

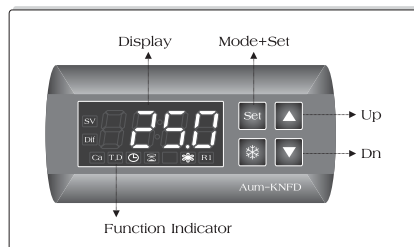
Manual for dimension & functions

Page - 1 -



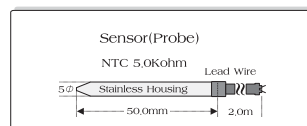
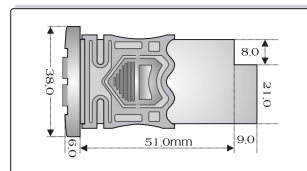
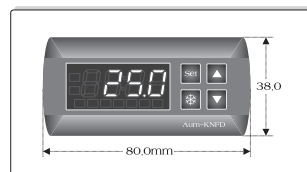
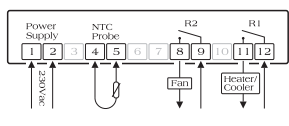
INOBOZ

Mod.: Aum-KNFD



- *. Color : Black
- *. Drilling Template : B:70,5xH:30,0xD:60,0mm

Fig. 01



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

Model "Aum-KNFD" is for **Heater/Cooler and fan/stirrer** operate together. When the heater/Cooler is off, fan/stirrer will operate for the set time and will be turned off. After heater/cooler is off, fan/stirrer will remove the remaining time.

- When "Aum-KNFD" is connected to **230Vac** power supply and a sensor is connected, present temperature will be displayed on the display.
- Whenever pressing "Set" key, "Selection Value" \Rightarrow Temperature Differential \Rightarrow Calibration \Rightarrow Relay1 Time Delay \Rightarrow Relay2 Time Extension \Rightarrow Operation Cycle \Rightarrow HEAT/COOL" will be displayed on the display. When selecting functions below "Selection Value", press "Set" key, check "Selection Value" and press "*" key for **5seconds** to set the functions.
- After selecting a mode with "Set" key, revise the value with " $\blacktriangle/\blacktriangledown$ " key. After that, press "Set" key again to complete the setting. When **10seconds** pass, it will return to present temperature mode automatically. Otherwise, you can return to present temperature mode by pressing "Set" key continuously. If you press " $\blacktriangle/\blacktriangledown$ " key in the mode to be revised, the characters will be blinking.
- When operating Fan/Stirrer by the output of Relay2 (terminal No.8), you can set Time Delay (Max. 30:00min.) of Relay2, fan/stirrer after turning "off" Relay.
- When the temperature sensor is short or disconnected, "-Hi-/-Lo-" will be displayed on the window.

Method of program loading

Page - 2 -

Mod.: Aum-KNFD

No.1 : Selection Value(SV)
Range : **-40.0~99.9°C**
Apply : Heater/Cooler

No.2 : Differential V(Dif)
Range : **0.0 ~ 12.7°C**
Apply : \pm Selection Value

No.3 : Calibration(Ca)
Range : **0.0 ~ +/- 6.3°C**
Apply : \pm Present temp.

No.4 : Time Delay(TD)
Range : **00:00~15:00(m/s)**
Apply : Cooler mode only

No.5 : R2 Time Extension
Range : **00:00~30:00min.**
Apply : Extension of R2 after R1 "OFF"

No.6 : R2 Operation Cycle
Range : **00 ~ 63min.**
Apply : R2 Extension after R1 "OFF"

No.7 : H/C + $\blacktriangle/\blacktriangledown$
Range : **HEAT/COOL**
Apply : R1 Load ON/OFF

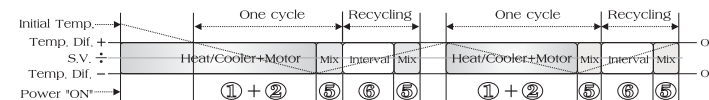
- After checking Selection Value, set the temperature with " $\blacktriangle/\blacktriangledown$ " key.
- The range of selection value is **-40.0 <(S.V.)+(Dif)+(Ca) < 99.9°C**.
- Check the lighting on "SV" and press "*" key for **5seconds** to select the function below Selection Value.
- Differential Value is applied to above and below the Selection value. For example, when No.1 selection value is 25.0, No.2 differential value is 1.5, the range of ON/OFF is **23.5~26.5°C**. At least, **0.3°C** is recommended to protect mechanical system from excessive operation.
- It is to calibrate the difference of present temperature due to resistance value of the extended line when a sensor is installed in a long distance.
- Keep the lead(Shield) wire of a sensor away from a power generator or electrical noise.
- This function protects 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.
- It protects a machine from the chattering due to electric noise.
- When Relay1 (Heat/Cool) operates, relay2 will operate at the same time.
- Relay 2 will be "Off" after operating for the set time from the "Off" time of Relay1. It removes the remaining heat after Heater/cooler stops.
- When Relay1 (Heat/Cool) is "OFF", Relay2 will be "OFF" for the set time which is inputted in mode No.5 when the set operation cycle comes.
- It should be set when it needs circulation in a chamber.
- When pressing " \blacktriangle " key, "HEAT" will be displayed. When pressing " \blacktriangledown " key, "COOL" will be displayed on the window. you can check the operation by the blinking of "R2(*)" and "R1" lamp. The load should be matched "Heater/Cooler".



Sensor Fault



The Cycle of Load(R1) and Motor(R2)



Note : 1. When momentary power failure takes place during the operation of Motor/Stirrer, the mixing cycle(time) will begin again from the beginning.

Cautions in use

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

Mod.: Aum-KNFD

NTC Sensor
Fan/Stirrer