C1206-F MANUAL

1. Introduction

1.1 Application
   • The controller is used for temperature control refrigeration appliances in supermarkets
   • With many predefined applications one unit will offer you many options. Flexibility has been planned both for new installations and for service in the refrigeration trade

1.2 Principle
The controller contains a temperature control where the signal can be received from one or two (max can be received from two sensors) temperature sensors.
A measurement of the defrost temperature can be obtained directly through the use of an S2 sensor. Two relays will cut the required functions in and out.
   • Refrigeration (compressor or relay)
   • Defrost

1.3 Advantages
   • Many applications in the same unit
   • The controller has integrated refrigeration-technical functions, so that it can replace a whole collection of thermostats and timers
   • Buttons and seal imbedded in the front
   • Can control compressor and defrost
   • K1 cooling/heating mode optional
   • 485 communication, monitor the controller
   • Quick setup

2. Operation

2.1 Main Sensor
   One sensor can be connected to the controller.

2.2 Defrost sensor
The best signal concerning the evaporator's temperature is obtained from a defrost sensor mounted directly on the evaporator. Here the signal may be used by the defrost function, so that the shortest and most energy-saving defrost can take place. If a defrost sensor is not required, defrost can be stopped based on time.

2.3 Start of defrost
A defrost can be started in different ways

Time Interval defrost: Defrost is started at fixed time intervals, say, every sixth hour
Temperature defrost: S2 temp the efficiency of the evaporator can be followed. Icing-up will start defrost.
Manual defrost: An extra defrost can be activated from the controller's defrost 🔆 key(manual defrosting starting only when there is no defrosting, and the parameter of the time length is dd).

All the mentioned methods can be used at random – if just one them is activated a defrost will be started.
   *When starting up, the default is that it has just finished defrosting.

2.4 Working mode of Relay K1
   When the parameter **C-H** is set to 0, the working mode of K1 is cooling. When the temperature of S1 is higher than the set temperature (**sp**) plus difference value (**dIF**), K1 operates. When the temperature of S1 is lower than set temperature (**sp**) minus difference value (**dIF**), K1 doesn't operate.
   When the parameter **C-H** is set to 1, the working mode of K1 is heating. When the temperature of S1 is lower than the set temperature (**sp**) minus difference value (**dIF**), K1 operates. When the temperature of S1 is higher than the set temperature (**sp**) plus difference value(**dIF**), K1 doesn't operate.
   *When the temperature reaches the point of closing the relay, we could only cut the relay K1 under the condition that the working time of K1 is more than the minimum working time（**ot**）
   *When the temperature reaches the point of operating the relay, we could only operate K1 under the condition that the closing time of K2 is more than the minimum rest time(**rt**）, or that the

closing time should be more than the dropping time（**dp**） if it is after defrosting or starting-up the machine.

2.5 Abnormal State：

1. Sensor Error. When there is something wrong with any sensor, it will display error '**E**'. Meanwhile it will display the normal sensor '**S**'. It will display '-'for the unused sensor.

    For instance, when displaying '**S-E**', it means that S1 is in normal state,and S2 is wrong.

    when displaying '**E--**', it means that S1 is wrong,and S2 is unused.

    ***If S1 is wrong,the K1 will works 45 minutes and stop 15 minutes.**

2. **Pre**   Enter the parameter-set optional dFu. Choose 1 to return to the parameter default, and then set the parameter again.

    ***When 2 happens ,the K1 will works 45 minutes and stop 15 minutes.**

3. **LLA**   shows that the temperature is below the minimum alarm temperature(**LS**), and surpasses the alarm timelag (**At**).

4. **HHA** shows that the temperature is above the maximum alarm temperature(**US**), and surpasses the alarm timelag (**At**).

3. 1   FRONT PANEL

Comp.
Def.
Setup

SET: In programming mode it selects a parameter or confirm an operation.

        Push the **SET** key 3 second ,to display target set point(**sp**);

▲(**UP)**:   in programming mode it browses the parameter codes or increases the displayed value.

▼ (**DOWN**):   in programming mode it browses the parameter codes or decreases the displayed value.

         Push the   key 3 second will have an extra defrost. Push the   key will show the temperature of S2.

KEY COMBINATIONS:

▲ + ▼   To lock & unlock the keyboard**.**

SET +▲   To enter in programming mode.

SET +▼   Enter the latest alarm record

3.2   USE OF LEDS

Each LED function is described in the following table.

LED	MODE	FUNCTION
❄	ON	Compressor on
❅	ON	Defrost on
SET	ON	Setup

3.3   HOW TO SEE THE SET POINT（SP） AND MODIFY THE SET POINT

    1. Push and immediately release the **SET** key 3 second: the display will show the Set point value;

    2. The display start lighting;

    3. Return the Set key push the **SET** or narrows within 10s.

    4. To save the new set point value push the **SET** key again.

3.4 HOW TO CHANGE THE PARAMETER VALUE

    1. Push the **SET+▲** key enter the parameters of regulator.

    2. Select the required parameter with ▲ or. ▼

    3. Press the **SET** key to display its value

    4. Use ▲ or ▼ to change its value.

    5. Press **SET** key to store the new value and return to parameters of regulator

    6. Select **End** exit the setting or wait 10s without pressing a key.

3.5 HOW TO LOCK THE KEYBOARD

1. Keep the ▲and ▼ keys pressed together for more than 3 s the ▲ and ▼ keys.
2. TO UNLOCK THE KEYBOARD
Keep the ▲ and ▼ keys pressed together for more than 3s.

3.6 HOW TO SEE THE STATE OF THE ALARM(HACCP)

1. Press **SET +▼ for the latest alarm record**.
2. ▲ or ▼ to choose the record wanted
3. Press **SET** for entry
4. Press **SET** for exit
5. Choose **END** to exit from the menu
HT temperature of the latest high temperature alarm
H1 time of the latest high temperature alarm(hour)
H2 time of the latest high temperature alarm(minute)
LT temperature of the latest low temperature alarm
L1 time of the latest low temperature alarm(hour)
L2 time of the latest low temperature alarm(minute)
End exit from the parameter

4. PARAMETER LIST

Us: Upper alarm limit. Here you set when the alarm for low temperature is to start. range: -39-60 ,The default is 60℃.

Ls: Lower alarm limit. Here you set when the alarm for high temperature is to start. range: -40-59℃, The default is -40℃

dFb: No changed.

dFe: No changed.

CA1: Correction of signal from S1 . Compensation possibility through long sensor cable range:-10-10℃ The default is 0

CA2: No changed.

dIF: If **C-H** set as 0, when the temperature is higher than the **sp + dIF**, the compressor relay will be cut in. It will cut out again when the temperature comes down to **sp - dIF**.
If **C-H** set as 1, when the temperature is lower than the **sp - dIF**, the compressor relay will be cut in. It will cut out again when the temperature comes down to **sp + dIF**.
range: 0-10℃ The default is 1.5℃

rt: Compress Min. OFF-time (in minutes) range: 0-255 min, The default is 2 min.

ot: Compress Min. On-time (in minutes). range: 0-255 min, The default is 0 min.

At: Temperature alarm delay range: 0-245 min The default is 60min.

dE: Interval between defrost cycles range: 1-48 hour, The default is 24 hours.

dd: length for defrost. If dd = 0,the defrosting will not happen. range: 0-245min The default is 0 min

dp: Drip-off time. Here you set the time that is to elapse from a defrost and until the compressor is to start again. (The time when water drips off the evaporator), range:0-255min, The default is 0.

dfs: the display mode during defrosting range: 0-3 The default is 1
0 normal display during defrosting
1 during defrosting, display the temperature before S1 defrosting until the defrosting is over.
2 display dEF during defrosting

dft: Defrosting Mode Optional range: 0 The default is 0
0 Time Defrosting, No changed.

C-H: The working mode of Relay K1 range: 0-1 The default is 0
0 cooling mode
1 heating mode

C-F: C/F Optional range: 0-1 The default is 0
0 C
1 F

Con: Instrument No. range: 1-300 The default is 1

dFu: range: 0-1

   1 back to the state out of factory.

        0 no changed

END: exit the program parameter setting

6.. INSTALLATION AND MOUNTING

Instruments shall be mounted on vertical panel, in a 71x30 mm hole, and fixed using the special bracket supplied. To obtain an IP54 protection grade use the front panel rubber gasket as shown in fig.3.

The temperature range allowed for correct operation is õ060 °C. Avoid places subject to strong vibrations, corrosive gases, excessive dirt or humidity. The same recommendations apply to probes. Let air circulate by the cooling holes.
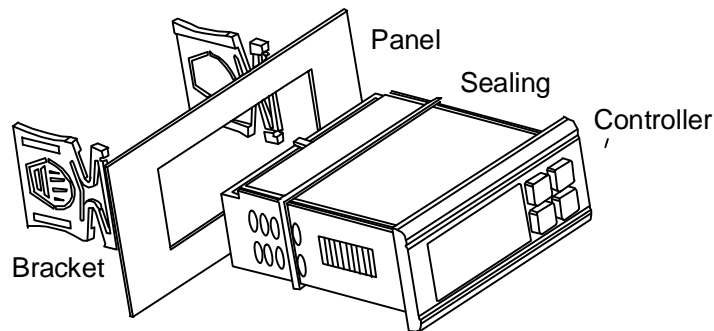
7.Technical Data：

Case Material ：	Fire resistance black ABS
Case Size：	75×38×70
Mounting：	Mounting size 71×30
Protective classification：	Front，IP54
Connection：	Screw terminal
Working Condition：	-10℃～55℃，RH＜85％，no condensing
Storage Condition：	-10℃～70℃，RH＜85％，no condensing
Measure Range：	-40℃～60℃/-40-140F
Resolution：	0.1 ℃/F
Power Supply：	220VAC,±10％,50/60Hz
Power Consumption：	no more than 2W
External Fuse：	0.5A
Shockproof：	qualified to the demands of I and II instruments
Heat Insulation and Fire Resistance：	D
Relay Connection：	220v，16A
	220v，10A
Input ：	1 NTC , Four keys
Output：	2 normal opened contact
Display：	three- bit LED nixie tube display of the integer temperature between -40and 60℃/F，
COMMUNICATION：	485

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Connection Fig.

CONTROLLER

16A   10A
250VAC 250VAC

K1   K2   Sensor NPT   RS485

1   2   3   4   5   6   7   9   10

Comp.   Def.   S1

Power
220VAC/50Hz   -   +