

Please read this manual carefully before  
using and keep these instructions.



## NAK MANUAL

Thank you for your selecting Analog Hotplate NAK Series.

■ For your safety & life span of the product, please read the manual fully before using and keep these instructions.







### CONTACT INFORMATION

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### Caution for safety





Please keep these instructions before using and use the product properly.  
The below suggestions have possible to connect the serious result.  
Please keep these instructions for the safety.

#### ●Warning mark & meaning

|   |  |
|---|--|
|  <b>Danger</b>     | Danger of death or serious injury is near at hand with wrong handling. |
|  <b>Warning</b>    | Riskiness of death or serious injury may occur with wrong handling.    |
|  <b>Caution</b>    | Injury and physical loss only may occur with wrong handling.           |
|  <b>Suggestion</b> | Caution is required for safety.  |

And please keep these instructions before using and use the product properly.  
The below suggestions have possible to connect the serious result.

#### ●Indication mark of safety

|   |  |   |   |
|---|--|---|---|
|  | This indicates the general notice, warning, forbidden items. |  | This indicates the prohibition the case can cause the electric shock with disassemble or reorganization the product |
|  | This indicates the handling instruction for general user.    |  | This indicates the connection of the line, in case of the terminal block machine.                                   |

## WARRANTY CARD

|   |                         |   |
|---|-------------------------|---|
| <b>Product Name &amp; Description :</b>                             |                         | <b>Date of Purchase :</b><br>(dd/mm/yyyy) |
| <b>Model No :</b>   | <b>Serial No :</b>      |   |
| <b>Name of Organization or Institution :</b><br><b>User's Name:</b> |                         |   |
| <b>Address :</b>  |                         |   |
| <b>Tel/Fax :</b>  | <b>E-mail Address :</b> |   |
| <b>Dealer's(company) name :</b><br><b>Staff :</b>                   |                         |   |
| <b>Tel/Fax :</b>  | <b>E-mail Address :</b> |   |

(You can fax or mail to the above information. Please keep the original copy and produce it when necessary)

### < Warranty >

As One Corporation supply this equipment with a 1-year warranty against manufacturing defects from date of purchase. This warranty is valid only if the unit has been used in accordance with the instructions in this manual and for its intended purpose. As One Corporation shall not be responsible for consequential damages, or damages resulting from the abuse or misuse of this equipment. As One Corporation's liability shall be limited to the repair or replacement of the unit or refund of the purchase price at As One's discretion. If repair or adjustment is necessary and has not been the result of abuse or misuse within the warranty period, please return, freight prepaid, and correction will be made without charge. Out of warranty items will be repaired on a charge basis.

### < Exclusions To Warranty >

The warranty shall not apply and not limited to defects resulting from :

- Improper or inadequate maintenance by customer;
- Repair made to product by a person other than As One Corporation or its duly authorized service representative;
- Use of replacement parts that are obtained from a party who is not an authorized dealer of As One Corporation.
- Misuse(including use inconsistent with written operating instructions for the product), mishandling, contamination, overheating, unauthorized modification or alteration of the product by any customer or third party;
- Operation outside of the environmental specifications of the products;
- Connecting or used together with other defective product(s) and/or equipment;  
Inadequate voltage, environmental pollution, natural disaster such as fire, lightning, earthquake, tsunami, and other acts of God;
- Inaccurate or insufficient information on warranty card or loss of warranty card.

**In no event shall As One Corporation be liable to any party for any direct, indirect, special, incidental, or consequential damages, or for any damages resulting from loss of use or profits, anticipated or otherwise, arising out of or in connection with the sale, use or performance of any products, whether such claim is based on contract, tort(including negligence), any theory of strict liability or regulatory action.**



### Caution of using

#### Caution

Please use the product safely and read the following well before using.

Please keep the manual near at hand and deliver the product together with this manual always.



- \*This Hot plate is for indoor, please do not use in other places.
- \*This Hotplate is for an experiment.  
Please do not use in a driving without a person and in an assembly line.

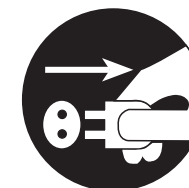
#### Warning

If the product is handled wrongly, it reduce the life span, also may cause the malfunction and injury, please keep the below suggestions.

- Please use it at the rated power supply. When it used in environment with different rated power supply, it may cause the malfunction or accident.
- Please do not process a power code, change it excessively or put heavy things on it.
- The ambient temperature is +5 ~ +35℃. Please do not operate in beyond of the range.
- The ambient humidity is 35 ~ 85% RH. Please use it in a non-dew status.
- Please use it in the place where is no corrosive or flammable gas etc.
- Please do not use the product in the place where is nearby water because inner part of the body includes electronic accessories and do not pour water into the body.
- Please do not handle the product with a wet hand.
- In case, the body is dropped and broken, please turn off the power switch instantly, unplug the power plug from the outlet and request a repair to the purchasing place.
- When there is a strange sound, smell or smoke, please turn off the power switch instantly, unplug the power plug from the outlet and request a repair to the purchasing place.
- Please do not disassemble the body and if there is a malfunction, user must be followed instruction of the maker.
- Please do not modify the product, it is not for our responsibility and it is beyond of the guarantee policy.

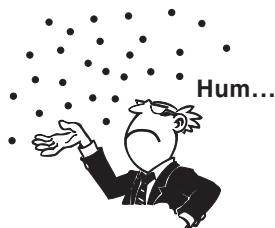
#### Caution

Please unplug the power plug from the outlet when it is not used for the safety.

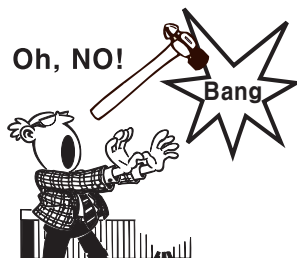


## Setting the machine

\*Please avoid the place where there is covered by dust or corrosive gas is generated.



\*Please avoid the place where there is a shock and vibration.



\*Please place the product to a distance from the machinery generates noise.



Please put ground connection into right place firmly.  
It may cause an electronic shock in case of the malfunction or electro leakage.  
Please ask to electrical manufacturing company in case there is not a ground connection an outlet.



### Caution

The protection device may not be worked when the machinery do not used in specified ambient environment.

memo



## ✕ About the maintenance

Please unplug first for maintenance and repair.

### ● Usual maintenance

- Please clean the alien material on the body with soft and dry towel.
- If it is hard to remove the alien material, please clean the dirty part with small amount of neutral detergent.
- Please do not use solvents such as acids, benzene, cleaner and boiling water.  
(It may cause discoloration and damage on the surface. And it may cause the discoloration and deterioration of rubber or plastic parts.)
- Please clean with the dry towel if the neutral detergent is used.
- Please keep the product in a dry state.
- Please do not pour water into the control panel part.
- Please clean the product carefully otherwise it may cause the malfunction.
- Please unplug the power plug from the outlet in case the product is not used for a long time, wrap and keep it in a dry place.

## Warning

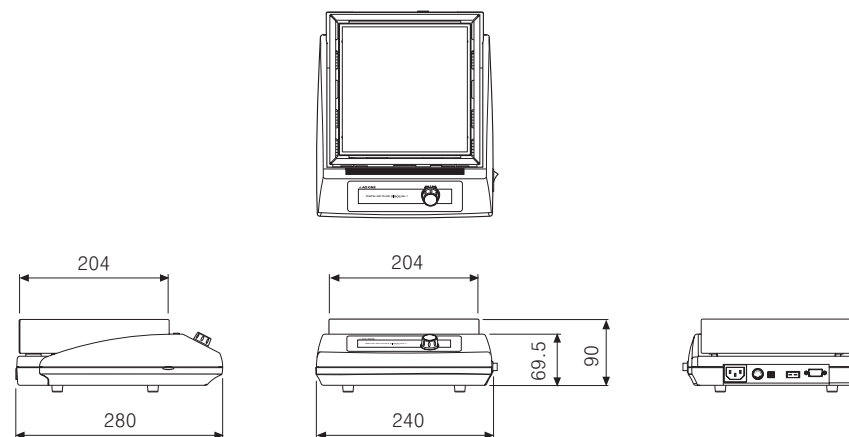
Do not disassemble, repair or modify the product.

※It may cause an electric shock, fire and injury because of the malfunction. 

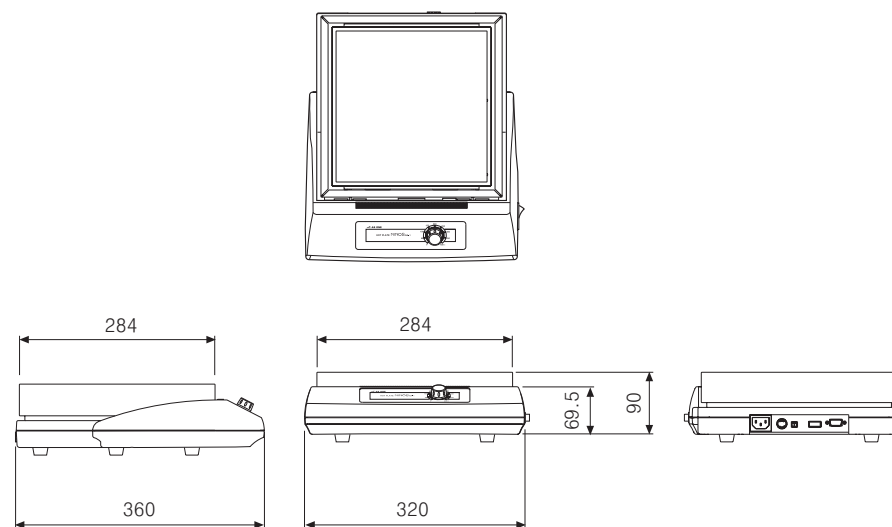
The specification and dimensions can be changed without previous notice in order to improve the product.

## ✕ Dimensions

### ● NAK-1K



### ● NAK-2K



## Specifications

|                                |   |   |
|--------------------------------|---|---|
| Model                          | NAK-1K  | NAK-2K  |
| Dimension                      | 240×280×90mm  | 320×360×90mm  |
| Current consumption            | Max. 750VA  | Max. 1100VA   |
| Heater capacity                | Approx. 675W  | Approx. 1000W   |
| Temp. range of the upper plate | ±2℃ (200℃ setting, Room temperature 25℃, No load, Using inner sensor) |   |
| Power supply                   | 220VAC(50/60Hz) (90~110% of the power supply)                         |   |
| Indication method              | No-indication   |   |
| Setting method                 | Setting dial(VR)  |   |
| Setting range                  | 0 ~ 350℃ (Setting value is room temperature +10℃)                     |   |
| Setting accuracy               | F • S ±2%   |   |
| Input specifications           | Thermocouple K(CA)  |   |
| Control method                 | Proportional control 1% fixed   |   |
| Control cycle                  | 2sec fixed  |   |
| Safety device                  | Fuse for circuit protection   | OFF when the current is over 7A   |
|                                | Inhibition function of over temp.                                     | The power is disconnected when it is over 10% of the Max. setting range(Thermostat) |
| Insulation resistance          | 100MΩ (500VDC) Between external terminal and external case            |   |
| Dielectric strength            | 1500VAC 1minute(Between external terminal and external case)          |   |
| Noise strength                 | 2.0kV R-phase and S-phase(pulse width 1 μs)                           |   |
| Ambient temperature            | 5 ~ 35℃   |   |
| Storage temperature            | -10 ~ 50℃ (at non-freezing status)                                    |   |
| Ambient humidity               | 35 ~ 85%RH  |   |
| Max. authorized freight mass   | 3kg   | 5kg   |
| Weight                         | 4.8kg   | 7.7kg   |

## Model organization

|                                     |        |                         |
|-------------------------------------|--------|-------------------------|
| Classification                      | NAK    | Hot plate(NINOS)        |
| Classification of temperature range | NAK-1K | S size(Plate 170×170mm) |
|                                     | NAK-2K | M size(Plate 250×250mm) |

## Function

- Proportion control function  
It adjusts and controls the output within the fixed period in proportion to the deviation of the PV and SV.
- Warning indication for burning  
The RED LED flashes to inform the danger of the burning accident if the upper temperature is over 60℃ when the drive is stopped.  
(When the main power is disconnected, LED indicator is lighted out.)
- Indication of error status  
All error indicated with the 2 Green LED by 0.5 seconds.  
(If Green LED 2EA are flashed on the right and left, it is an error.)
- Burn Out(Burn Out : Sensor disconnection)  
When the temperature sensor is disconnected, the output is interrupted automatically and it is indicated with 2 Green LED by 0.5 second.
- It is indicated with 2 Green LED by 0.5 second when it is over 10% of the whole using temperature range.