

**No.102-SHF-S/SA**

Geer Type Aging Oven

Touch panel operation manual

(S: Air replacement rate measurefunction)

(SA: Auto air replacement rate measurefunction)

Please read this manual before using.



◆ revision history

Date	Rev.	Contents
2014/7/25	-	first
2014/7/26	A	Add a how to use alarm
2014/12/10	B	S/SA integrated the software
2015/2/13	C	Clerical error correction
2015/2/28	D	Clerical error correction
2015/3/1	E	Clerical error correction

# Notice!

## **A risk of damage to the product**

- General
  - Please use in the prescribed power supply.



## Other

- Touch screen manual description this document is an example. There can be different from the actual screen.



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Specification

●Temp. Set

It can be set between the Room Temp. and 300°C (Setting limit varies by specification.)

●Drum Rotation

It rotates within 5~10rpm. The Speed is set by the inverter in the device.

●Wind Speed

Hi, Lo is switchable.

It deals with the average wind speed of 1m/s & 0.5m/s.

●Power Consumption Rate Calculation

When it comes to the set period, it calculated as follows.

It calculates the provision value in an elapsed time ,when it does not reach the set measurement time.

Electric Consumption Rate (Wh/h) = (Electric Consumption (Wh) / Time (min)) x 60

●Air Exchange Rate Calculation

Following Calculation

Ref : JIS B7757 1995

N = (3600 x (P2 - P1) / (Cp x V x rho x delta T)) . . . . . Air Exchange rate

N : Air Exchange Rate (times/h)

P1 : Ave. sealed Electric consumption rate (Wh/h)

P2 : Ave. Air Electric consumption Rate during the Aging Test (Wh/h)

Cp: Air constant pressure specific heat capacity(J/g · K)

V : All air volume inside the Oven (cm³)

P : Air density at the surrounding Temp.(g/cm³)

delta T: Difference between test Temp. in the Oven and room Temp.(K)

※This unit is equipped with Temp. sensor for ambient Temp.measurement.It calculate the air density(rho) and reflects the air change rates.

In case changing the room Temp., it calculates the air Exchange rate accurately, to reflect the difference between test Temp. in the Oven and room Temp.

- Air Exchange Rate Control Function (SA Type)

The damper opens and closes automatically, by setting the Air Exchange Rate.

- Data Logging Function

The Test Condition & Result get saved in SD card as a CSV form, when it starts the measurement of Sealed Electric Consumption and Air Exchange Rate. It saves one file for one test. It can be read, with Excel after the test, inside the SD card data.

- Graf Function

It makes a chart of the Temp.-Power Consumption & Temp. –Air change rate in real time.

It enables to see the stability of Temp., Electric Consumption, and Air Exchange Rate.

1 Initial Screen

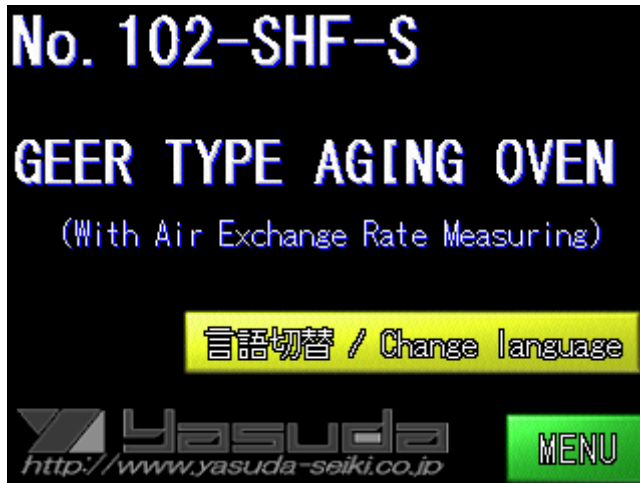


Fig.1a Initial Screen(S Type)

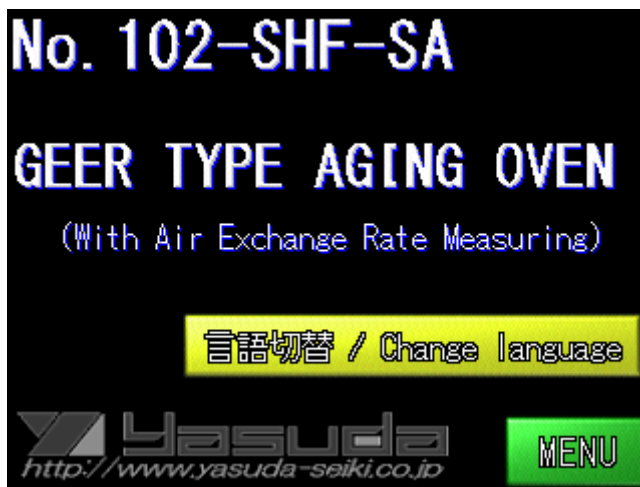
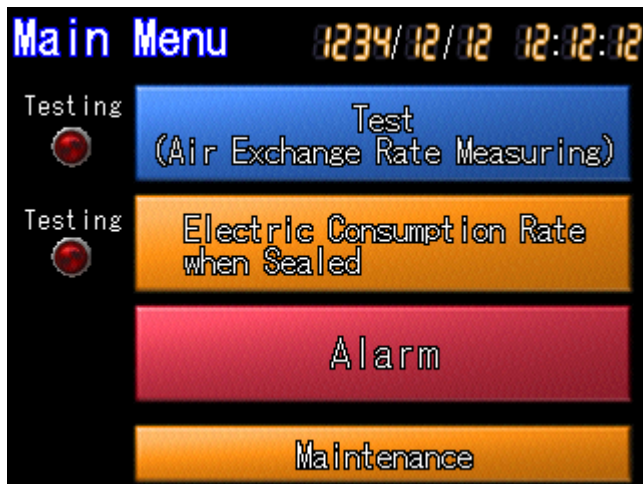


Fig.1b Initial Screen (SA Type)

It displays when the power is on.

It moves to [Main Menu] when touching 【Menu】 .

## 2 Main Menu



**Fig.2 Main Menu**

- Test (Air Exchange Rate Measuring) : It moves to **【Test】** by touching. ※It can not be moved while measuring the Electric Consumption Rate when Sealed.
- Electric Consumption rate when Sealed : It moves to **【Sealed Electric Consumption Rate】** by touching. ※It can not move while measuring. This data needs to calculate the Air Exchange Rate. It needs to be measured before Testing.
- Alarm : It moves to **【Alarm】** by touching.
- Maintenance : It moves to **【Maintenance】** by touching. The initial data of the device with required password is set.

### 3 Test (Air Exchange rate measuring)

#### 3.1 Test ① Condition 1/2

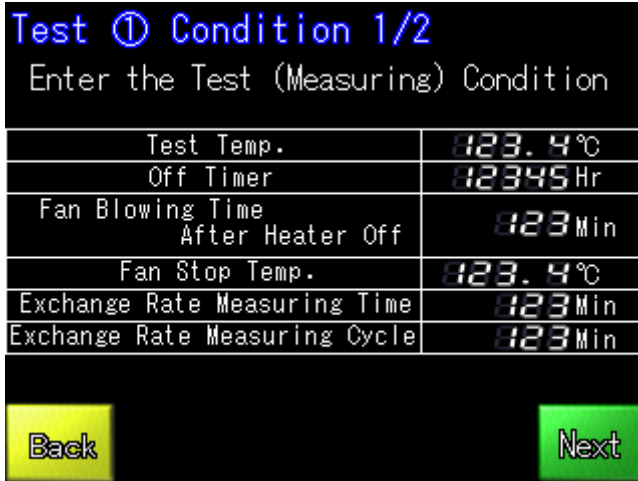


Fig.3.1a Test①

Test Temp. : It sets test Temp.by touching. (Room Temp.~300°C)

Off Timer : It stops the Test & Heater at the set time .

(0~99999 Hours)

If it is set "0", it is disable to work.

Fan Blowing Time After Heater Off : It set the time of fan ,after the heater stops by Off Timer.(3~999Min)

Fan Stop Temp. : It sets the Temp., to stop the fan after the heater stops by Off Timer. (40~150°C)

Exchange Rate Measuring Time : It sets the Exchange rate Measuring Time.(30~120min)

It calculates Air Exchange Rate from the Electric Consumption of the set time.

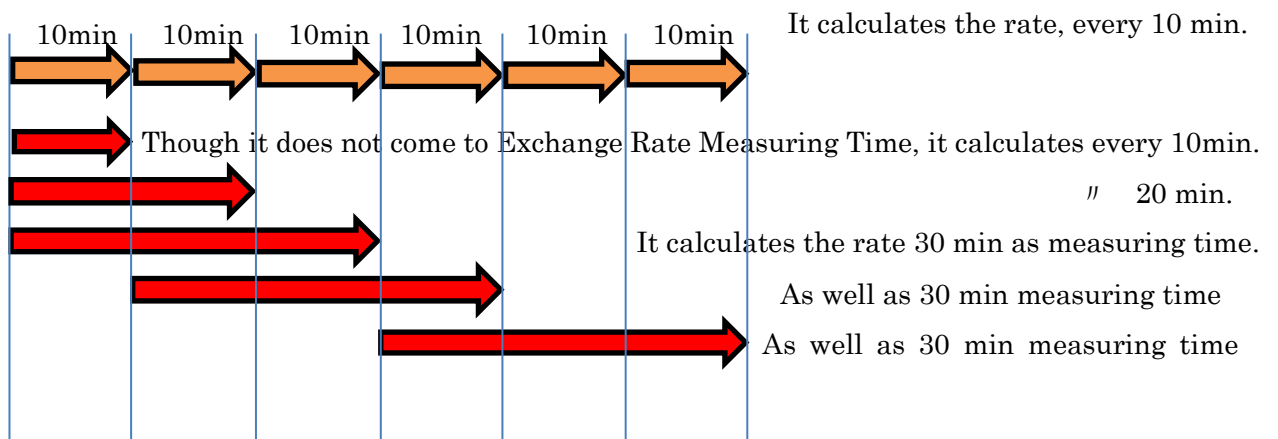
Exchange Rate Measuring Cycle : Please set Exchange Rate Measuring Cycle shorter than Exchange Rate Measuring Time (1~120min).

※Exchange Rate gets calculated from Electric Consumption of Exchange Rate Measuring Time. It gets stable when taking longer measuring time.

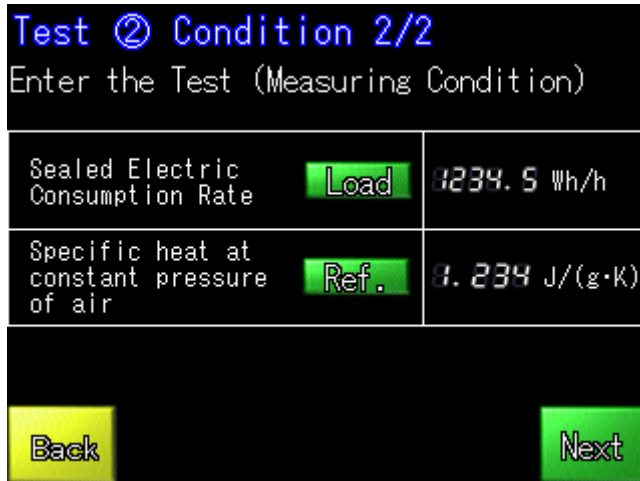
※Please set Exchange Rate Measuring Cycle shorter than Exchange Rate Measuring Time.

Before the measuring finishes, the data of exchange rate is not correct.

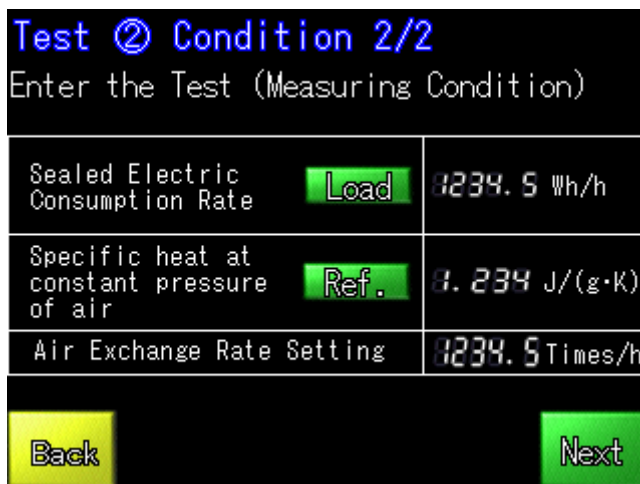
Ex) In case of Exchange Rate Measuring Time as 30min and Exchange Rate Measuring Cycle as 10min,



### 3.2 Test② Condition 2/2



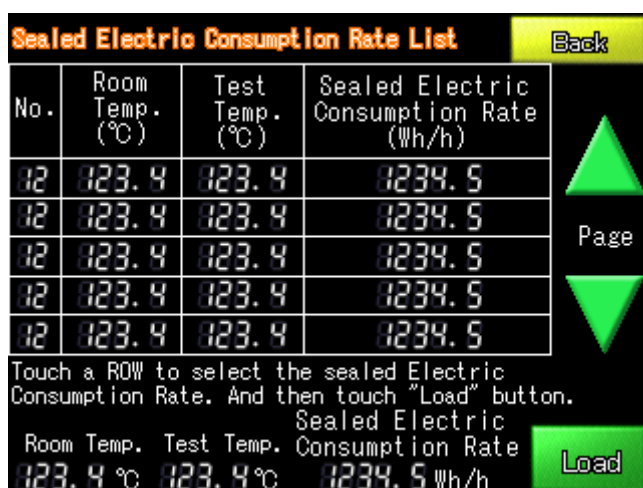
**Fig.3.2a Test② (S Type)**



**Fig.3.2b Test② (SA Type)**

- |   |  |
|---|--|
| Sealed Electric Consumption Rate          | : Input the data before testing.<br>It depends on a combination of Surrounding Temp., and Test Temp. Before testing, please measure the Sealed Electric Consumption Rate as the same test condition. |
| Load                                      | : It can be chosen from 50 registered data.  |
| Specific heat at constant pressure of air | : It depends on the standard, so please enter a value which applies it.  |
| Ref.                                      | : It shows the Specific heat at constant pressure of the air for each standard.  |
| Next                                      | : It moves to Test screen by touching.   |

### 3.2.1 Load



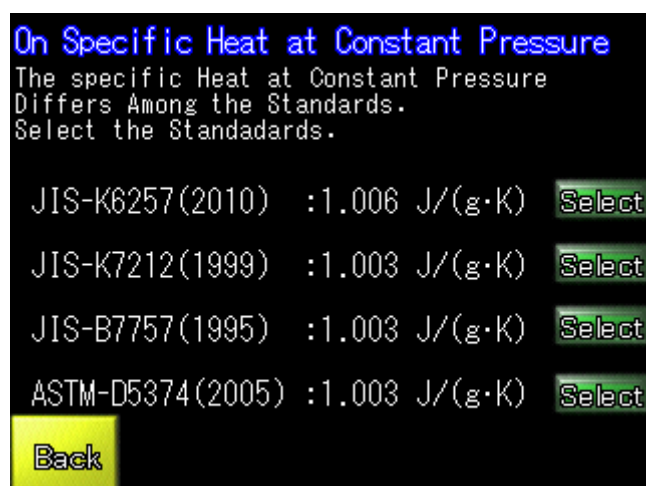
**Fig.3.2.1 Load**

It is able to save 50 Sealed Electric Consumption Rate by choosing the page using 「▽」 「△」 .

Touch the line and push Load, and it will get transferred to the setting part of Condition 2/2.

It goes back to the Condition 2/2 by touching Back.

### 3.2.2 Ref.



**Fig.3.2.2 Ref.**

By touching Select, the data gets transferred to the setting part of Condition 2/2.

It goes back to the Condition 2/2 by touching Back.

### 3.3 Test③ Test

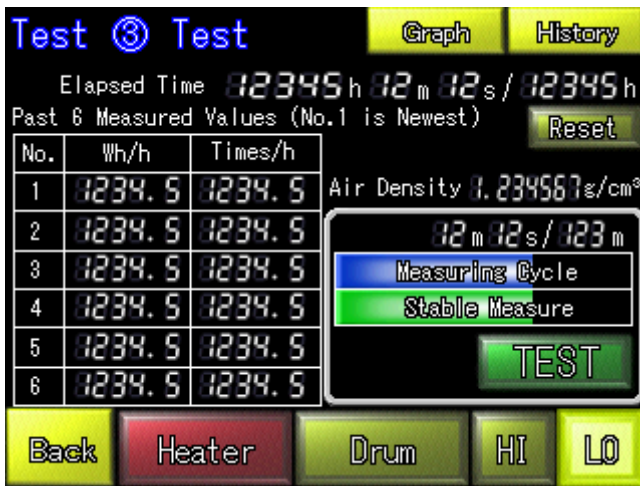


Fig.3.3a Test③ (S Type)



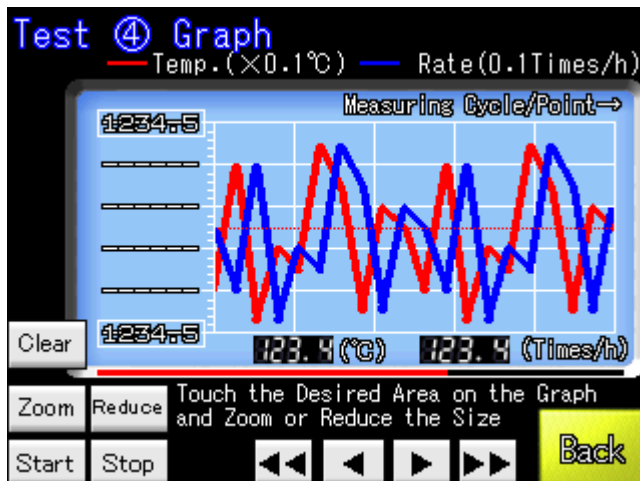
Fig.3.3b Test③ (SA Type)



Fig.3.3c Test③ (SA Damper Manual Operation)

- Heater : It starts heater control when touching. It lights up while heating. It stops heating when touching again.  
The fan stops 3 min after the heater is OFF.
- Drum : It rotates the Sample Drum inside the oven. It lights up while rotating. It stops when touching again.
- HI : The high wind speed will be set when touching. (Ave. wind speed 1m/s)
- LO : The low wind speed will be set when touching.(Ave. wind speed 0.5m/s)
- Test : It starts measuring the Air Exchange Rate by touching.  
※Please start the test after reaching the set Temp.
- Damper : It shows Manual Operation.  
It 「Open」 and 「Close」 .  
While Manual Operation mode, it stops the damper control automatically.  
※Only SA type
- Graph : It moves to Temp. & Rate Graph by touching.
- History : It moves to Measured History of rate by touching.
- Reset : Touching more than 2 sec ,it resets Elapsed Time. It is also same during testing.

### 3.3.1 Graph



**Fig.3.3.1 Test④**

It shows the graph of Temp. & Rate. It is updated every period of Exchange Rate Measuring Cycle.

The Max and Min value enclosed by □ of Y axis can be changed by touching.

Touch the desired area on the graph. Zoom or Reduce the size of each frames.

Clear : It clears inside the graph by touching .

Zoom : It expands the X axis by touching.

Reduce : It reduces the X axis by touching.

Start : It starts drawing by touching.

Stop : It stops drawing by touching.

<< : Large left feed by touching.

< : Small left feed by touching.

> : Small right feed by touching.

>> : Large right feed by touching.

Back : It moves to “Test” by touching.

### 3.3.2 Measured History

No.	TestTemp (°C)	RoomTemp (°C)	Electric Consumption Rate (Wh/h)	Rate (Times/h)	Date and Time
123	123.4	123.4	1234.5	1234.5	12/12 12:12:12
123	123.4	123.4	1234.5	1234.5	12/12 12:12:12
123	123.4	123.4	1234.5	1234.5	12/12 12:12:12
123	123.4	123.4	1234.5	1234.5	12/12 12:12:12
123	123.4	123.4	1234.5	1234.5	12/12 12:12:12
123	123.4	123.4	1234.5	1234.5	12/12 12:12:12
123	123.4	123.4	1234.5	1234.5	12/12 12:12:12
123	123.4	123.4	1234.5	1234.5	12/12 12:12:12
123	123.4	123.4	1234.5	1234.5	12/12 12:12:12
123	123.4	123.4	1234.5	1234.5	12/12 12:12:12

Fig.3.3.1 Test⑤

It can save 250 data (10 line ×25page).No 1 is the latest data.

It goes back to Test by touching Back.

## 4 Sealed Electric Consumption Rate

### 4.1 Sealed Electric Consumption Rate①

Fig.4.1 Sealed Electric Consumption Rate①

「Heater」 : It starts heater control when touching. It lights up while heating. It stops heating when touching it again.

The fan stops after 3 min after heater is OFF.

「HI」 : The high wind speed will be set by touching.(Ave. wind speed 1m/s)

「LO」 : The low wind speed will be low by touching.(Ave. wind speed 0.5m/s)

「Test」 : It starts measuring the Air Exchange Rate by touching.

※Please start the test after reaching the sett Temp.

「Next」 : It moves to Temp.& Rate graph by touching.

## 4.2 Sealed Electric Consumption Rate②

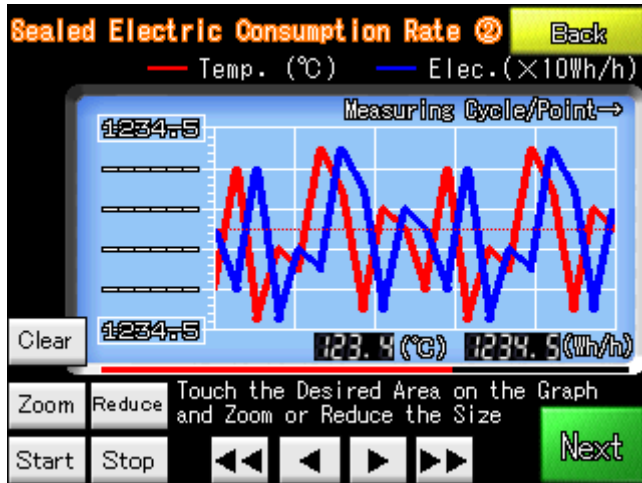


Fig.4.2 Sealed Electric Consumption Rate②

It shows the graph of Temp. & Electric Consumption Rate. It is updated every period of Exchange Rate Measuring Cycle.

The Max and Min value enclosed by □ of Y axis ,can be changed by touching.

Touch the desired area on the graph. Zoom or Reduce the size of each frames.

Clear : It clears inside the graph by touching.

Zoom : It expands the X axis by touching.

Reduce : It reduces the X axis by touching.

Start : It starts drawing by touching.

Stop : It stops drawing by touching.

<< : Large left feed by touching.

< : Small left feed by touching.

> : Small right feed by touching.

>> : Large right feed by touching.

Back : It moves to Sealed Electric Consumption Rate① by touching.

Next : It moves to Sealed Electric Consumption Rate③ by touching.

### 4.3 Sealed Electric Consumption Rate③

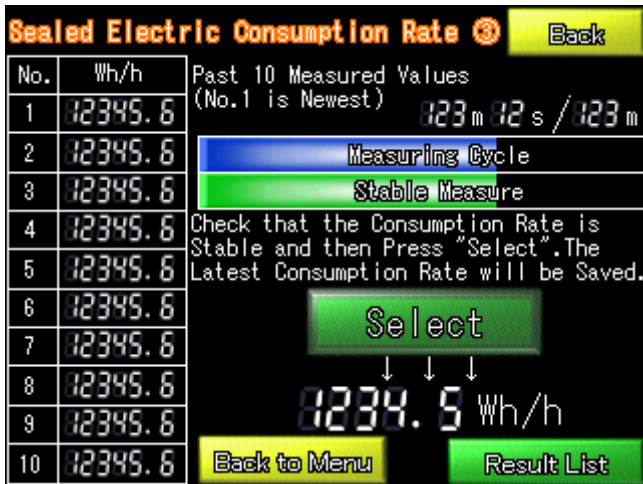


Fig.4.3 Sealed Electric Consumption Rate③

It shows past 10 times of measured values. No1 is the latest data. The timer on the right-upper space shows update of Measuring Cycle.

Updated Measuring Cycle and Measuring Time are displayed in the progress bar.

It calculates “Electric Consumption Rate” every Measuring Cycle, but the value is not stable before reaching the right side in the bottom progress bar.

It saves temporary internal memory by touching Select.

It moves to Result List by touching.

#### 4.3.1 Sealed Electric Consumption Rate List

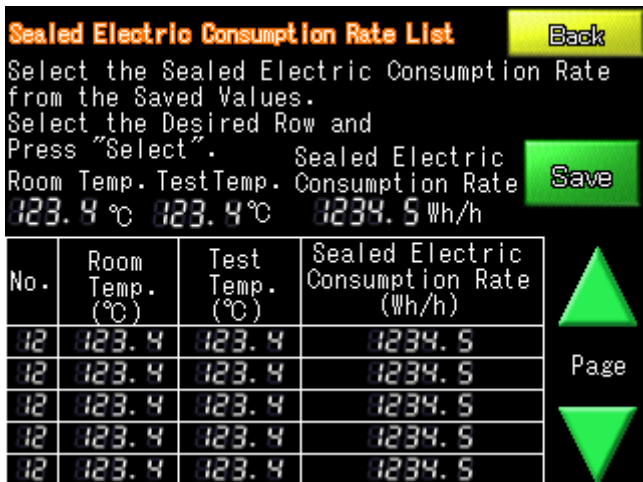


Fig.4.3.1 Sealed Electric Consumption Rate List

Choose the empty line from 5 line×10page.

It saves the data in the state of flashing on and off of the line by touching “Save”.

Before testing, Sealed Electric Consumption Rate can be transferred.

## 5 Alarm

### 5.1 Alarm Screen

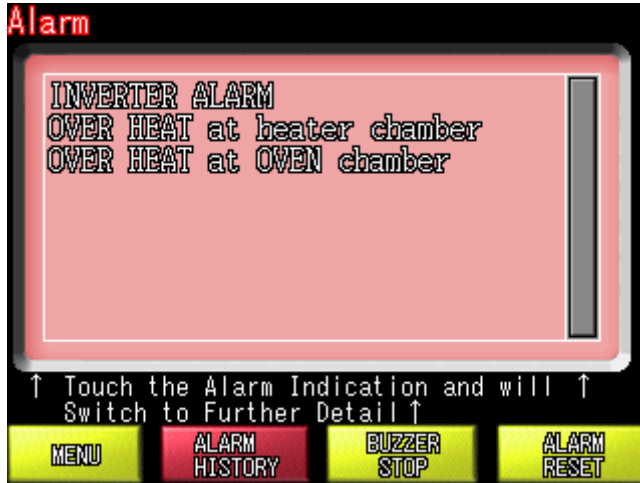


Fig5.1.Alarm Screen

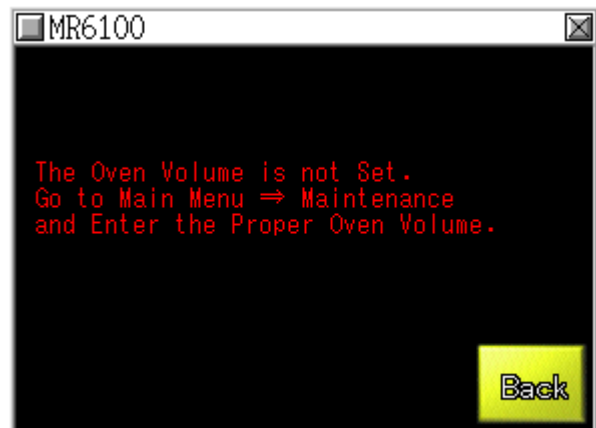
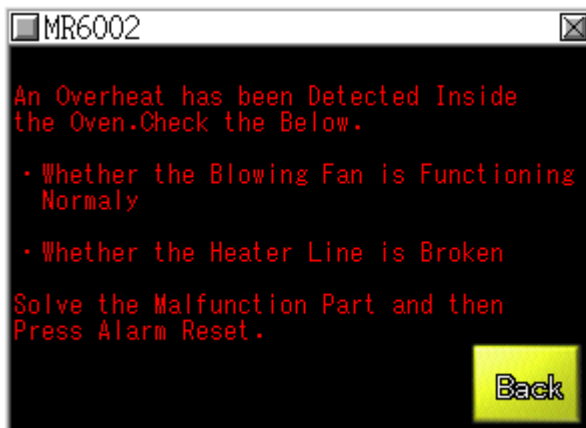
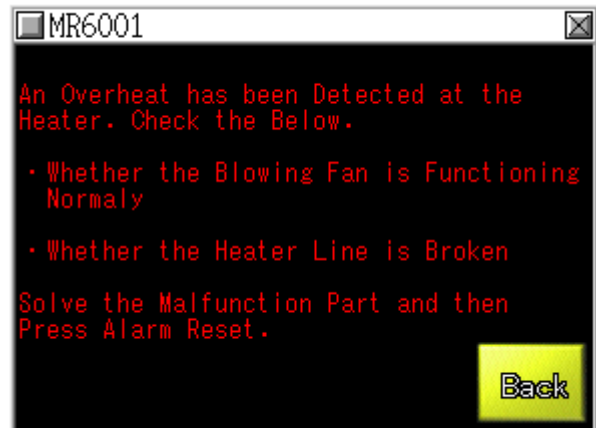
It automatically jumps to this screen, when the alarm goes off.

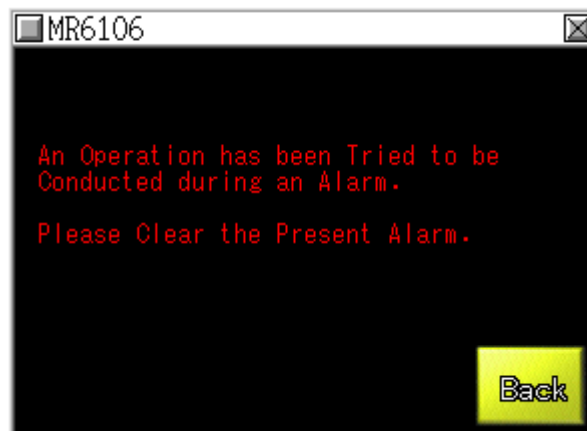
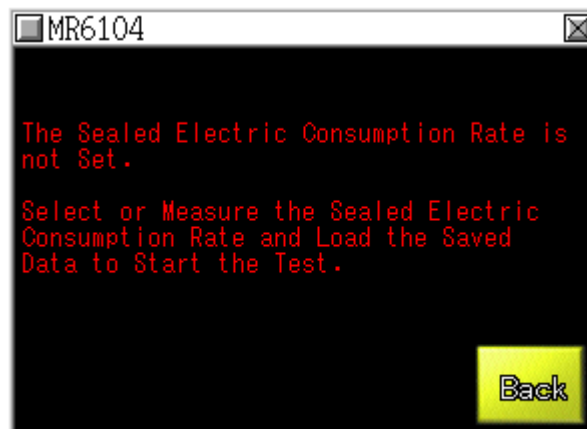
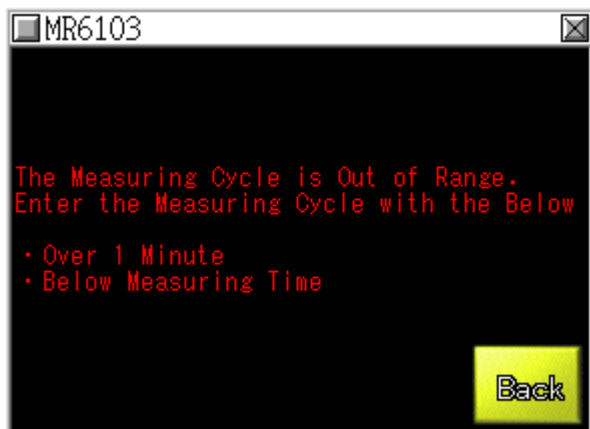
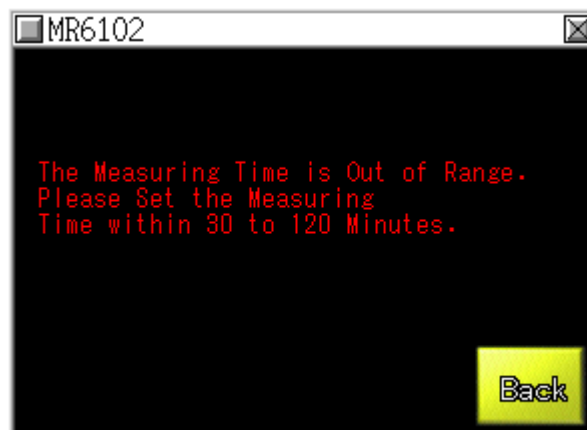
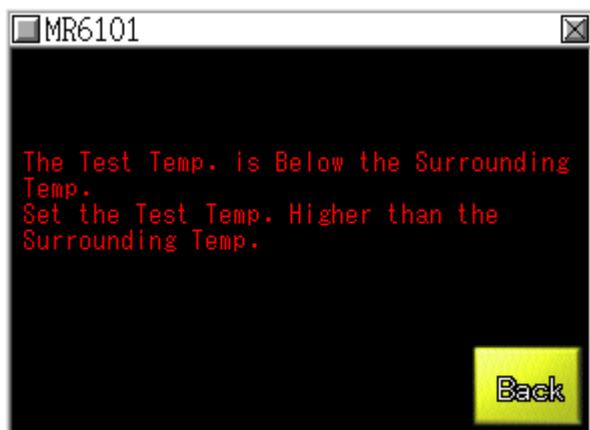
It shows Alarm detail and how to deal by touching.

「Buzzer Stop」 : It stops the Alarm by touching.

「Alarm Reset」 : It resets the Alarm by touching.

「Alarm History」 : It moves to “Alarm History” by touching





## 5.2 Alarm History



**Fig5.2.Alarm History**

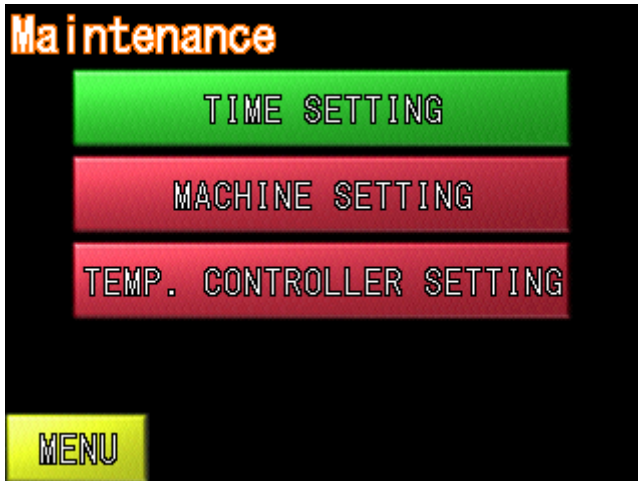
Past Alarm can be checked.

「Buzzer Stop」 : It stops the buzzer by touching.

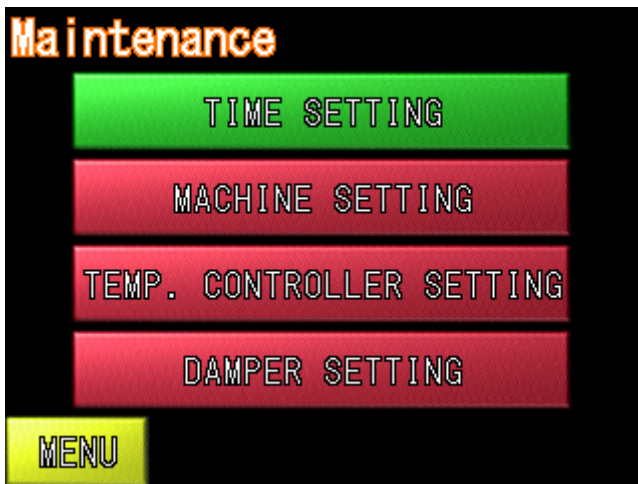
「Alarm Reset」 : After removing the cause of trouble ,the alarm can be reset by touching.

「Alarm」 : It moves to “Alarm” screen by touching.

## 6 Maintenance



**Fig.6a Maintenance (S Type)**



**Fig.6b Maintenance (SA Type)**

The Menu in red can only be used by the manufacturer (password is needed.).

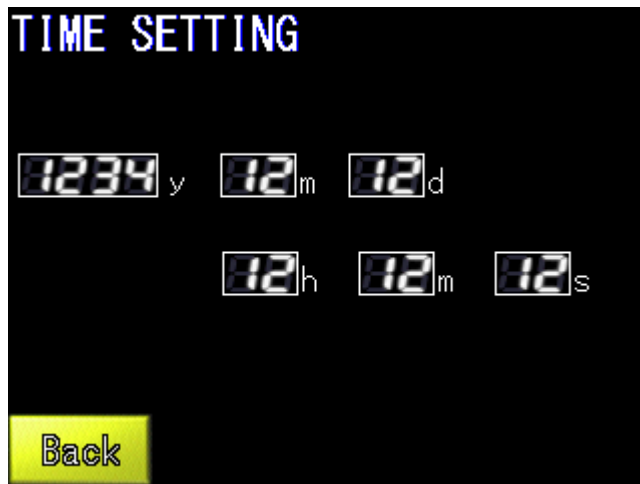
Time Setting : It sets the time by touching.

Machine Setting : It sets the machine according to the specification by touching.

Temp. Controller Setting : It sets the parameter of Temp. controller by touching.

Damper Setting : It sets the parameter of damper controller to adjust the Air Exchange Rate by touching. (SA Type Only)

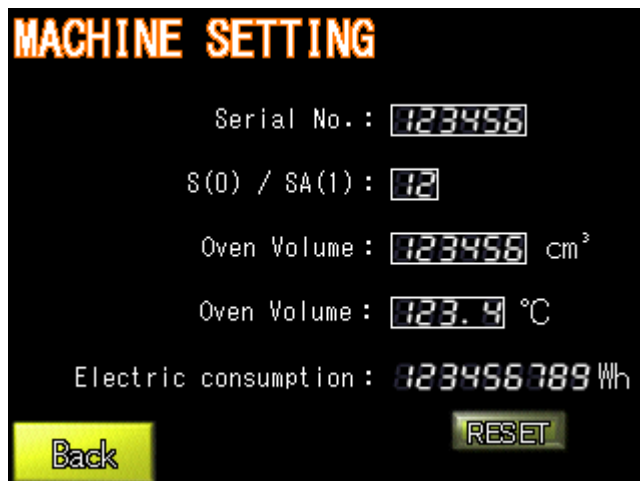
## 6.1 Time Setting



**Fig.6.1 Time Setting**

It sets the time in the touch panel.

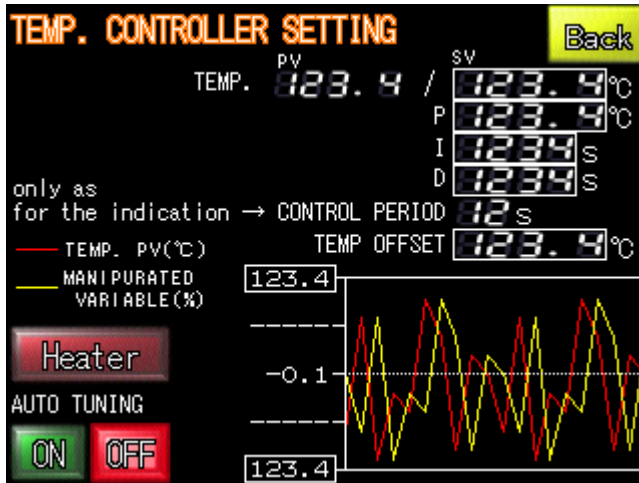
## 6.2 Machine Setting



**Fig.6.2 Machine Setting**

- Serial No. : It sets the Serial No.(Set at the Factory) of the device by touching.  
It is used for information of internal SD card datalogging.
- S(0)/SA(1) : For “S” set 「0」 and for “SA” set 「1」 .
- Oven Volume : Input the oven volume according to the specifications which is used to calculate the Air Exchange Rate.
- Electric Consumption : The counter of Electric Consumption.  
This is used for the reference of maintenance period.

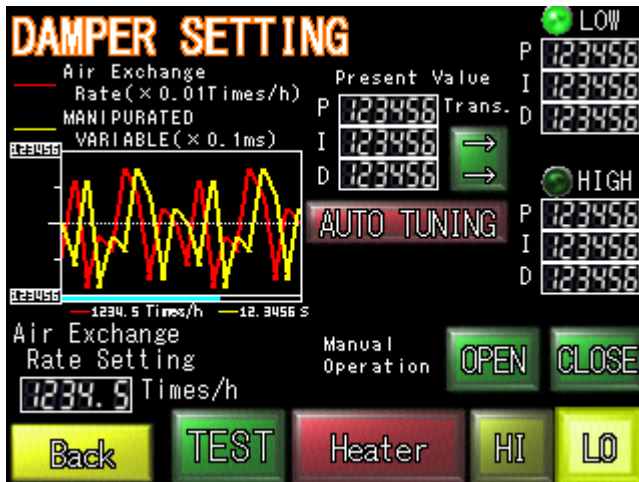
### 6.3 Temp. Controller Setting



**Fig.6.3 Temp. Controller Setting**

It sets the parameter of Temp. Controller. (It is set at the factory.)

### 6.4 Damper Setting



**Fig.6.4 Damper Setting**

It sets the PID parameter of Wind Speed “HI” & “Lo” of the damper. (It is set at the factory.)