Note: defrost cycle (dit) and (dOH) will according dCt(0,1,2).

c) Pressing ❄ 3S, start to defrost.

3) In the state of defrost (Any of the following condition could close defrost):

① Will close the defrost when run out the time of dEt.

② Will close the defrost function if pressing ❄ key 3S.

4) Compressor start to work after the defrost.

Note: the status of display during the defrost :

ddL=0: display the real temperature.

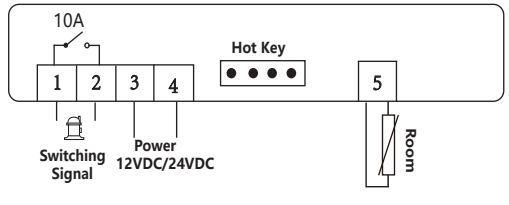
ddL=1: display the temperature when start to defrost, defrost closing and room temperature ≤the setting temperature, then will display the real temperature.

ddL=2: display “dEF”, defrost closing and room temperature ≤the setting temperature, then will display the real temperature.

8.special display code

E1	Probe failure
Er	Copy card failure
EP	Copy card date can’t match controller data
rSt	Parameters already recovery
do	Upload succeed
up	Download succeed
LOC	Room temperature set locked

9.Wiring diagram (Refer to the actual product.)



10. Safety rules

★Danger:

1) Strictly distinguish the power wire, relay output, sensor down-lead and data line, and the relay could not be overloaded.

2) Prohibit connecting the wire terminals without electricity cut-off.

★Warning:

Prohibit using this unit under the environment of over damp, high temp, strong electromagnetism interference or strong corrosion.

★Notice:

1) The power supply should conform to the voltage value indicated in the instruction, and make sure a steady power supply.

2) To avoid the possible interference, the sensor down-lead/data line and power wire should be kept in a proper distance.