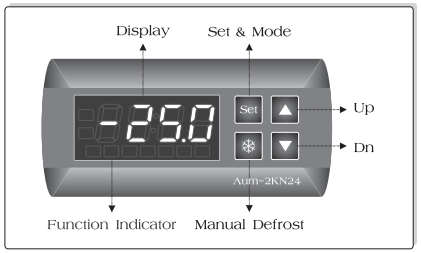
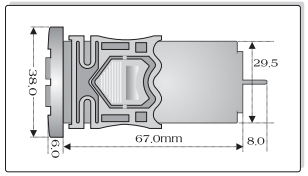
Manual for dimensions & functions

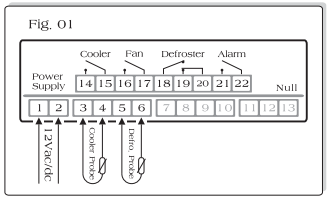
Page No.1 ISO INNOBIZ Mod. : Aum-2KN24

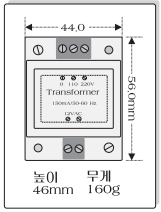


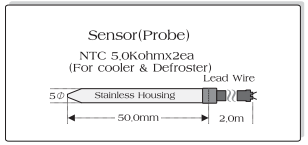




*. Body Color : Black
*. Drilling Template : B.70.5xH.30.0xDepth75.0mm







Please be sure to read and fully understand the notices before using it.

Model "**Aum-2KN24**" is for cooler, De-froster, Fan, **High** and **Low** alarm.

a. When "**Aum-2KN24**" is connected to input power **12vac/dc** and a sensor is connected, present temperature detected on the sensor will be displayed on the display.
b. When pressing "**Set**" key. "Selection Value ⇨ Differential ⇨ Present Temperature" will be displayed one after another. To select "Calibration" mode, press "**Set**" key for **5** seconds in "Selection Value". If pressing "**Set**" key while pressing "❄" key, you can choose functions in reverse order one after another.

c. After selecting a function by pressing "**Set**" key, revise the value by pressing "▲/▼" key. Then, press "Set" key again to complete the setting.
If not, the previous set values will work continuously.
d. Defrost interval will start from the set time and restart after the completion of defrost and drain. "**dEFr**" will be displayed during defrost, drain and **10** minutes after that.
However, if the temperature in a chamber is lower than the set selection value, "**dEFr**" will be turned to present temperature automatically.

f. To defrost manually, set defrost interval as "**n-no**"(**Zero**) and press "❄" key for **5** seconds to turn it **ON/OFF.**
If stopping defrost manually, the drain time will be omitted and it will be turned to cooler mode. If pressing "▲" key, you can check the present temperature in the chamber during defrost. If pressing "▼" key, you can check the temperature of the defrost sensor.
g. If De-**F**rost End **t**ime(**No.12**) is set, it will terminate defrost preferentially than Defrost End temperature(**No.11**).

h. To prepare the case that a defrost probe has trouble, be sure to set De**f**rost End **t**ime.
I. If it exceeds the set value of High/Low Alarm, the alarm relay will be turned on and **-Hi-**/**-Lo-** and present temperature will be displayed by turns. If the sensor for cooler is disconnected or short, "**Err1**" will be displayed on the display.
If the defrost sensor is disconnected or short, "**Err2**" will be displayed on the display.
Alarm relay for signal will operate after **No.7** alarm delay according to **No.8** alarm mode.
To stop alarm signal, press "▲" key.
It will reset automatically if it returns to the range of **High**/**Low** alarm.
j. After the completion of defrost, you can set **F**an **d**elay(**No.15**) and Fan mode(**No.16**).

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Method of program loading

Page No.2 Mod. : Aum-2KN24

No.1 : Selection Value(SV)
Range : **-50.0~100.0℃**
Apply : Compressor

a. Select it by pressing "Set" key and revise the value by pressing "▲/▼" key. Press "**Set**" key again to complete the setting.
b. The Selection value is as follows; **-50.0**<(S.V)+(Dif)+(Ca)<**100.0℃.**



No.2 : Differential(Dif)
Range : **0.3 ~ 12.7℃**
Apply : ± Selection value

a. The Dif. value will be applied to above and below of selection value : (**S.V**)±(**Dif**). For instance, if selection value is 5.0, "Dif" is 1.5, the working range of temperature will be **3.5~6.5℃.**
At least, **0.5℃** is recommended to protect mechanical system.



No.3 : Calibration(Ca)
Range : **0.0 ~ +/-6.3℃**
Apply : +/-Present temp.

a. Its purpose is to correct the differences of present temperature that happen when the lead wire of a sensor for the temperature has been extended considerably.
b. The extended sensor requires being installed in a long distance and keep it away from a generator or an electrical noise.
c. To select functions below calibration, press "**Set**" key for **5** seconds in "**SV**".



No.4 : Time Delay(Pr)
Range : **Pr00~15**minutes
Apply : Delay of Cooler Operation

a. This function **Pr**otects a machine from damage that can be resulted from frequent stops and restarts by delaying the operation of a relay during the set value. The relay won't operate for the set value of Time Delay from the time of "**OFF**" of the relay.



No.5 : High Alarm(Hi)
Range : **S.V ~ 100.0℃**
Apply : Alarm relay "ON"

a. If the present temperature exceeds the high limit, the high alarm indicator "-Hi-" and present temperature will be displayed on the display by turns. At that time, **relay 2** for alarm will operate according to **No.8** alarm mode. To stop the alarm, press "▲" key.
If it becomes less than the set value, it will reset automatically.



No.6 : Low Alarm(Lo)
Range : **-50.0 ~ S.V**
Apply : Alarm relay "ON"

a. If the present temperature exceeds the low limit, the low alarm indicator "-**Lo**-" and present temperature will be displayed on the window by turns. At that time, **relay 2** for alarm will operate according to **No.8** Alarm mode. To stop the alarm, press "▼" key.
If it becomes more than the set value, it will reset automatically.



No.7 : Alarm Delay(Ad)
Range : **Ad00~63**minutes
Apply : Alarm delay

a. It should be set when **A**larm **d**elay will be needed for a certain period to achieve the selection value because of initial operation and replacement.



No.8 : Alarm mode(Al)
Range : **AL-C / AL-F**
Apply : Signal mode

a. Select **Al**arm signal when it exceeds the High/Low limitation value (**AL-C** : Continuity, **AL-F** : Flick).
Alarm will operate after the set time of **No.7** Alarm delay passes.
b. Press "▲" key to stop alarm while operating.



No.9 : Defrost method(th)
Range : **Heater / Hot Gas**
Apply : Defrost method

a. You can choose a defrost method between **Electric Heater=th:EL** / **Hot gas=th:in** by pressing "▲/▼" key.
b. In **Hot Gas** method, relays for compressor and defroster will be **ON/OFF** at the same time.
Please make sure to check and select the Defrost method.



No.10 : Defrost Interval
Range : **n-no~255**hours
Apply : Interval of defrost

a. Defrost interval restarts from the time of completion of defrost and drain.
b. To operate manually, set defrost interval as **Zero**(**n-no**).
Press "❄" key for **5** seconds to operate or stop manual defrost.



No.11: Defrost End(E)
Range : **E01.2 ~ E26.7℃**
Apply : End by temp.

a. To terminate defrost, set the estimated **E**nd temperature value of the defrost sensor.
b. Press "▼" key to check the temperature of the defrost sensor.



No.12 : Defrost End(Ft)
Range : **Ft01~63**minutes
Apply : End by time

a. To prevent the case that it doesn't return to cooling mode due to the trouble of the defrost sensor, De-**F**rost End by **t**ime should be set. It terminates defrost preferentially than temperature.
Set longer Defrost End by time than Defrost End by temperature.



No.13 : Drain Time(dr)
Range : **dr00~10**minutes
Apply : Draining time

a. Set **dr**ain time to naturally dry remaining droplets at an evaporator after Defrost End by time or temperature.



No.14: Defrost Interlock
Range : **dc:on~dc:OFF**
Apply : Defrost Interlock/ separate Defrost

a. When operating the defrost of controllers in a group simultaneously, set it as "**dc:on**(defrost chain : "**On**"). When operating the defrost of controllers in a group separately, set it as "**dc:oF**"=defrost **chain:Off**).
b. Set the defrost of Cont=Master as "**dc:on**" all the time.

N/A



No.15 : Fan delay(Fd)
Range : **Fd00~Fd15**min.
Apply : ❄⇨Comp.⇨Delay

a. Fan will operate after being delayed for the set value of **F**an **d**elay after the complete of defrost and drain. When the cooler is operating, it will operate according to **No.16** Fan mode.



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Method of program loading

Mod. : Aum-2KN24

No.16 : Fan mode(Ft)
Range : **Full / FL:In**
Apply : Full / Comp.+Fan

a. When operating cooler and fan simultaneously, set it as "**FL:In**". When operating fan during cooling functions except defrost regardless of the operation of cooler, set it as "**FULL**".



No.17 : Celsius/Fahrenhuit
Range : **Cels / Fahr**
Apply : Present temp.

a. Celsius(▲) : **-50.0~100.0°C,** Fahrenheit(▼): **-58.0~212.0°F.**



No.18 : Cont/Slave
Range : **Cont=Master/Slave**
Apply : Master / Slaves

a. Only one controller should be set as "Cont=**Master**" and the others should be set as Slav(Slave).
b. While Cont=Master is controlling the connected controllers, "**Set+Dif**" LED will be blinking at the same time. **N/A**
c. When controlling them individually, all temperature controllers should be set as "**Slave=SLAV**".



No.19 : Address Selection
Range : **A000 ~ A255**
Apply : Numbering

a. The unique numbers of individual controllers should not be duplicated. The communication can be faster by reducing passwords groups(=blocks) or controllers. The unique numbers are **A001~255.** It is possible to connect 127 controllers to the maximum. **N/A**



No.20 : Baud Rate
Range : **r060/120/240/960**
Apply : Data trans. Baud

a. You can choose a Baud Rate among **BPS600/1200/2400/9600** (recommendation : **r060**). Every temperature controllers which are connected should have the same Baud Rate. **N/A**
b. The initial value of Baud Rate is **600**. When you want to change, input it respectively.



No.21 : Lowest temp.
Range : **-50.0~100.0°C**
Apply : 4mA/1vdc output

a. If you need **4~20mA** and **1~5vdc** output, set the low temperature value for **4mA** or **1vdc.** The lowest limit value should be set lower the highest limit value(Highest limit > Lowest limit). **N/A**



No.22 : Highest temp.
Range : **-50.0~100.0°C**
Apply : 20mA/1vdc output

a. If you need **4~20mA** and **1~5vdc** output, set the high temperature value for **20mA** or **5vdc.** The highest limit value should be set higher the lowest limit value(Highest limit > Lowest limit). **N/A**



No.23 : Lock/Unlock
Range : **SAFE / USAF**
Apply : Lock function

a. Lock Function(**SAFE**)=unable to change all functions, **UnSAFe**=able to change all functions. If you want to revise the values, press "▼" key in "**SAFE**" mode and select "**UnSAF**" and change the values.



Defrosting



Cooler Sensor fault



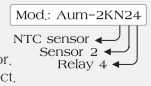
Defrost Sensor fault



--- In the Defrosting ---
Chamber temp. : "▲" key
Defroster temp. : "▼" key

Cautions in use

1. Please avoid excessive rising of temperature, humidity and impact.
2. Please it upright to prevent water droplet at the end part of sensor.
3. Keep it away from high voltage device or power generator and motor.
4. Please wait for 5seconds to turning it on again to avoid electric impact.
5. Use it between 0~60°C in temperature, 60% humidity around the controllers.
6. Please install in safe from strong acids, alkalis, oil, dust & direct rays of sun.
7. Please set safe protection at the double circuit when using at expensive appliances (Freezer, Heater and motor).



Memo. :

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