

# TSK Hot-air generator

## Operation manual (Basis operation)

● Please read this without fail before use.

- ◆ This time, thank you very much for purchasing the hot-air generator.
- ◆ Please confirm whether the model, type, voltage and the order article are not wrong by the name board of this machine.
- ◆ Basis operation method of the hot-air generator is entered to this operation manual. Please see the main operation manual about Installation, Piping, Power supply, Service terminal, Abnormal detection, and Convenient function.



### TSK Hot-air generator

- TSK-18
- TSK-23 • 33
- TSK-42 • 52 • 52HT
- TSK-56
- TSK-62 • 72
- TSK-82
- TSK-92 • 102
- TSK-121

### TSK High pressure hot-air generator

- TSK-22H4
- TSK-32H5
- TSK-52H6
- TSK-53H7
- TSK-62H8
- TSK-72H9
- TSK-82H10

### Platinum catalytic oxidation type deodorization device

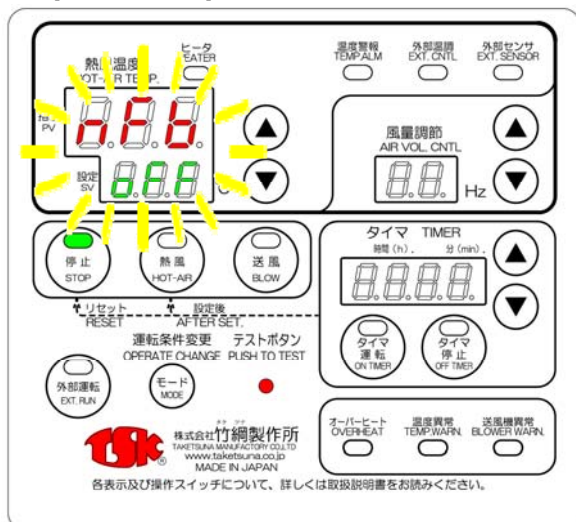
- HJ-1.5



TAKETSUNA MANUFACTORY CO., LTD.

# 1. Usually operation

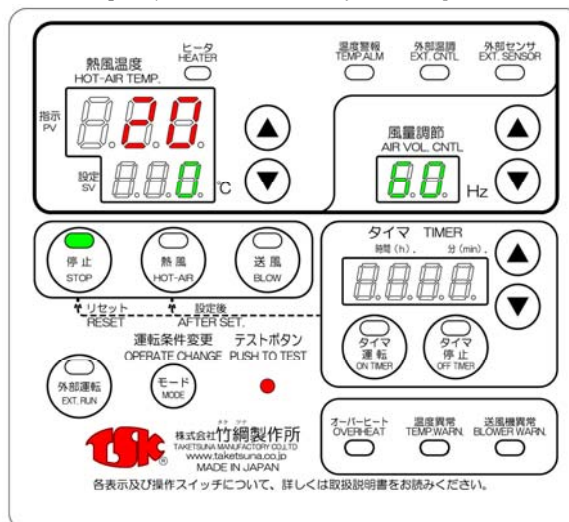
① Please turn on the factory power supply (the first power supply). STOP lamp is lighted, and NFB is flickered to SV dept., OFF to PV dept.



※ You can not operate in this condition.

※ TSK-18 is displayed ② by the factory power supply turns on.

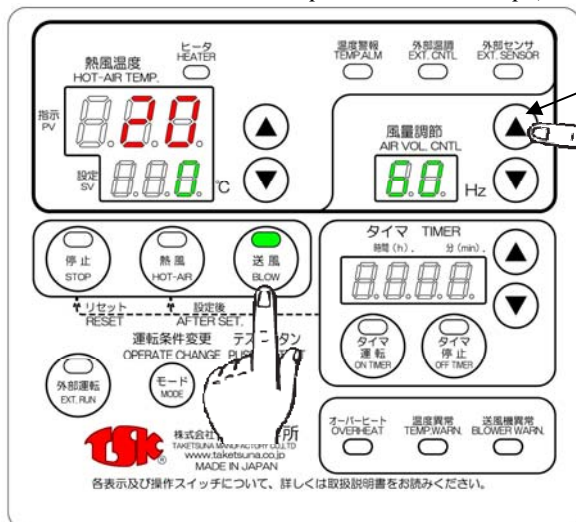
② Please turn on the breaker (NFB) of the this machine. Present temp. is displayed to SV dept., 0 to PV dept., and 60(Frequency) to the air volume adjustment dept.



※ 2nd, before setting value is displayed to SV and air volume control.

※ Air volume control is not displayed about TSK-H type.

③ When BLOW switch was pushed BLOW lamp (Green) is lighted and blow operation is started.

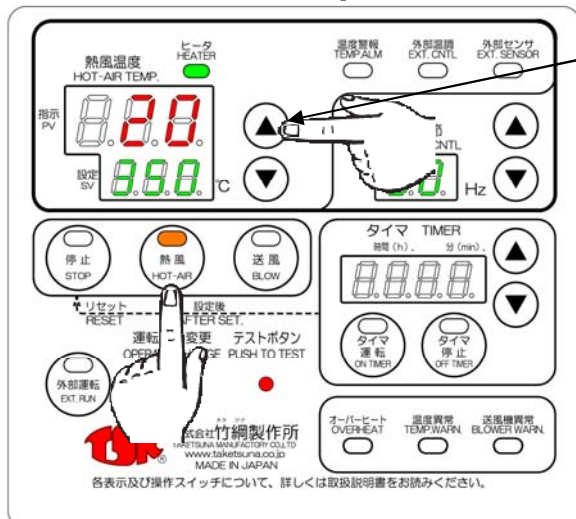


Setting of air volume control (Setting of the frequency)  
It can change in 30Hz to 60Hz range by the up down key.

※ Please adjust the air volume by the dumper for the air volume control about TSK-H type. (Air volume control frequency is not displayed.) But, air volume can be adjusted by frequency setting about type with the inverter. (Option)

※ Temp. does not reach until max. temp. if air volume is set up to the minimum air volume (30Hz) when the condition of hot-air generator is non-load. This is because the minimum of the rotation speed of the motor is set up by the cooling effect of the blower motor is considered. In this case, please establish the dumper to inlet, and please squeeze the air volume by the dumper in minimum air volume setting condition.

④ When HOT-AIR switch was pushed HOT-AIR lamp (Orange) is lighted and hot-air operation is started.



Setting of hot-air temp.  
It can change in 0 to 350 °C range by the up down key.

※ Max. setting temp. of TSK-51HT is 500 °C.

ON/OFF of the heater is displayed by the illumination and flickering of the heater lamp.

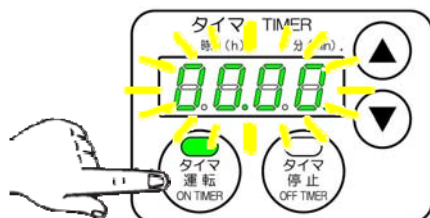
## 2. Timer operation and Timer stop

Please set up hot-air temp. and air volume control before the timer operation.

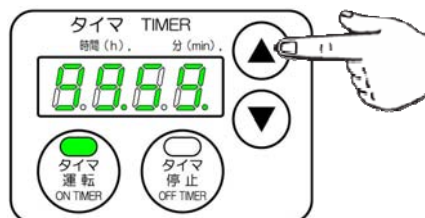
Please set up the timer in operation stoppage condition. (Timer can not set up during blow and hot-air operation.)

### ●Timer operation (ON TIMER)

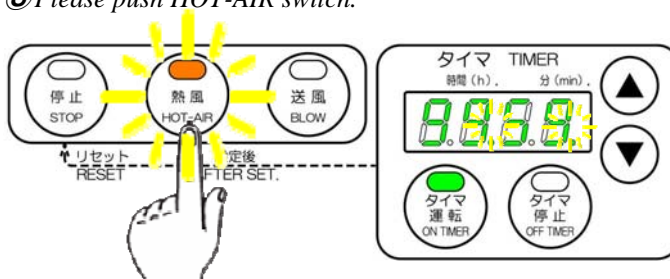
① Please push ON TIMER switch. ON TIMER (Green) lamp is lighted, and 00.00. is flickered to timer display dept. Or the before setting time is lighted.



② Please set up it to optional time by the up down key. Timer can be set up until 99 hours 59 minutes. After setting, please separate the hand from the up down key. Flickering changes to illumination 2 seconds later and setting value is registered.



③ Please push HOT-AIR switch.



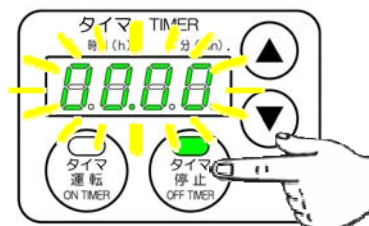
Time counting (Reduction of timer setting) is started (Dot display flickering). Hot-air operation is started when the time counting becomes 00.00. HOT-AIR lamp (Orange) is flickered during time counting, and is changed to illumination after the hot-air operation start.

※Timer display becomes to 00.00 after the completion of time counting.

※Timer operation and time counting are stopped by pushing STOP switch.

### ●Timer stop (OFF TIMER)

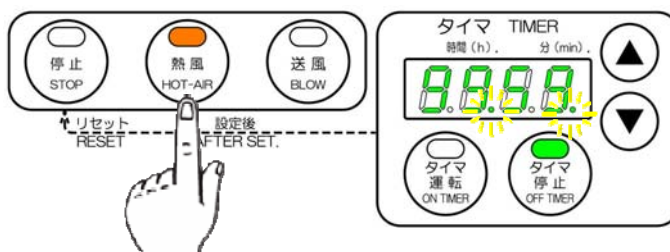
① Please push OFF TIMER switch. OFF TIMER (Green) lamp is lighted, and 00.00. is flickered to timer display dept. Or the before setting time is lighted.



② Please set up it to optional time by the up down key. Timer can be set up until 99 hours 59 minutes. After setting, please separate the hand from the up down key. Flickering changes to illumination 2 seconds later and setting value is registered.



③ Please push HOT-AIR switch.



Time counting (Reduction of timer setting) is started (Dot display flickering) and hot-air operation is started. Hot-air operation is stopped when the time counting becomes 00.00. HOT-AIR lamp (Orange) is lighted during hot-air operation, and is changed to flickering after the hot-air operation completion.

※Timer display becomes to 00.00 after the completion of time counting.

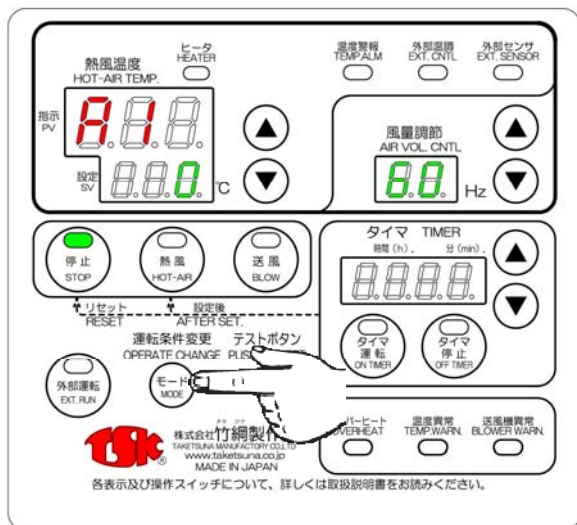
※Timer operation and time counting are stopped by pushing STOP switch.



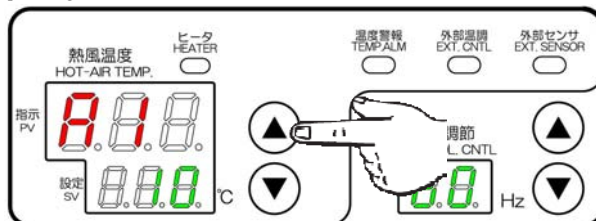
### 3. In the case that Temp. alarm is set up

●Alarm signal can be output in the case that discharge hot-air temp. exceeded an optional regular range to setting temp.  
Please use if necessary. (Setting at the time of the shipment is ineffective.)

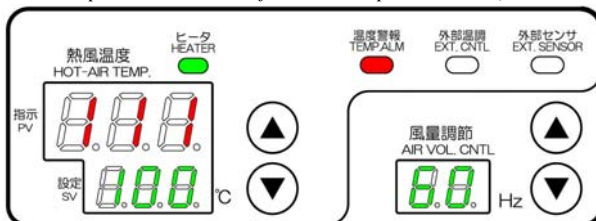
①Please continue to push MODE switch. (About 2 seconds) A1 is displayed to PV dept., 0 to SV dept.



②Please set up optional temp. by the up down key. After setting, please return to the display of usually operation condition by pushing the MODE switch 3 times.



③Please start hot-air operation. TEMP. ALM lamp (Red) is lighted more than +10 °C or less than -10 °C of setting discharge temp. if 10 is set up, and the alarm is output from the service terminal. (Except when temp. rises at the time of the hot-air operation start.)



※Operation of this machine is not stopped by the temp. alarm.

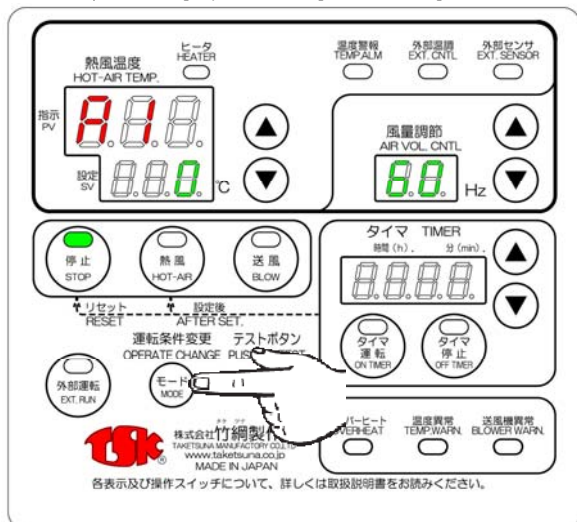
※Temp. alarm output is ineffective when setting of temp. alarm is 0.

※Temp. alarm output is output of TSK-18 - 33 and TSK-22H4 - 32H5 as the unvoltage contact signal (Contact capacity AC250V 3A DC30V 3A) from the temp. alarm output terminal T and A, and TSK-41 - 121 and TSK-52H6 - 82H10 is from terminal B6.

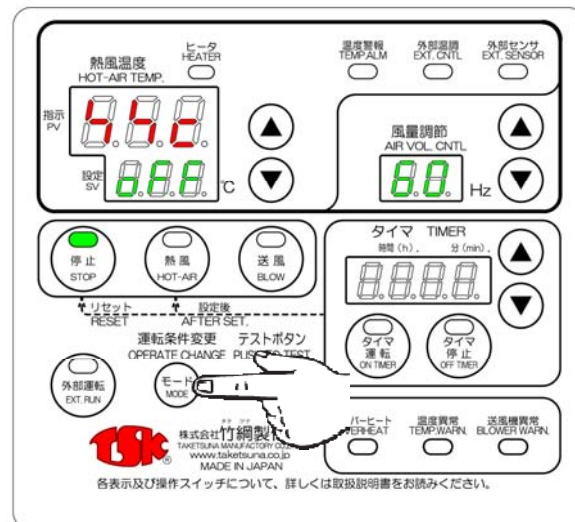
### 4. In the case that External temp. control is used

●Hot-air generator can be controlled by the signal of the temp. controller that was established to the outside. In this case, please use as the discharge temp. upper limiter the temp. controller of this machine.

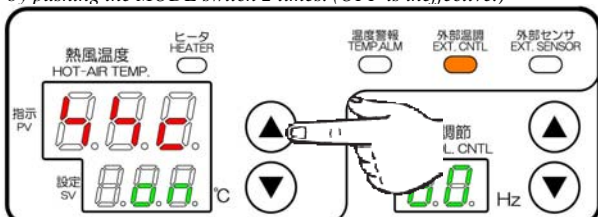
①Please continue to push MODE switch. (About 2 seconds) A1 is displayed to PV dept., 0 to SV dept.



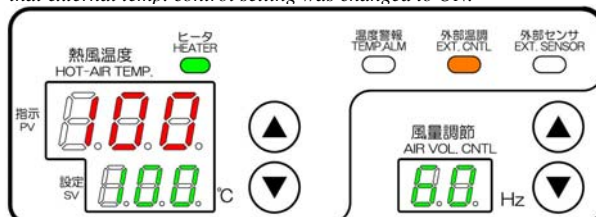
②Please push the mode key 1 time once again. SSC is displayed to PV dept., OFF to SV dept.



③Please change OFF of SV dept. to ON by the up key. After setting, please return to the display of usually operation condition by pushing the MODE switch 2 times. (OFF is ineffective.)



④Please start hot-air operation. EXT. CNTL lamp (Orange) is lighted irrespective of the input of the external temp. control in the case that external temp. control setting was changed to ON.

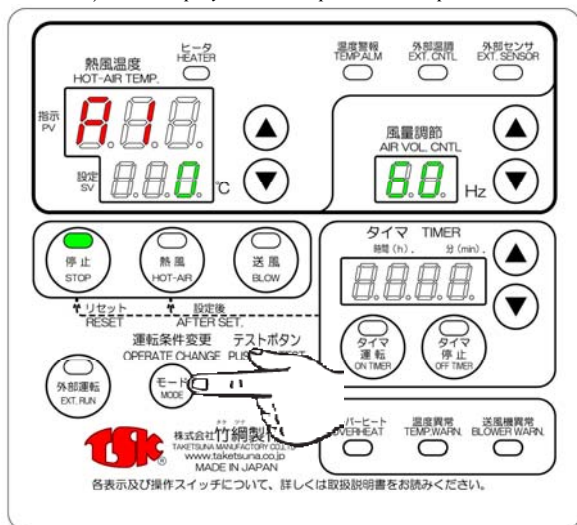


※Please input SSR drive reverse action output (DC12 - 24V) to external temp. control input terminal E.C+ and E.C- about the external temp. control input of TSK-18 - 33 and TSK-22H4 - 32H5, and to terminal A4-A5 about TSK-41 - 121 and TSK-52H6 - 82H10.

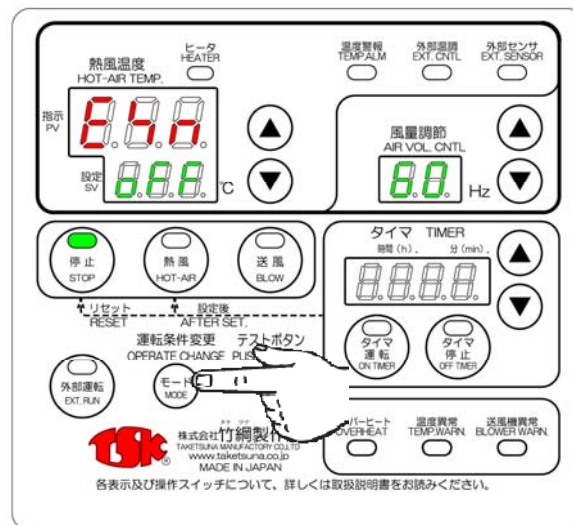
## 5. In the case that External sensor is used

●Temp. of the place that parted can be controlled by the external sensor. Please set up after the external sensor is connected to the external sensor input terminal of the service terminal.

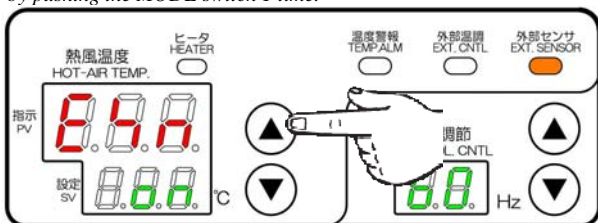
①Please continue to push MODE switch. (About 2 seconds) A1 is displayed to PV dept., 0 to SV dept.



②Please push the mode key 2 times once again. ESN is displayed to PV dept., OFF to SV dept.



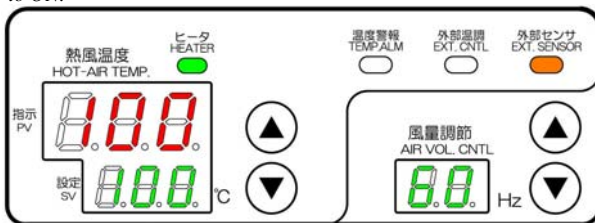
③Please change OFF of SV dept. to ON by the up key. After setting, please return to the display of usually operation condition by pushing the MODE switch 1 time.



※Please connect without mistaking the external sensor to external sensor input terminal E.S+ and E.S- about TSK-18 - 33 and TSK-22H4 - 32H5, and to terminal A6-A7 about TSK-41 - 121 and TSK-52H6 - 82H10.

※Barnout is operated and this machine can not operate in the case that the external sensor is set up in condition without the external sensor being connected.

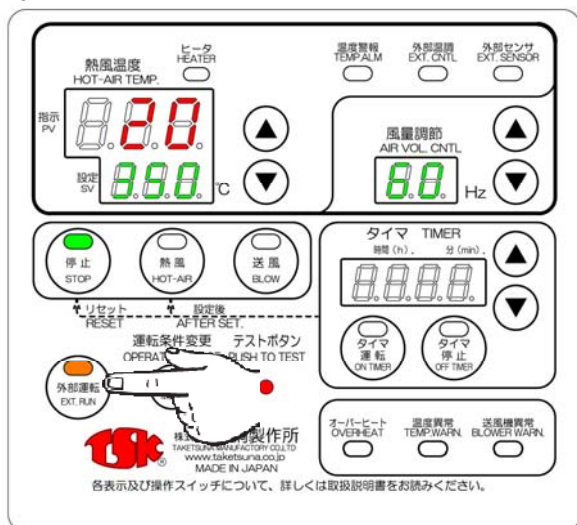
④Please start hot-air operation. EXT. SENSOR lamp (Orange) is lighted in the case that external sensor setting was changed to ON.



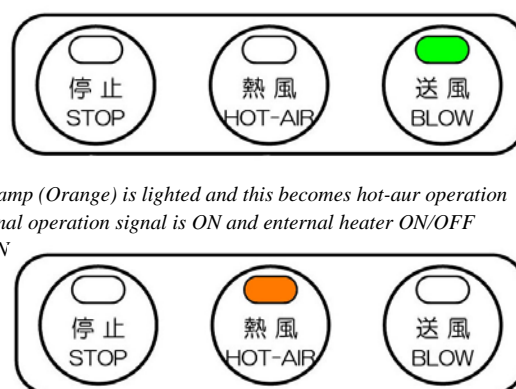
## 6. In the case that external operation is used

●Hot-air generator can to be operated and controlled ON/OFF of the heater by the signal from the outside.

①Please continue to push EXT. RUN switch in stoppage condition. (About 2 seconds) EXT. RUN lamp (Orange) is lighted.



②Please operate by the external operation signal. BLOW lamp (Green) is lighted and this becomes blow operation when external operation signal is ON and internal heater ON/OFF signal is ON.



HOT-AIR lamp (Orange) is lighted and this becomes hot-air operation when external operation signal is ON and internal heater ON/OFF signal is ON

※ Hot-air generator can not operate for 20 seconds when it is stopped by the external operation. (BLOW lamp or HOT-AIR lamp is flickering at the time of the waiting condition of operation, and it is operated once again 20 seconds later from stoppage.) Life of the relay of the inside becomes short when the external heater is turned ON/OFF frequently. So, the case, please use the external temp. control.

※HOT-AIR switch and BLOW switch are ineffective at the time of external operation mode. (No-control)

※Please push STOP switch for the reset of the external operation. And, the timer can not operate by the external operation.

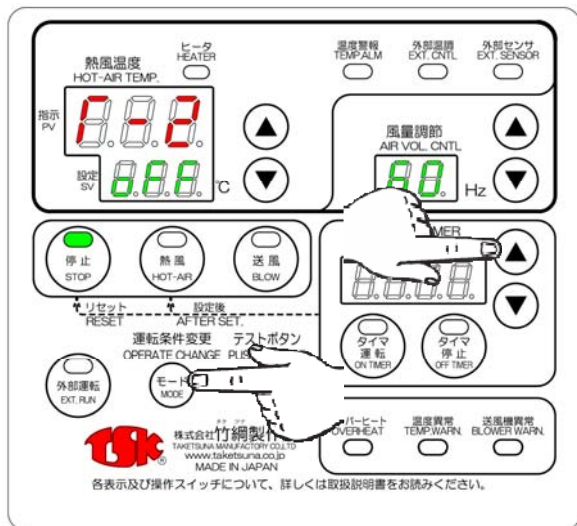
※Please input the unvoltage contact output (terminal voltage less than DC12V 2.5mA) to external operation terminal E.R and external heater ON/OFF terminal E.H about the external operation and external heater ON/OFF of TSK-18 - 33, and to terminal A1 and A2 about TSK-41 - 121.



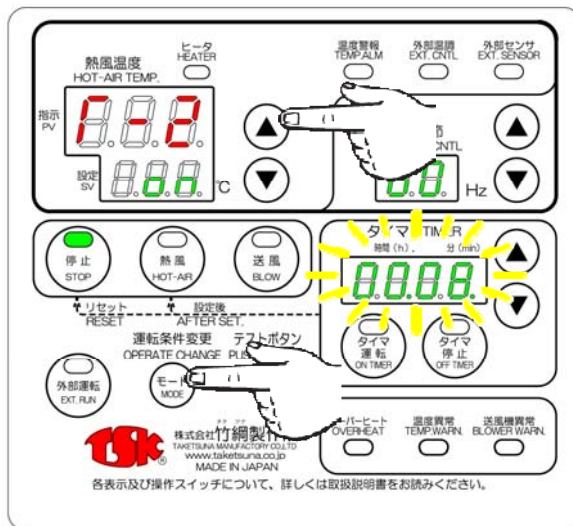
## 7. In the case that the cooling operation function is used

●Cooling operation function can be used in the case that the hot-air generator was selected the operation or stop by the timer.  
 Blow operation in the optional time is conducted after the hot-air operation by the timer was conducted, and operation is  
 ※Cooling operation of our hot-air generator is not necessary in order that the snapping of a wire of the heater is prevented because watt density is set up low. Please use this cooling operation function for burn prevention of piping after operation stop and cooling of the drying heating product after work.

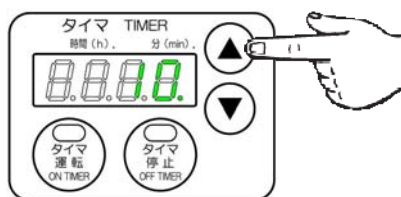
①Please continue to push the up key of timer while pushing the MODE switch in stoppage condition. T-2 is displayed to PV dept., OFF to SV dept.



②Please change SV to ON by the up key, and please push MODE switch 1 time. 00.00. is flickered to timer display dept.



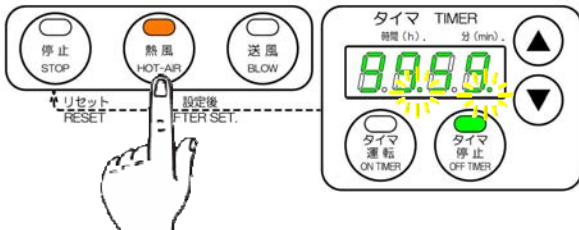
③Please set up optional cooling time by the up down key. After setting, please return to the display of usually operation condition by pushing the MODE switch 1 time.



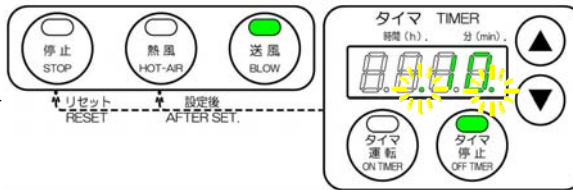
④Please push OFF TIMER switch and please set up hot-air operation time.



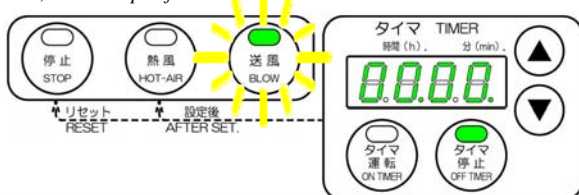
⑤Please push HOT-AIR switch. Time counting is started. (Dot display flickering) And, hot-air operation is conducted. HOT-AIR lamp (Orange) is lighted during hot-air operation




Cooling operation (Blow operation) by the timer is started after the hot-air operation is ended by the timer. And, BLOW Lamp (Green) is lighted during cooling operation.



Cooling operation is stopped when time counting became 00.00. And, Blow lamp is flickered.



※Timer operation is stopped by pushing STOP switch. (Timer setting time returns to the initial setting value.)



*Inquiry regarding the hot-air generator .....*

*Homepage*      ***[www.taketsuna.co.jp](http://www.taketsuna.co.jp)***

***or TAKETSUNA MANUFACTORY CO., LTD. Overseas dept. TEL +816-6785-6001***

*For the hot-air generator is used without malfunctioning*

◆Important matters that demand special attention that became the cause of malfunction that occurred in the past is entered. Please inquire with the use method of your company.

- *Please attach the demi-filter or CR-filter without fail to the suction side of the hot-air generator.*
- *Please clean always the filter that is used or wire net of the hot-air generator inlet. (Standard equipment) Heater inside is overheated by the clogging of the filter and the hot-air generator may can not operate.*
- *Hot-air generator malfunctions when these adhered to the controller inside of the hot-air generator in the case that dust, mine dust, floating objects that pass electricity of carbon fiber, oil, lampblack, oil mist, moisture, and vapor is included to the atmosphere of the setting place of the hot-air generator.*
- *Hot-air generator can not use in corrosiveness of combustibility gas, inflammability gas, plating, and atmosphere. Please consult us in the advance.*
- *Please turn ON the breaker (NFB) of the hot-air generator constantly. Please do not turn ON/OFF as the operation switch. Electron devices of the inside are damaged by serge voltage.*
- *Leakage of the hot-air is ocured without fail on the characteristic of the flexible hose in the case of the piping by the flexible hose to the outlet and inlet of hot-air generator. Electron devices inside the operation panel are damaged by the hot-air of the high temp. that leaked flows backward to the hot-air generator inside. So, please execute the glass tape for the air leakage prevention that was enclosed to the outlet and inlet.*
- *Input terminal A1-A10 and output terminal B8-B10 is malfunctioned by the voltage is applied. And, output terminal B1-B7 is malfunctioned by the voltage more than the rating is applied.*
- *Please do not unite or wire that was adjoined the wiring of the service terminal with the power supply line, high tone wave line. Electron devices of the inside are damaged by noise.*
- *Please do not stopped the hot-air generator with the electromagnet contact device that was established to the first side of the hot-air generator. Electron devices of the inside are damaged by serge voltage .*
- *The thunder serge that occurred by falling of a thunderbolt becomes a cause to the wrong action, damage, and fire accident of the hot-air generator. Please attach the arrester without fail and please perform the falling of a thunderbolt measure in the case that the hot-air generator is used in the place where receives the influence of falling of a thunderbolt.*
- *Please use the commercial power supply (50/60Hz) that has the sine wave-like to the power supply of the hot-air generator. Please do not use the power supply that has the distortion wave including a high tone wave from the frequency transformation device absolutely. Electron devices of the inside are damaged by high tone wave and noise.*